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# **Reduction in drying time of taro using pretreatments or posttreatment with hot air drying**

A thesis

submitted in fulfilment

of the requirements for the degree of

**Master of Engineering in Chemical and Biological Engineering**

at

**The University of Waikato**

by

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## ABSTRACT

Taro is a widely cultivated crop, primarily grown for its corm, which serves as a staple food worldwide. However, due to its high moisture content, taro is highly perishable, with an unprocessed shelf life of only 15 to 20 days. Drying has been employed as a method for extending shelf life by reducing moisture content to levels that inhibit microbial growth and prevent moisture-induced deteriorative biochemical reactions.

Convective hot air drying (HAD) is the most commonly used method for food drying, but it is associated with prolonged drying times and high energy consumption. This research aimed to reduce the drying time of taro by using pretreatments and posttreatments with hot air drying. HAD without pre- or posttreatments was used as a control, and drying times were compared across four pretreatment methods (microwave, blanching, ultrasonication, and osmotic dehydration) and one posttreatment method (microwave).

The results indicated that microwave post-treatment after 1 hour of hot air drying at 50°C reduced total drying time by 85% compared to the control. Similarly, microwave post-treatment after 1 hour of hot air drying at 70°C reduced drying time by 75% when moisture content decreased from 2.4 (dry basis) to 1.3 (dry basis). In contrast, blanching and osmotic dehydration pretreatments at 50°C worsened drying efficiency, increasing drying time relative to the control. Microwave pretreatments at 50°C resulted in slight reductions in drying time compared to the control.

Additionally, peeling the skin before drying reduced total drying time by approximately 36% compared to skin-on samples. However, slicing was necessary, as whole peeled samples required longer drying times than sliced ones.

Taro, sliced to 8 mm thickness, dried with hot air at 70°C for 1 hour, followed by 20 minutes of microwave post-treatment, reaches 0.10 (dry basis), which is the required final moisture content for taro flour production, and is suitable for industrial scale implementation.

Further research is required to assess the energy consumption of microwave post-treatment and hot air drying to determine their economic and sustainable feasibility. Quantifying energy requirements is essential for balancing efficiency with cost-effectiveness.

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Finally, to my mother, Pushpa, thank you for your boundless love and support over the years. Your warm words and radiant smiles have uplifted me, making every challenge more bearable and every success more meaningful.

## **STATEMENT ON GENERATIVE AI USAGE**

At no point in the writing of this thesis or in conducting the experiments was any generative AI used.

## DECLARATION OF AUTHORSHIP

I declare that this thesis was produced as the sole author, and the work contained within is based on my own research. It contains no material previously published or written by another person.



Shiva Subramani Thamarai Selvan

30/05/2025

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# 1. INTRODUCTION

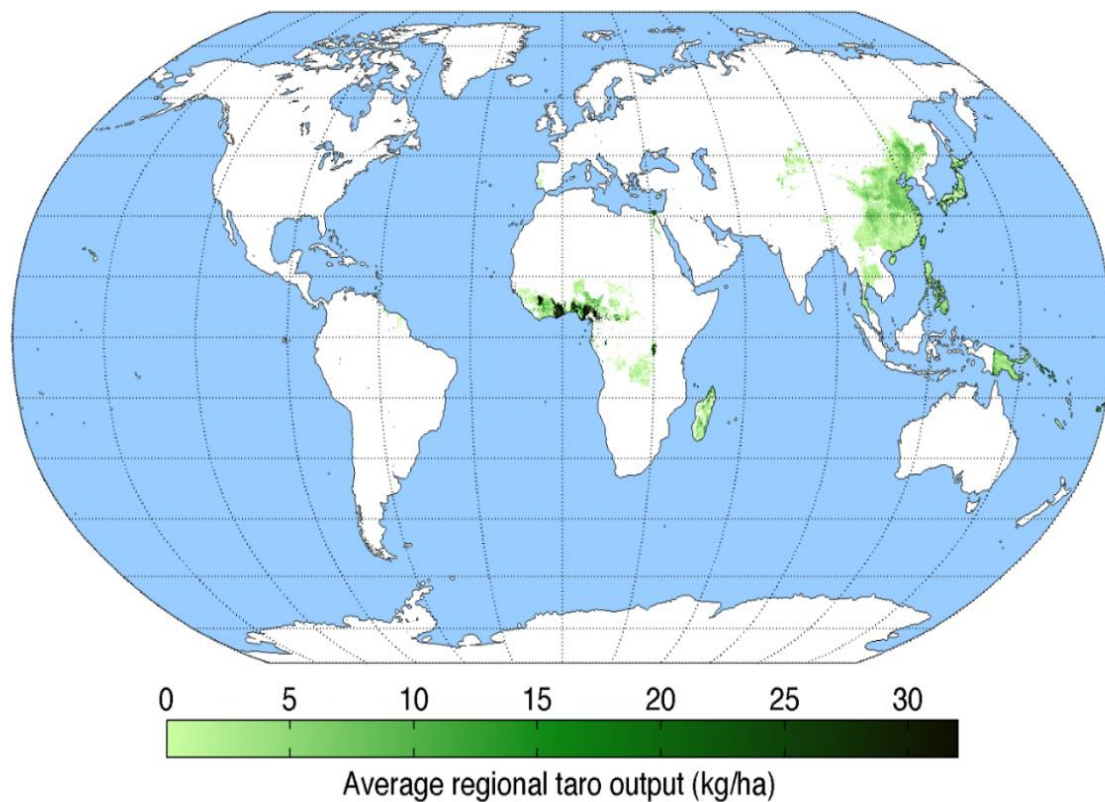
## 1.1. Research background

Taro (*Colocasia esculenta* (L.) Schott) is a major crop cultivated in the tropical and subtropical regions of the world (Figure 1.1) (FAO, 2008). Taro is known by several other names in different parts of the world such as eddoe, cocoyam, dasheen or tannia (Dilek & Bilgicli, 2021). It grows well at a temperature ranging between 21°C and 27°C in a humid environment with annual rainfall of 1000 mm, in slightly acidic soil (pH between 5.5 and 5.6) (Temesgen & Retta, 2015). Taro had starch content of 70 - 80 g/100 g dry matter (Sugimoto et al., 1986) that is highly digestible in the human gastrointestinal tract (Sefa-Dedeh & Sackey, 2002) and is rich in gums (mucilage) (up to 9.1%) (Hong & Nip, 1990). Taro also contains fibre (0.6 - 0.8 g/100 g dry matter), protein (2–6 g/100 g dry matter), vitamins, phosphorus and calcium (Sefa-Dedeh & Agyr-Sackey, 2004).



**Figure 1.1** A raw cut fresh Taro corm (Picture taken from author Namazu-Tron from Wikipedia)

Taro is primarily grown for its corm which is consumed as staple food worldwide. They are used in the preparation of soups, purees, sauces, stews (Gouveia et al., 2018; Ribeiro et al., 2020) besides usage as animal feed (Vanhanen et al., 2013; Bambang et al., 2021). Corms are the most often consumed portion of the taro plant and are formed underground when the base of the stem becomes thicker (Şen et al., 2001). The world's average production of taro is about 6.2 tons/ha (FAO, 2008). It is grown in 43 countries in the world and 60% of total production is in Africa, 32% Asia and 8% in Pacific Islands (Şen et al., 2001) (Figure 1.2).



**Figure 1.2** Taro growing countries (Picture taken from Author Andrew MT from Wikipedia).

Taro is a significant source of carbohydrates which serves as the cheapest dietary energy source. (Simsek et al., 2015). The moisture content of fresh taro corm is high (63.6%–72.4%) (Huang et al., 2007). Previous studies showed that high moisture content creates favourable conditions for the growth of bacteria, Mold, and yeast in root and tuber crops such as cassava (Chukwu & Abdullahi, 2015). This is a major challenge for the taro storability since it causes a short shelf life. The shelf life may be extended if the moisture content, and hence water activity, is reduced by drying.

## **1.2. Drying**

Drying is an important technology in modern food engineering and is a suitable method for taro processing (Çalışkan et al., 2020; Wei et al., 2019). It is one of the most well-known methods of food preservation. It reduces the deterioration of food products and leads the perishable produce to be stable by removing a significant amount of moisture and retard microbiological and chemical activity of the product (Hatamipour et al., 2007).

Dried taro slices, not only retain the original nutrients of taro, but also facilitate storage and transportation. It can be obtained by different drying methods. Hot air drying (HAD), which has some advantages including easy operation and low equipment investment, is the traditional drying method for the dehydration of taro slices (Xu et al., 2021, Yang et al., 2022).

Other methods that have been used for industrial drying of food products, including Microwave drying (Wei et al., 2019), Freeze drying (Hnin et al., 2019; Walters et al., 2014), Infrared radiation drying (Hnin et al., 2019), Spray drying (Setiarto et al., 2020), Sun and electric oven drying (Himeda et al., 2014), Infrared-assisted spouted bed drying (Zhao and Yu, 2024), Solar tunnel drying (Molla et al., 2023) and Contact ultrasound enhanced far-infrared radiation drying (Liu et al., 2015).

## **1.3. Research aims and approach**

Hot air drying is a time-intensive and high energy consumption process. By applying pretreatment and post treatment it may be possible to decrease the drying time for taro. These treatments help reduce moisture content and extend taro's shelf life. This study aimed to reduce the drying time by accelerating the drying rate of taro using pre-treatments or post-treatments in combination with hot air drying.

The specific objectives of the study were:

1. To investigate how drying temperature, slice thickness and air velocity affect drying rate over time for taro.
2. To test the effects of various pre-treatment and post-treatment on the drying rate over time for taro and compare with hot air drying alone.

## 2. LITERATURE REVIEW

### 2.1. Characteristics of Taro

#### 2.1.1. Taro crop

Taro is a preferred root crop for hill farming systems due to its adaptability to diverse climatic and edaphic conditions (Indrani et al., 2021). Freshly harvested taro crop is highly perishable, with a moisture content of up to 83% on a wet basis (WB), depending on the variety (Onwueme, 1999). Additionally, demand for taro and taro-based products is increasing rapidly, and they are frequently found in supermarkets as a staple food (Kaushal et al., 2012).

#### 2.1.2. Taro corm

Taro corms are a major source of carbohydrates, providing essential energy, and are widely consumed as staple foods around the world (Macharia et al., 2014). The chemical composition of taro corms is presented in Table 1 (Kaushal et al., 2015; Onwueme, 1999).

**Table 1.** Chemical composition of taro corm

Moisture (63%–85%)	Starches (13%–29%)
Proteins (1.4%–3.0%)	Ash (0.60%–1.3%)
Dietary fibres (0.60%–1.18%)	

Due to their high nutritional value, taro corms have gained significant attention from researchers in recent years. They are consumed in various forms, including flour, paste, canned products, cereal bars, beverages, powders, and chips (FAO, 2008). Additionally, taro corms serve as a biodegradable material in the plastic industry (Darkwa & Darkwa, 2013). Although taro corms can be consumed in multiple ways, their high moisture content limits consumption (Agbor-Egbe et al., 1991).

### 2.1.3. Taro leaves

Taro leaves are heart-shaped and may feature lines, blotches, or spots with varied pigmentation. Their colour ranges from light green to dark purple, depending on the genotype (Figure 2.1). The peltate structure at the centre separates taro from *Xanthosoma sagittifolium*. Leaf size varies based on maturation and environmental factors (Kapoor et al., 2022).



**Figure 2.1** Taro leaves (Photograph sourced from author Wildfeuer in Wikipedia)

Taro leaves are an excellent source of nutritional content which includes proteins, peptides, essential amino acids, calcium, iron, phosphorus, and zinc (Kaensombath & Lindberg, 2012). Their acrid taste is due to the presence of needle-like calcium oxalate crystals (raphides), which can cause itching and swelling of the lips, mouth, and throat when consumed raw (Vanhanen et al., 2013; Kristl et al., 2021; Kaushal et al., 2015).

Taro leaf blight, caused by *Phytophthora Colocasia Racib*, is a significant fungal disease affecting taro crops, leading to severe yield losses and, in extreme cases, total crop failure. The disease primarily spreads through airborne spores and water splashes, thriving in warm, humid conditions (Indrani et al., 2021).

## **2.2. Limited shelf life of unprocessed taro**

Unprocessed taro has a shelf life of only 15 to 20 days. Various processing methods have been documented for the extended use of taro and its products (Lebot, 2019). Approximately one-third of the total taro corm production is lost after harvesting due to inefficient processing techniques, microbial degradation, and free respiration. In fact, estimates suggest an average loss of 30% during storage, and addressing this issue could help mitigate starvation in non-developing countries (Agbor-Egbe, 1991).

Drying plays a significant role in removing moisture content level from food products, thereby improving its quality and reducing its drying time. This reduction is vital for minimizing spoilage caused by microorganisms (Jomlapelatikul et al., 2016). As a result, due to its high moisture content and perishability, implementing effective drying methods is essential for extending the shelf life of taro.

## **2.3. Hot air drying**

The primary objective of drying is to reduce the moisture content to a specific level (Mondal et al., 2019) to inhibit microbial growth and reproduction, minimise moisture-induced deteriorative biochemical reactions, and lower costs associated with packaging, transportation, storage, and processing. As a result, drying helps reduce postharvest losses and extend the shelf life of food products (Mujumdar, 2006). Convective hot air drying (HAD) is the most widely used drying method for food products (Onwude et al., 2016a) employed in both commercial and industrial drying (An et al., 2016; Deghannya et al., 2018; Unal and Sacilik, 2011).

HAD allows for controlled drying during the process (Pangavhane & Sawhney, 2002). The process involves stacks or multiple stacks of trays placed in a large, insulated chamber equipped with customised fans and guide vanes to circulate hot air. Consistent distribution of hot airflow throughout the trays is critical for successful drying (Mujumdar, 1995). The hot air flows at a controlled velocity with temperatures typically ranging from 50°C to 80°C. This drying method is well-suited for processing large product volumes and is valued for its ability to enhance product quality while remaining cost-effective and reliable (Marinos-Kouris et al., 1998).

## **2.4. Factors affecting convective drying rates**

### **2.4.1. Heat and mass transfer**

Drying is a simultaneous heat and mass transfer process, where moisture diffuses from the interior to the exterior due to a water vapor pressure difference (Chakraverty & Singh., 2014). Mass transfer involves the movement of moisture from a high-concentration region (inside the material) to a low-concentration region (the surrounding air) until equilibrium is achieved.

The kinetics of mass transfer depend on the operational control of temperature, relative humidity, and drying air flow rate, as well as the shape and thickness of the product. Temperature difference acts as the driving force for heat transfer, facilitating the interchange of thermal energy from high-concentration to low-concentration regions in physical systems. Heat transfer occurs through three primary modes: conduction, convection, and radiation (Iqbal et al., 2019).

According to Jomlapeatikul et al., (2016), fruits and vegetables should not be dried at temperatures exceeding 75°C as it can lead to case hardening – a phenomenon where the outer surface of food product hardens, retaining internal moisture and preventing effective drying. Therefore, maintaining an appropriate drying temperature is essential for ensuring an efficient drying process.

### **2.4.2. Temperature, Humidity and Air Velocity**

Drying temperature, air velocity, and material thickness are key factors that significantly influence the kinetics and quality of dried fruits and vegetables (Xu et al., 2019; Santacatalina et al., 2016; Cuevas et al., 2019). In convection drying, temperature, relative humidity and velocity of drying air all significantly influence drying kinetics and quality of the food product (Kaya et. al, 2007; Velić et. al, 2004).

Humidity plays a crucial role as a drying medium parameter, affecting both heat and mass transfer during the drying process. Relative Humidity (RH) is commonly used to characterise the moisture content of the drying medium under constant drying temperature and atmospheric pressure (Zu & Qin., 2021).

## **2.5. Pre drying and post drying treatments**

### **2.5.1. Importance of pretreatments and posttreatments**

Conventional hot air dryers offer several advantages; however, they also have notable drawbacks, including prolonged drying times, high energy consumption, and changes in physicochemical properties (Dereje & Abera, 2020.; Nyangena et al., 2019; Wei et al., 2019; Dehghannya et al., 2018). To enhance drying efficiency and reduce drying time, pretreatment and posttreatment methods can be applied with hot air drying. These treatments effectively deactivate enzymes, facilitate moisture removal, and increase drying efficiency (Aral & Bese, 2016; Deng et al., 2019; de Jesus Junqueira et al., 2017). Given these benefits, there is a great need for research on pretreatment or posttreatment methods in combination with hot air drying for taro, as they could significantly reduce the drying time of taro samples compared to hot air drying alone.

### **2.5.2. Microwave pretreatment**

Microwave drying has been widely used due to its rapid dehydration rate, (Soysal et al., 2006) lower energy consumption, and improved product quality (Sanga et al., 2000). It generates oscillating electric fields that produce heat within both surface and internal materials. When applied to moist substances, the energy is absorbed by the dielectric properties of water and converted into heat throughout the material's volume. This rapid heating accelerates evaporation during the drying process (Gaukel et al., 2017).

To overcome the limitations of extended drying times and high energy consumption associated with hot air drying, combining microwave energy with convective air drying presents an effective solution (Andrés et al., 2004; Funebo & Ohlsson, 1998; Maskan, 2000, 2001; Sharma & Prasad, 2001). In this process, hot air drying removes free water from the product's surface, while microwave energy penetrates the material, generating vapor pressure that drives moisture toward the surface for efficient removal. Consequently, the two-stage drying technique can significantly reduce drying time (Varith et al., 2007). Moreover, applying high-power microwaves can further accelerate the overall drying process (Zhanga et al., 2006).

### **2.5.3. Hot water blanching pretreatment**

Blanching is a thermal process that rapidly heats food to a predetermined temperature for a specific period, followed by either cooling or immediate transfer to subsequent treatment. This process inactivates enzymes responsible for quality deterioration during storage (Kapadiya et al., 2018). Additionally, blanching enhances drying efficiency and dehydration rates by altering the physical properties of food products, thereby improving their quality attributes. These quality improvements result from increased cell membrane permeability, which accelerates moisture removal (Severini et al., 2005).

Blanching is typically performed using hot water (Fellows, 1990). It reduces resistance to moisture diffusion by causing cell wall destruction and structural softening of food products (Deng et al., 2019). It serves as a pre-drying treatment for vegetables and fruits (Wang et al., 2018; Adedeji et al., 2008), expelling air from intercellular spaces and facilitating moisture transfer during drying process (Wang et al., 2018). The blanching temperature and duration are critical factors in minimising the processing time of food products (Kapadiya et al., 2018).

### **2.5.4. Ultrasonic pretreatment**

Ultrasonication is a sustainable and environmentally friendly food processing technology (Astráin-Redín et al., 2021). This method has been shown to effectively enhance water loss and improve product quality during the drying of fruits and vegetables (Amami et al., 2017; Fei et al., 2018). Ultrasound consists of acoustic waves with frequencies ranging from 20 kHz to 100 MHz, capable of travelling through solid, liquid, and gaseous media. As ultrasound propagates through a medium, it influences both internal and external resistances, potentially accelerating mass transfer (Yao, 2016).

It produces alternating sequences of compression and expansion, increasing the number of microscopic channels within the material and enhancing mass transfer (Xin et al., 2013). Furthermore, ultrasonic waves induce cavitation, forming bubbles within the liquid that explosively collapse, generating localized pressure that aids in the removal of tightly bound moisture (Fernandes et al., 2008). Ultrasonic pretreatment is an effective technique that can be applied before hot air drying to improve the drying efficiency of fruits and vegetables (Allahdad et al., 2019; Salehi et al., 2023).

### **2.5.5. Osmotic dehydration pretreatment**

Osmotic dehydration (OD) is a widely used drying method that does not require heat treatment (Haq et al., 2018). It is a counter-current mass transfer process in which solutes diffuse into the food while moisture is extracted from its interior into a hypertonic solution. (Phisut, 2012). This method effectively reduces the water content in cell tissues soaked in hypertonic solutions. Typically, salt and sugar serve as osmotic agents for fruits and vegetables (Yadav & Singh, 2014). The interaction between water and solute promotes moisture removal from food products, and OD functions efficiently even at ambient temperature (Kaymak-Ertekin & Sultanoglu, 2000). The advantages of osmotic dehydration include reduced drying time and improved product quality of food products. Osmotic Dehydration is commonly used as a pretreatment before hot air drying to enhance product quality, reduce energy consumption, and shorten drying time (Veloso et al., 2021).

### **2.5.6. Microwave posttreatment**

Convection air drying typically requires two-thirds of the total drying time to remove the final one-third of the water present in food products. Incorporating microwave treatment at the end of the hot air-drying process enhances efficiency by generating internal heat, addressing the limitations of conventional hot air drying. Additionally, the convection drying process can be accelerated, thereby increasing the throughput of the dryer while presenting the dryer with a wetter load, thus increasing the efficiency (Bhandari, 2015). The combination of hot air drying and microwave post-treatment enables precise control of terminal moisture levels while minimising the risk of over-drying. This integrated approach enhances the drying efficiency, resulting in a higher drying rate with reduced processing time (Bhandari, 2015).

## **2.6. Previous studies on taro**

A number of previous studies have investigated taro drying (Zhao and Yu, 2024; Molla et al., 2023; Nipa et al., 2021; Kumar et al., 2017 and Himeda et al., 2014). However, none of these previous studies considered the use of pretreatments or posttreatment in combination with hot air drying to reduce the drying time for taro.

## 2.7. Summary

Hot air drying is a widely used method for extending the shelf life of fruits and vegetables. While it offers several benefits, it also has drawbacks, including prolonged drying durations and high energy consumption. To address these limitations, pretreatment and posttreatment methods in combination with hot air drying are essential for reducing drying time and increasing the drying rate of taro.

Despite the potential advantages, no studies have investigated the combined use of pretreatments and posttreatments with hot air drying to enhance the drying efficiency of taro. This gap highlights the need for further research.

Therefore, this study will employ hot air drying as the control method. Additionally, it will evaluate the effectiveness of selected pretreatment and posttreatment methods, as outlined in this chapter, in increasing the drying rate by the reducing drying time of taro samples compared to hot air drying alone.

The specific objectives of the study were:

1. To investigate the effects of drying temperature, slice thickness and air velocity on drying rate over time for taro.
2. To evaluate the influence of microwave, hot water blanching, ultrasonication, osmotic dehydration as pre-treatment methods and microwave post-treatment on drying rate over time and compare their effects with hot air drying alone.

### 3. METHODS

#### 3.1. Physical characteristics

Taro was purchased from a local market in Hamilton, New Zealand with an average mass of approximately 650g. Precise weight measurements were obtained using a balance with a precision of  $\pm 1$ g. The initial mass of the taro samples was at least 500g in order to ensure that the mass measurement precision was less than 1% of the mass. The taro samples were stored in a refrigerator prior to all the trials.

To minimize variations in initial moisture content, each sample was removed from refrigeration at least two hours before the start of an experiment, allowing it to equilibrate to ambient temperature. Before the drying process, the taro was completely washed and sliced to the selected slice thickness. A balance and ruler were used to measure its weight and diameter, accounting for natural variations in the diameter and length of individual taro samples.

#### 3.2. Drying kinetics

The dry basis moisture content, defined by Eq. (1) was used rather than the wet basis moisture content:

$$X = \frac{M_w}{M_s} \quad (1)$$

where  $X$  is the moisture content in a dry basis (d.b.),  $M_w$  is the mass of water in the sample (kg), and  $M_s$  is the mass of solids in the sample (kg).

The drying rate ( $\Delta X/\Delta t$ ) is defined as the change in moisture content with respect to time (Eq. 2) that was used to characterise the drying process:

$$\frac{\Delta X}{\Delta t} = \frac{X_t - X_{t+\Delta t}}{\Delta t} \quad (2)$$

where  $X_t$  and  $X_{t+\Delta t}$  (g moisture/g dry matter) are the dry-basis moisture contents at time  $t$  and  $t+\Delta t$ , respectively.

### 3.2.1. Initial moisture content determination

Due to the variation in taro's moisture content at the time of purchase, determining its initial moisture content was essential to ensure consistent drying process analysis. The initial moisture content was needed to provide an absolute moisture content measurement, since all the other measurements are relative. It directly influences both the drying rate and drying time. The standard procedure for initial moisture content determination is as follows,

1. The initial mass of taro samples was recorded using a balance.
2. The taro samples were placed in an oven at 105°C for approximately 24 hours, or until their mass remained constant. This temperature is sufficient to break hydrogen bonds and therefore achieve complete removal of water.
3. The dried taro samples were weighed, then returned to the oven for further drying.
4. The mass of the taro samples was continuously monitored until equilibrium (final mass) was reached.
5. The moisture content (dry basis) of the taro was determined using Equation (1).

### 3.3. Experimental design

Figure 3.1 presents the experimental design of this study. The effects of four pretreatments and one posttreatment, each combined with hot air drying, were studied. Raw taro that underwent hot air drying without any pretreatment or posttreatment served as the control for comparison.

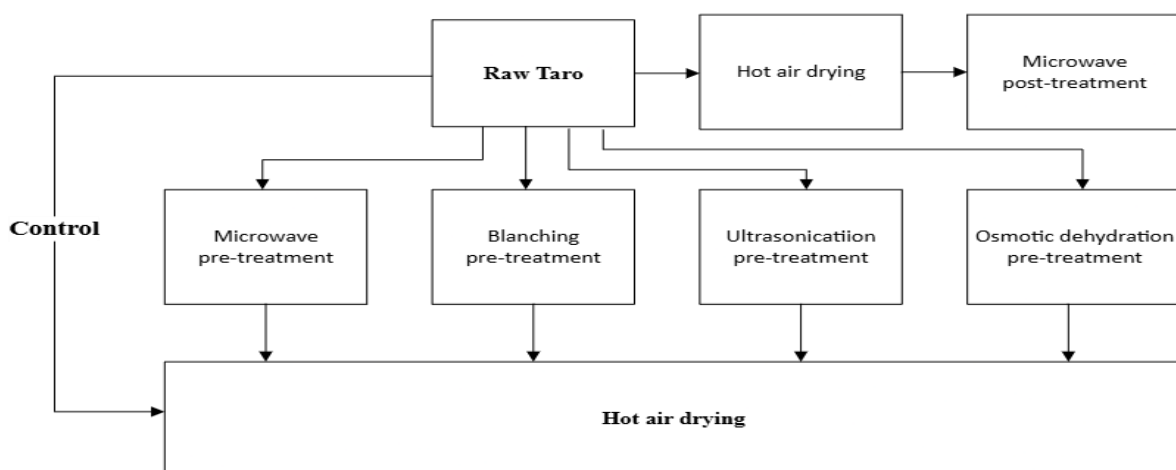


Figure 3.1 Experimental design in flowchart

### 3.4. Equipment and Methods

#### 3.4.1. Hot air dryer

This study used a ‘GUNT CE130’ hot air convective dryer (Figure 3.2) to measure the drying rate of taro. For each trial, taro was placed on a tray in the dryer. A digital balance was used to measure the changes in the mass of the taro during the drying process. The temperature, velocity and relative humidity of the air were measured and displayed digitally. The measured parameters were logged by a PC, where they could then be further processed.

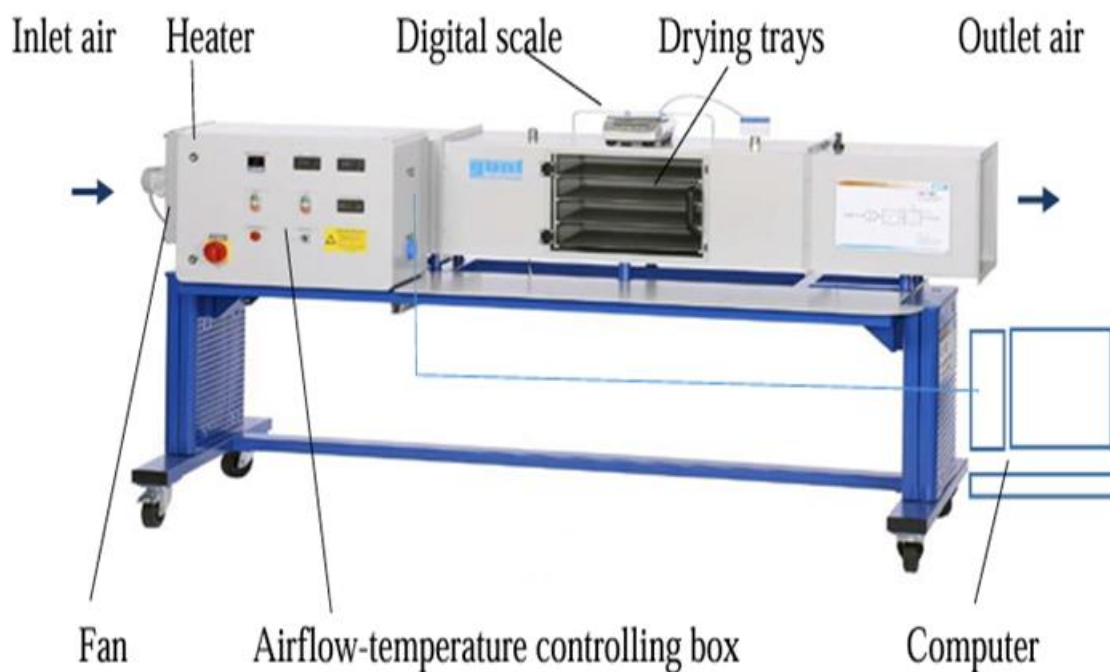


Figure 3.2 GUNT CE130 Convection Dryer appearance

The dryer was set to the desired temperature and air velocity for 30 minutes before the start of every experiment so that steady-state conditions were achieved. The mass of the taro samples was recorded every 10 minutes during hot air drying. In each drying batch, an average mass of taro of about 430g was distributed evenly over one tray in a single layer. The hot air dryer had a maximum operating temperature of 70°C.

### 3.4.2. Oven drying

The Contherm digital series oven (Figure 3.3) was set to a temperature of 105°C. This oven was used when the drying process were conducted at 105°C (both for drying trials and initial moisture content measurement). A balance was used to manually record the mass of the taro samples.



Figure 3.3 Contherm digital series oven appearance

### 3.4.3. Microwave drying

A Sharp Carousel microwave (Figure 3.4) was used for both microwave pretreatment and posttreatment. The device operates at a frequency of 2450 MHz (megahertz) and has an output power of 800 W (Watts). There are five different levels of power settings in the microwave which includes low, medium low, medium, medium high, and high power.



**Figure 3.4** Sharp Carousel microwave appearance

Before applying microwave pre- or posttreatment, taro was cleaned and cut to the selected slice thickness. It was positioned on the microwave dish, and to avoid an unequal distribution of heat, taro slices were not placed close to or on top of one another. A mass balance was used to measure the weight of each sample before it was placed in the microwave. To continue the drying process, taro samples was transferred from the microwave to the hot air dryer tray.

For the microwave posttreatment process, similar steps were followed, however, the taro samples was removed from the microwave once per minute to manually measure its mass using a balance before being returned for further treatment.

#### 3.4.4. Hot water blanching pretreatment

Taro was blanched in hot water at 85°C. Taro was positioned such that it was completely submerged in the water inside the insulated jug. To prevent the temperature from decreasing significantly, the insulated jug's top was covered with a wooden panel and the temperature was measured using a thermocouple.

#### 3.4.5. Ultrasonication pretreatment

A Struers Metason 200 HT Ultrasonicator (Figure 3.5) was used for ultrasonic pretreatment.



Figure 3.5 Struers Metason Ultrasonicator appearance

To prevent the taro samples from floating, a netted mesh was placed inside the ultrasonicator. Following the procedure, taro was removed from the ultrasonic bath and was dabbed using paper towels to remove surface water. Taro was then put in the tray and placed inside the dryer for hot air drying. A mass balance was used to measure the initial weight of the taro.

#### **3.4.6. Osmotic dehydration pretreatment**

A container was filled with two litres of water to which 720g (saturation concentration) of sodium chloride (NaCl) was added. The NaCl was completely mixed with water. Taro was put into the tray for the osmotic dehydration treatment for different lengths of time. To ensure the taro samples was completely submerged, a piece of a strong wooden plate was placed on top of it. Following the procedure, paper towels were used to wipe the taro's surface water and was placed in the hot air dryer for further drying process.

#### **3.4.7. Skin vs skinless trial**

This investigation was intended to evaluate the effects of taro's outer layer (skin) on the drying rate and drying time. Taro samples were divided into two groups: one with the skin intact and the other peeled. Each sample was dried in the oven set to 105°C. However, it was not possible to obtain taro with identical shape and mass, as individual taro naturally varied in size and weight. Therefore, in some trials, the mass of the unpeeled taro was greater than that of the peeled samples, and vice versa in other trials. The mass of the taro was manually monitored using a balance for every 10 minutes for more than seven hours in the oven. The drying behaviour of both groups was analysed to assess the extent to which the presence of skin acted as a barrier to, moisture evaporation.

## **4. ANALYSIS OF THE INFLUENCE OF PRE- AND POST-TREATMENTS ON DRYING RATE**

### **4.1. Introduction**

Chapter 3 outlined the methodologies employed in this study, while this chapter presents the drying rate analysis for treatments applied either before or after hot air drying to assess whether they increased the drying rate of taro samples compared to hot air drying alone. The Appendix contains raw measurement data collected during the experimentation.

### **4.2. Hot air drying**

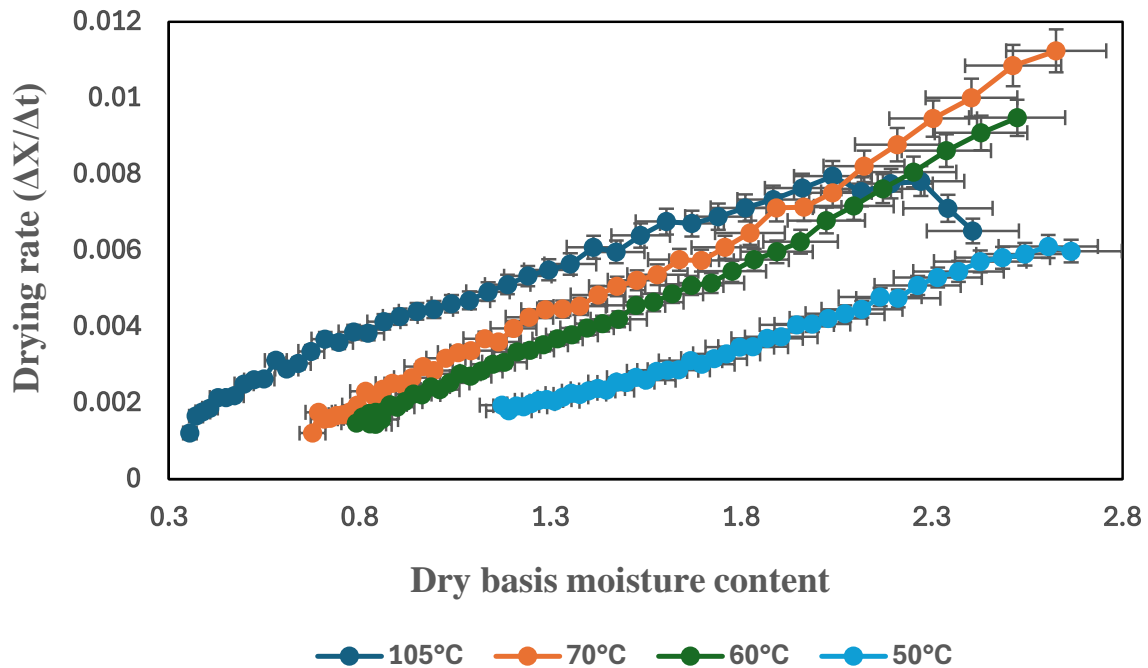
Hot air drying was used as a control method to compare the effects of various pretreatments and posttreatment methods against. The first set of experiments investigated how selected drying parameters including air temperature, taro slice thickness and air velocity affected the drying rate. From these trials the temperature, slice thickness and air velocity to be used in subsequent trials with pre- and post- treatments was selected.

All the experiments were conducted over a period of at least 7 hours. Three replicates were performed for each set of experimental conditions and the average of three replicates were used when presenting results. The raw measurement data for hot air drying can be found in Appendix (A1–A19) and (Figure 10.1 to Figure 10.19).

#### **4.2.1. Effects of temperature**

Figure 4.1 presented a graph of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content for taro samples at four drying temperatures: 105°C, 70°C, 60°C and 50°C. An air velocity of 1 m/s and a slice thickness of 8 mm were applied for all trials. Since taro samples naturally contain varying initial moisture levels, the drying rate vs dry basis moisture content graph provides a more suitable basis for comparison than other methods that require similar initial moisture contents.

In all the drying rate vs moisture content figures in this chapter, the average drying rate from three was calculated using the averaging tool in Excel and plotted for analysis. The graph includes error bars that are calculated from the standard deviation of the three replicates as a percentage of the mean value. This is how the error bars are calculated in all the graphs.

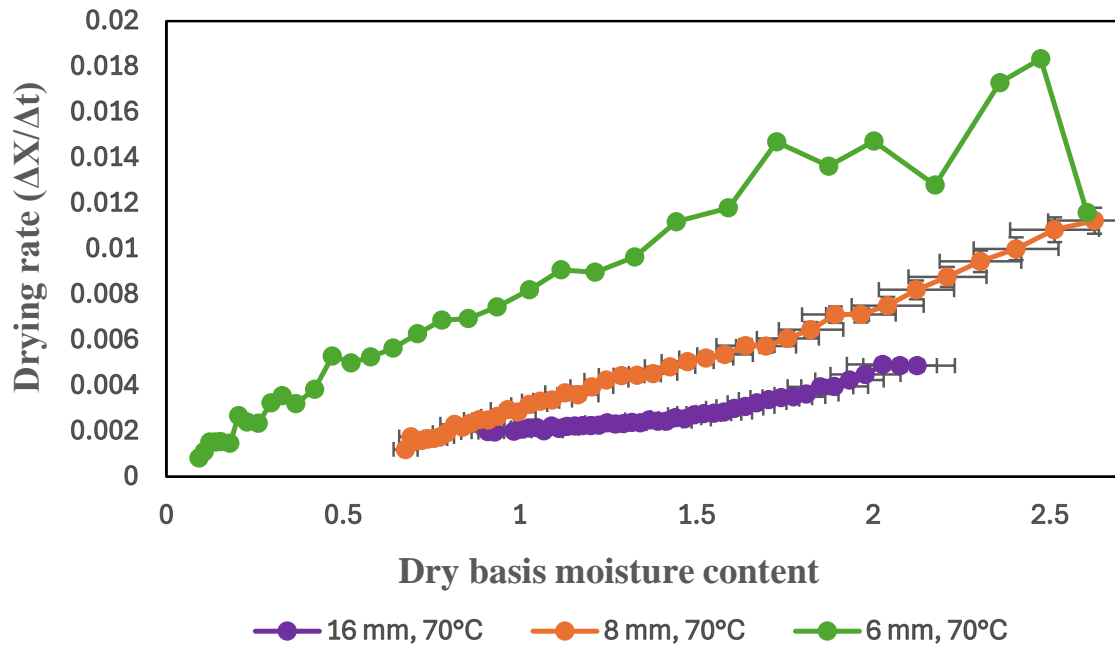


**Figure 4.1** Comparison of different temperatures

Since the maximum temperature of the GUNT Convection dryer is limited to 70°C (Chapter 3), trials at 105°C were conducted in the Contherm oven. The drying rate graph illustrates linear-falling rate periods. As expected, drying trials at 50°C exhibited the lowest drying rate, whereas 105°C recorded the highest drying rate among all tested temperatures.

#### 4.2.2. Effects of slice thickness

Figure 4.2 illustrated the drying rate ( $\Delta X/\Delta t$ ) vs dry basis moisture content for taro samples with slice thicknesses of 16 mm, 8 mm and 6 mm at a temperature of 70°C with an air velocity of 1 m/s. Taro's slices were cut using a kitchen knife; however, achieving uniform slice thickness was not easy, particularly for the 6 mm slices. As expected, the drying rate of taro samples decreased as slice thickness increased from 6 mm to 8 mm and 16 mm, respectively.



**Figure 4.2** Comparison of different slice thickness

No error bars are shown for 6 mm slice thickness because only one trial was performed using it. However, the uneven slice thickness of the 6 mm slices of taro samples caused inconsistency, which resulted in the variation in the drying rate observed in the plotted graph points.

#### 4.2.3. Effects of air velocity

Figure 4.3 presented a comparison of drying rate ( $\Delta X/\Delta t$ ) vs dry basis moisture content of taro samples at air velocities of 2 m/s and 1 m/s. All trials were conducted using a slice thickness of 8 mm. The maximum drying temperature of the hot air dryer at an air velocity of 2 m/s was limited to 50°C because of the undersized heater for the dryer. The drying rate of taro samples increased significantly as air velocity rose from 1 m/s to 2 m/s at 50°C. At 2 m/s, the graph exhibited fluctuations in drying rate due to increased air flow.

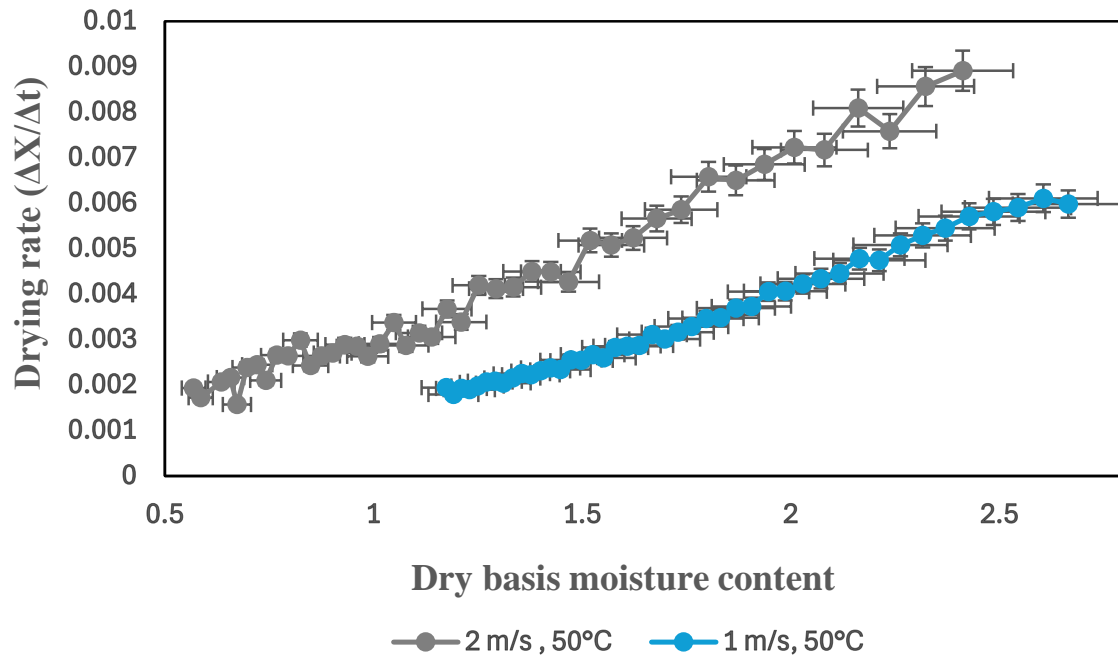


Figure 4.3 Comparison of 2 m/s vs 1 m/s of air velocity

#### 4.2.4. Qualitative colour analysis

One trial from every set of experiments is considered for qualitative colour analysis.

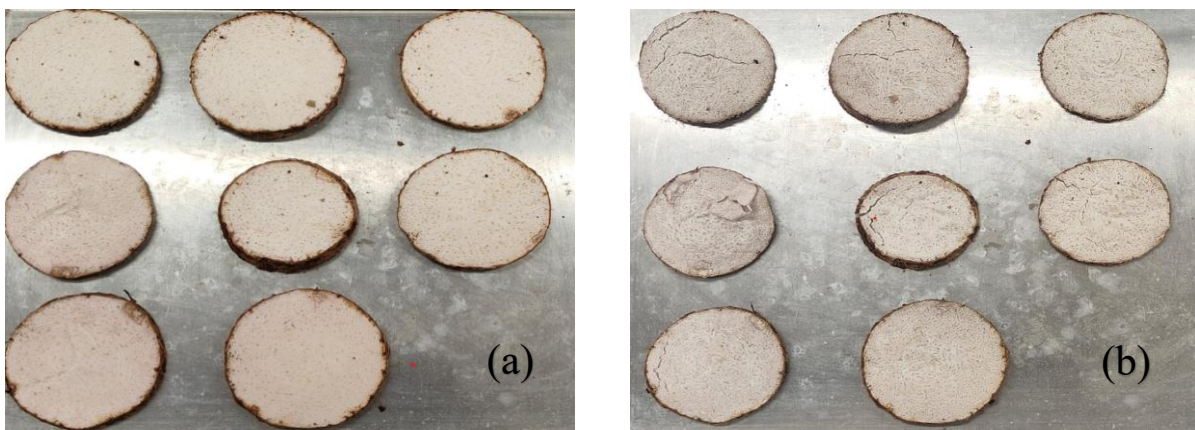
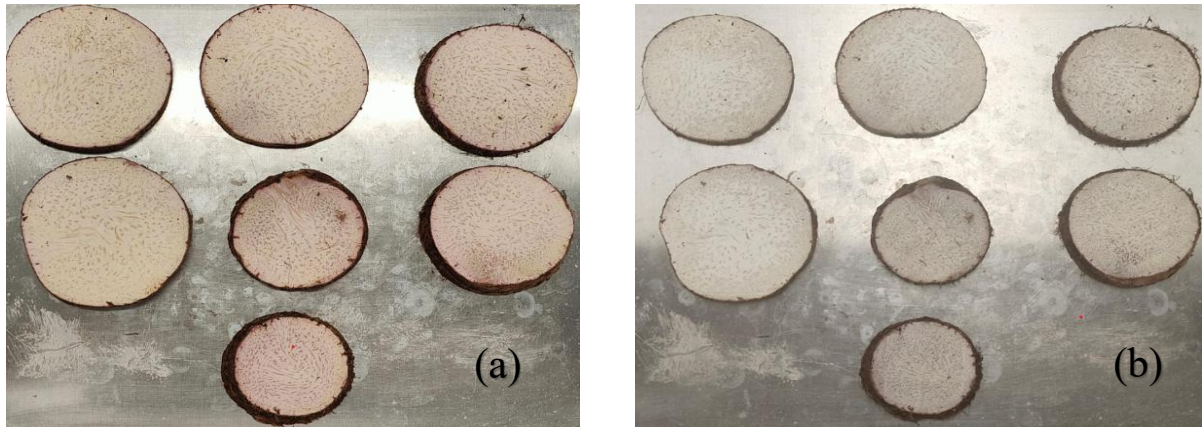


Figure 4.4 70°C, 8 mm and 1 m/s (a) Initial (b) final



**Figure 4.5** 50°C, 8 mm and 1 m/s (a) initial (b) final

Figure 4.4 and Figure 4.5 compare the initial and final photographs of taro before and after the hot air-drying process. The images on the left display the taro prior to placement in the dryer, while the images on the right show the final state after drying. Based on these comparisons, the control sample trials indicate that the taro did not undergo excessive darkening as a result of the drying process.

#### **4.2.5. Optimal comparison variables**

Based on the results of the hot air-drying trial, the optimal temperatures for comparing the effects of pretreatment or posttreatment with hot air drying were determined to be 70°C and 50°C. The experiment at 105°C was conducted to determine the highest drying rate for taro compared to the dryer. Since the drying rates at 70°C and 60°C were found to be similar, selecting 60°C would not provide a meaningful comparison. In contrast, 50°C was selected for comparison because lower drying temperatures makes it easier to detect if the pretreatment or posttreatment will have an effect.

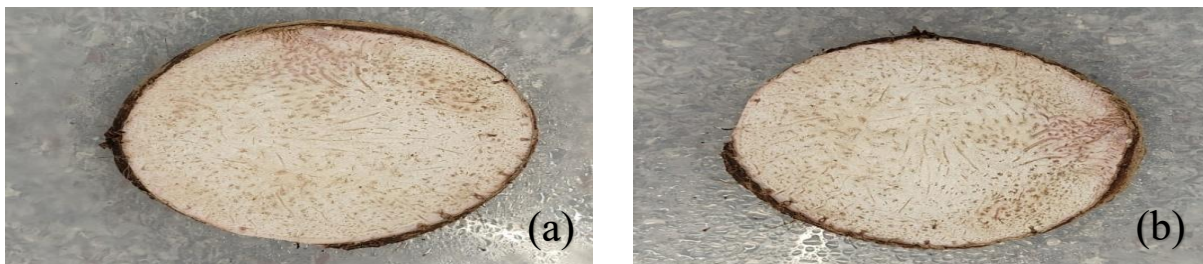
The appropriate slice thickness for comparing pretreatment or posttreatment effects in combination with hot air drying was determined to be 8 mm. The 6 mm slices exhibited inconsistency and caused variation in the drying rate, while the 16 mm samples required significantly more time to dry. The appropriate air velocity for comparing the effects of pretreatment or posttreatment with hot air drying was determined to be 1 m/s. This selection was based on observed fluctuations in drying rate at 2 m/s, as well as the limitation of the maximum drying temperature at this velocity to 50°C.

### 4.3. Microwave Pretreatment

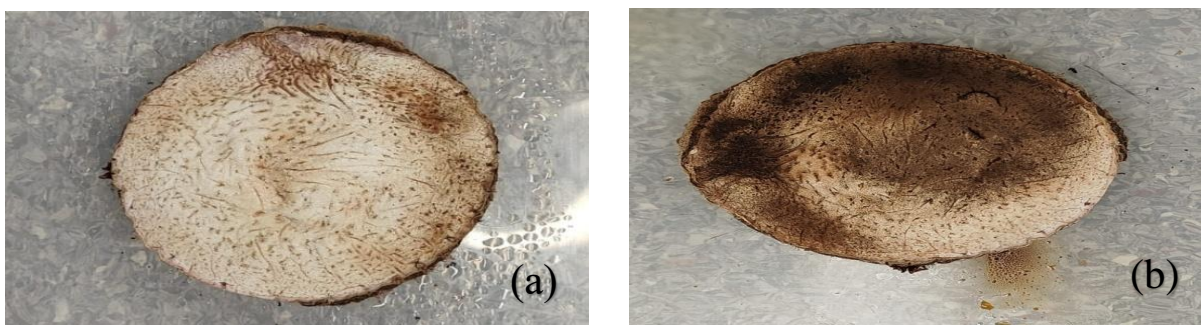
#### 4.3.1. Introduction

Microwave treatment was applied prior to hot air drying, with the objective of increasing drying rate compared to the control sample. Deng et al., 2017 examined the effect of microwave pretreatment with hot air drying using sweet potato, which reduced the overall drying time significantly. In this study, following microwave pretreatment, hot air drying was carried out for a duration exceeding seven hours. The raw measurement data for trials with microwave pretreatment can be found in Appendix (A20-A28) and (Figure 10.28 to Figure 10.36). Initial sample testing trials were conducted using high, medium, and low microwave power levels to determine the optimal exposure duration for taro slices.

Photographs of different levels of microwave powers can be found in the Appendix (Figure 10.20 to Figure 10.27). The high-power microwave was initially considered to determine whether using the highest power level increased the drying rate. Observations from Figure 4.6 and Figure 4.7 indicate that the maximum exposure to microwaves without significant discolouration of the taro sample was 2 minutes of high microwave power. However, as seen in Figure 4.7, for times of longer than 2 minutes exposure led to excessive darkening.



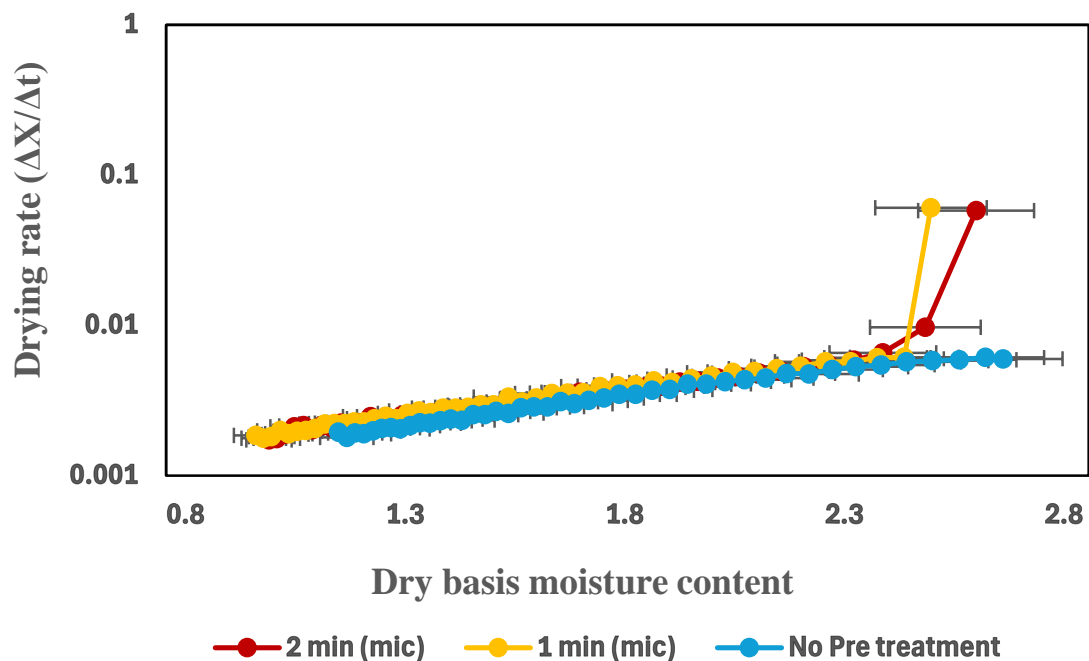
**Figure 4.6** High power (a) 1 minute (b) 2 minutes



**Figure 4.7** High power (a) 3 minutes (b) 4 minutes

### 4.3.2. Effects of microwave pretreatment

Figure 4.8 presents a comparison of drying rate ( $\Delta X/\Delta t$ ) versus dry basis moisture content for taro samples. To begin, a drying temperature of 50°C, an air velocity of 1 m/s and a slice thickness of 8 mm were selected. Taro was subjected to high-power microwave treatment for 2 minutes or 1 minute.

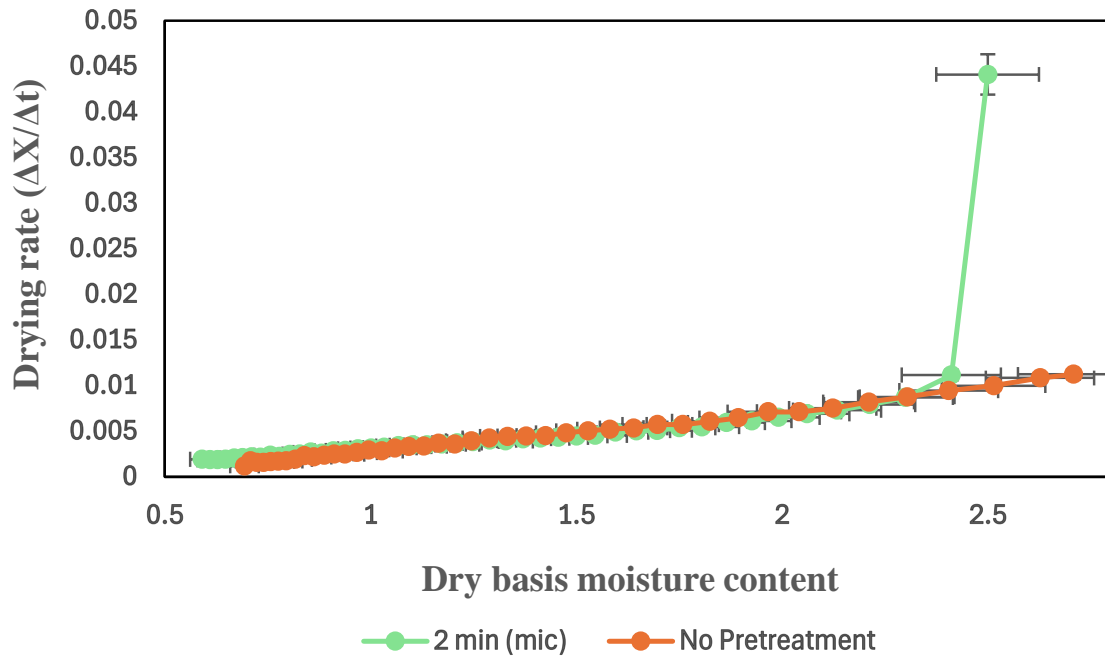


**Figure 4.8** Comparison of different times in high power at 50°C

Initially, a substantial drop in moisture content was observed during microwave exposure, which highlighted the immediate impact of microwave pretreatment on the drying rate. However, in general, drying rates overall were only marginally higher in the microwave-treated samples after the initial data points, indicating minimal long-term advantage.

Figure 4.9 presents a plot of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content for taro samples subjected to high-power microwave treatment for 2 minutes, followed by a drying temperature of 70°C, with a slice thickness of 8 mm and an air velocity of 1 m/s.

Similar to Figure 4.8, the overall drying curves overlapped with those of untreated taro samples after approximately three minutes, indicating no substantial increase in the drying rate of taro samples compared to the control, even at higher temperatures using high microwave power level.



**Figure 4.9** Comparison of 2 minutes microwave vs no pretreatment at 70°C

### 4.3.3. Conclusion

Based on the experimental data, microwave pretreatment followed by hot air drying did not substantially increase the drying rate of taro when a high microwave power level was used. This trial was conducted based on findings of Deng et al., (2017), which demonstrated that microwave treatment had initially increased the drying rate of sweet potato. However, hot air drying had not further accelerated the drying rate; rather, the initial increase from microwave treatment had contributed to an overall increase in the drying rate of sweet potato samples.

For taro samples, using the upper limit of 2 minutes of high-power microwave exposure initially increased the drying rate. However, it is likely that the effects of microwaving did not enhance the overall drying rate of taro. Regardless of whether it had been at higher or lower drying temperatures, the drying curves had ultimately converged with those of untreated samples, indicating minimal long-term advantage for taro samples.

## 4.4. Blanching Pretreatment

### 4.4.1. Introduction

Hot water blanching was performed prior to hot air drying, with the objective of increasing drying rate compared to control samples. Following hot water blanching, hot air drying was conducted over a period of seven hours. The raw measurement data for the blanching treatment is available in Appendix (A29-A37) and (Figure 10.37 to Figure 10.45). To begin, a drying temperature of 50°C, an air velocity of 1 m/s, and a slice thickness of 8 mm were used. Hot water blanching was carried out at approximately 85°C, using blanching durations of 3 or 5 minutes.

### 4.4.2. Effects of blanching pretreatment

Figure 4.10 presents a graph comparing drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content at 50°C for blanching times of 5 minutes and 3 minutes. At the start of the blanching process, a significant increase in moisture content was observed, leading to a sudden change in drying rate.

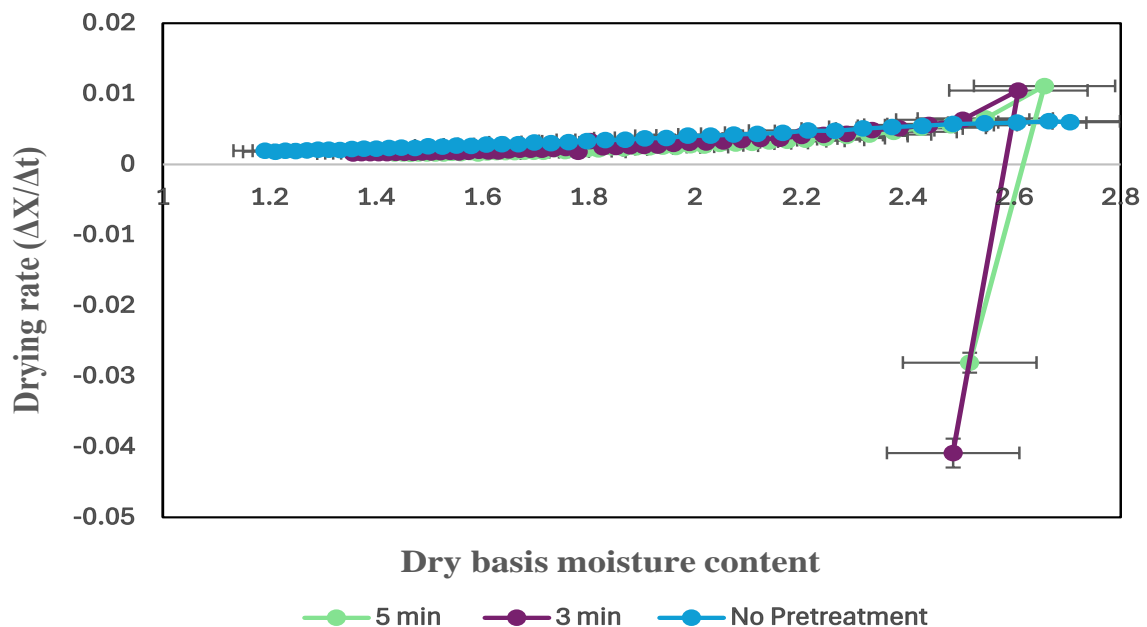
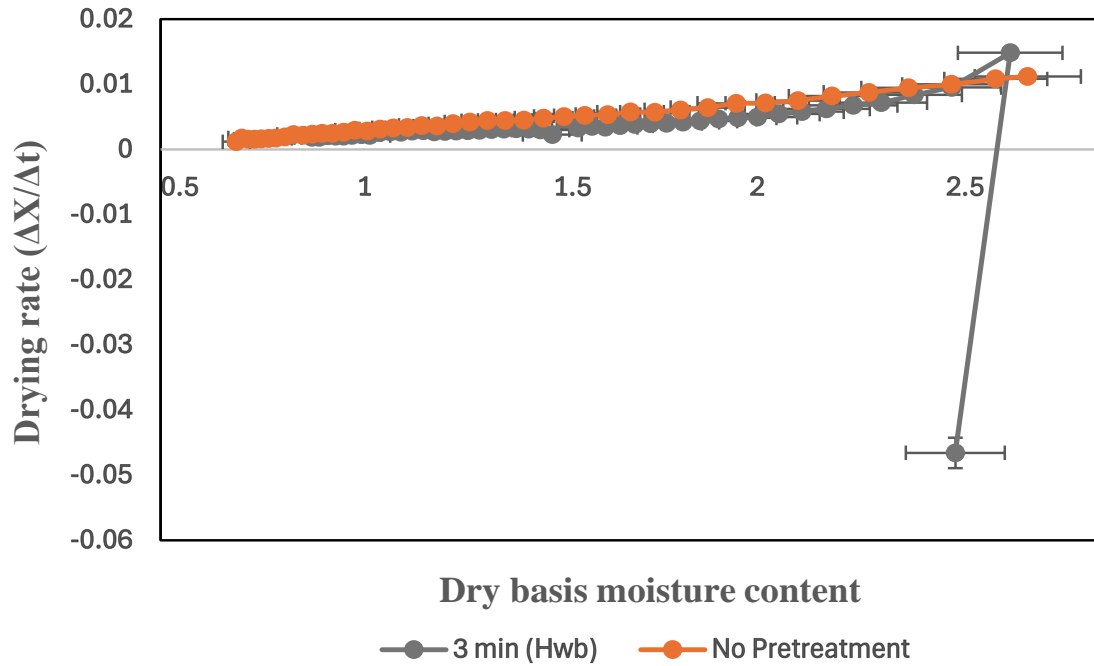


Figure 4.10 Comparison of different blanching times at 50°C

This effect occurred because taro absorbed water during the blanching process, leading to an increase in mass and a temporary negative deviation in the drying rate. Subsequently, the overall drying curves overlapped with those of untreated samples after approximately 3 and 5 minutes. Using the same experimental variables, blanching pretreatment was applied at 70°C to evaluate its effectiveness in increasing the drying rate for taro samples under high-temperature conditions.



**Figure 4.11** Comparison of 3 min vs No Pretreatment at 70°C

Figure 4.11 presents a comparison of drying rate ( $\Delta X/\Delta t$ ) versus dry basis moisture content at 70°C with a blanching duration of 3 minutes. Similar to Figure 4.10, the overall drying curves overlapped with those of untreated samples after approximately 3 minutes, indicating no significant change in drying rate even at higher temperatures for taro samples.

#### 4.4.3. Conclusion

Based on these experimental data, hot water blanching did not significantly increase the drying rate for taro. Visually, at both lower and higher drying temperatures, the drying curves for blanched samples closely overlapped with those of untreated samples. This suggests that blanching did not introduce any substantial advantage in accelerating moisture loss.

## 4.5. Ultrasonication Pretreatment

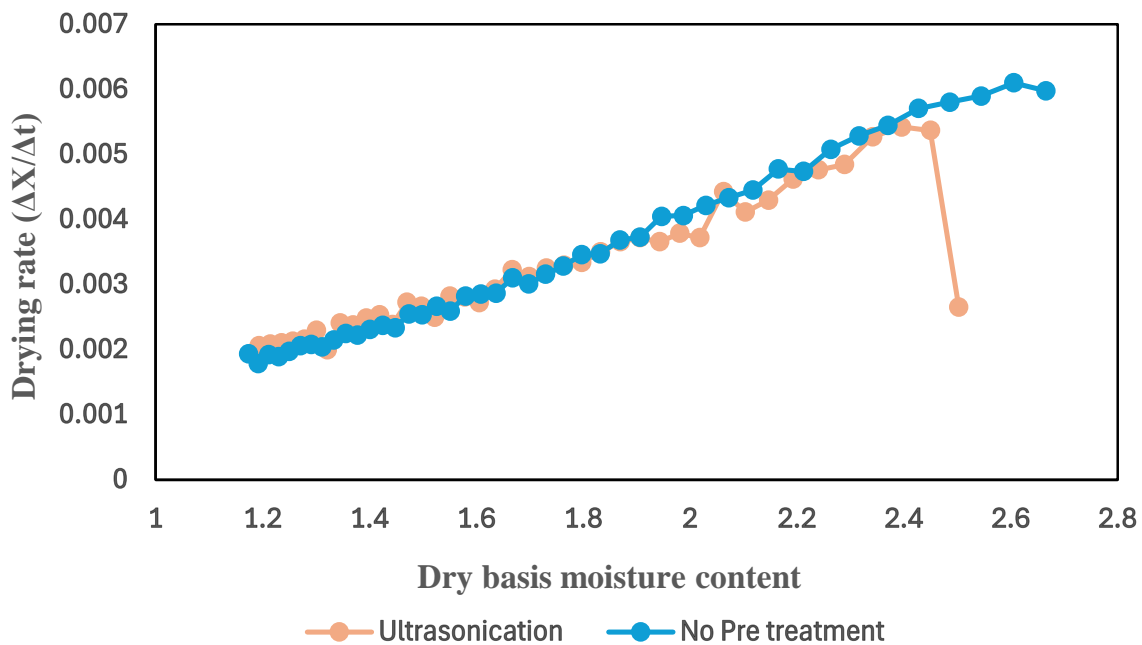
### 4.5.1. Introduction

Ultrasonic pretreatment was conducted prior to hot air drying, with the objective of increasing the drying rate compared to control samples. Following ultrasonic pretreatment, hot air drying was carried out for more than seven hours. The raw measurement data for ultrasonic pretreatment is available in Appendix (A38) and (Figure 10.46).

The initial trials were performed at a drying temperature of 50°C, an air velocity of 1 m/s, a slice thickness of 8 mm, after ultrasonication for 20 minutes. It was performed at ambient temperature using distilled water, maintaining a 4:1 ratio of water to taro (sample-1, water-4).

### 4.5.2. Effects of ultrasonic pretreatment

Figure 4.12 presents a comparison of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content at a drying temperature of 50°C with an ultrasonication duration of 20 minutes.



**Figure 4.12** Comparison of Ultrasonic Pre-treatment vs No Pretreatment at 50°C

However, as the drying progressed, the drying rate stabilised, and after approximately 20 minutes, the drying curve overlapped with that of the untreated taro samples. Due to the absence of observable improvements in drying rate, only one trial was conducted with this pretreatment method. Consequently, no error bars are shown because only one trial was performed using ultrasonic pretreatment.

#### **4.5.3. Conclusion**

Based on experimental data, ultrasonic pretreatment did not significantly increase the drying rate of taro. During ultrasonication, the immersion of taro in water combined with ultrasonic waves led to water absorption, causing a temporary increase in mass. This resulted in an initial decrease in drying rate. Therefore, ultrasonic pretreatment did not significantly increase the overall drying rate of taro samples.

## 4.6. Osmotic dehydration pretreatment

### 4.6.1. Introduction

Osmotic dehydration was performed as a pretreatment prior to hot air drying, aiming to increase the drying rate compared to the control. Following osmotic dehydration, hot air drying was conducted for more than 7 hours. The raw measurement data for the osmotic dehydration treatment is available in Appendix (A39-A44) and (Figure 10.47 to Figure 10.52).

A drying temperature of 50°C, an air velocity of 1 m/s, a slice thickness of 8 mm, and osmotic pretreatment durations of 40 and 20 minutes were investigated. Two litres of water and 720 grams of NaCl (saturated concentration) were used.

### 4.6.2. Effects of osmotic dehydration

Figure 4.13 shows the comparison graph of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content at 50°C after osmotic dehydration times of 20 and 40 minutes.

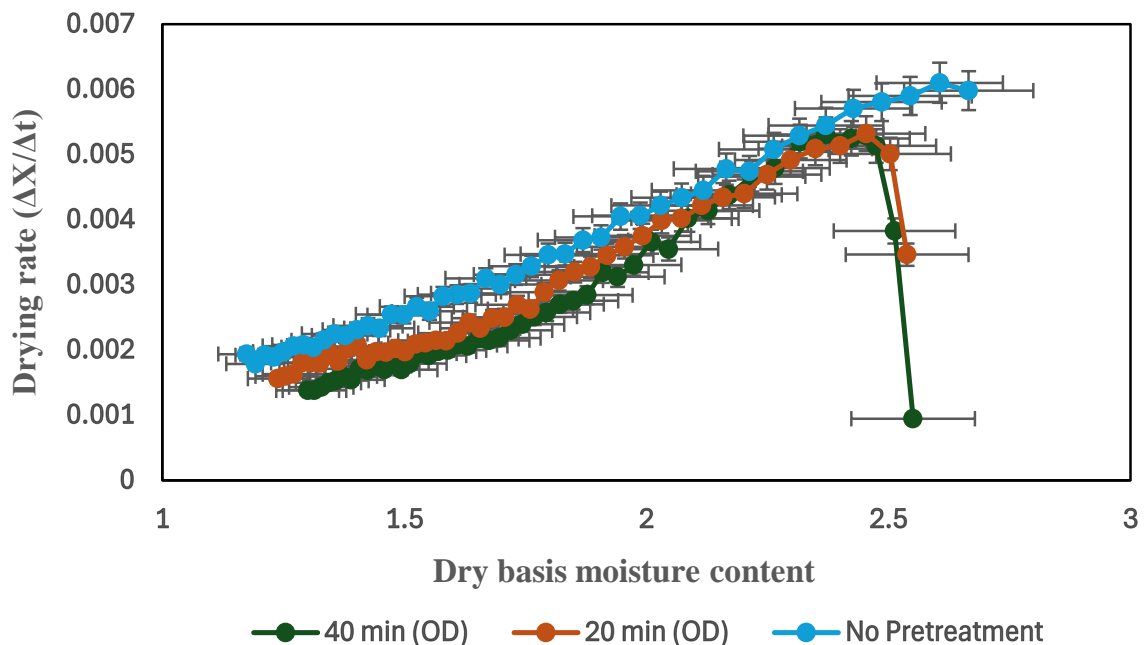


Figure 4.13 Comparison of different osmotic dehydration times at 50°C

Initially, similar to hot water blanching and ultrasonic pretreatment, taro undergoing osmotic dehydration exhibited a significant rise in moisture content, leading to a sudden shift in the drying rate. While the taro was in the solution, it actually absorbed moisture, increasing its overall mass and temporarily elevating its moisture content rather than reducing it before hot air drying. This altered drying rate, affects dehydration efficiency.

Since osmotic dehydration at saturated salt concentration did not significantly increase drying rate at lower temperatures, it was not applied at a higher temperature of 70°C. The results at higher temperatures were expected to be similar to those observed at lower temperatures, as seen with hot water blanching pretreatment.

#### **4.6.3. Conclusion**

Based on experimental data, osmotic dehydration pretreatment did not significantly increase the drying rate for taro, likely due to water absorption. Rather than enhancing drying rate, the process initially increased mass and temporarily elevated moisture content before hot air drying, altering the drying rate. These findings indicate that, under the tested conditions, osmotic dehydration may not be a suitable pretreatment to increase the hot air-drying rate of taro samples.

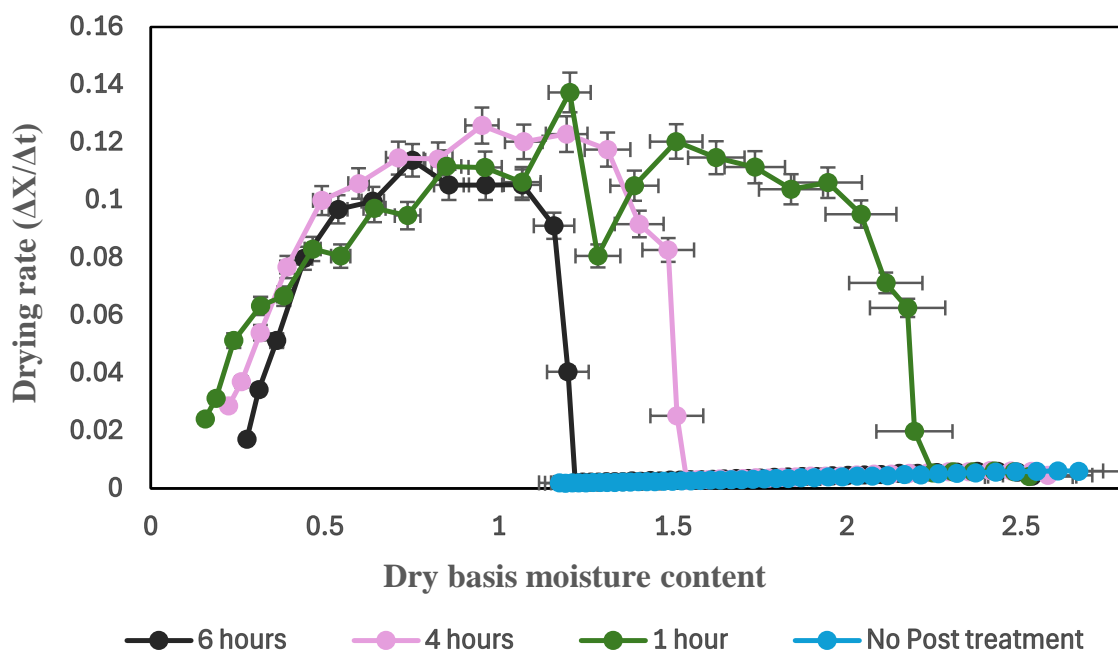
## 4.7. Microwave posttreatment

### 4.7.1. Introduction

Microwave treatment was applied after hot air drying because convection drying requires approximately two-thirds of the total drying time to remove the final one-third of the moisture content. Integrating microwave treatment at the final stage of the hot air-drying process enhances the overall drying rate (Bhandari, 2015). This experiment was conducted using a drying temperature of 50°C, an air velocity of 1 m/s, a slice thickness of 8 mm, and a hot air-drying durations of 6, 4 and 1 hour. Following hot air drying, microwave treatment was applied until the taro samples visibly darkened in colour. The raw measurement data for the microwave posttreatment is available in Appendix (A45-A55) and (Figure 10.53 to Figure 10.64).

### 4.7.2. Effects of microwave posttreatment

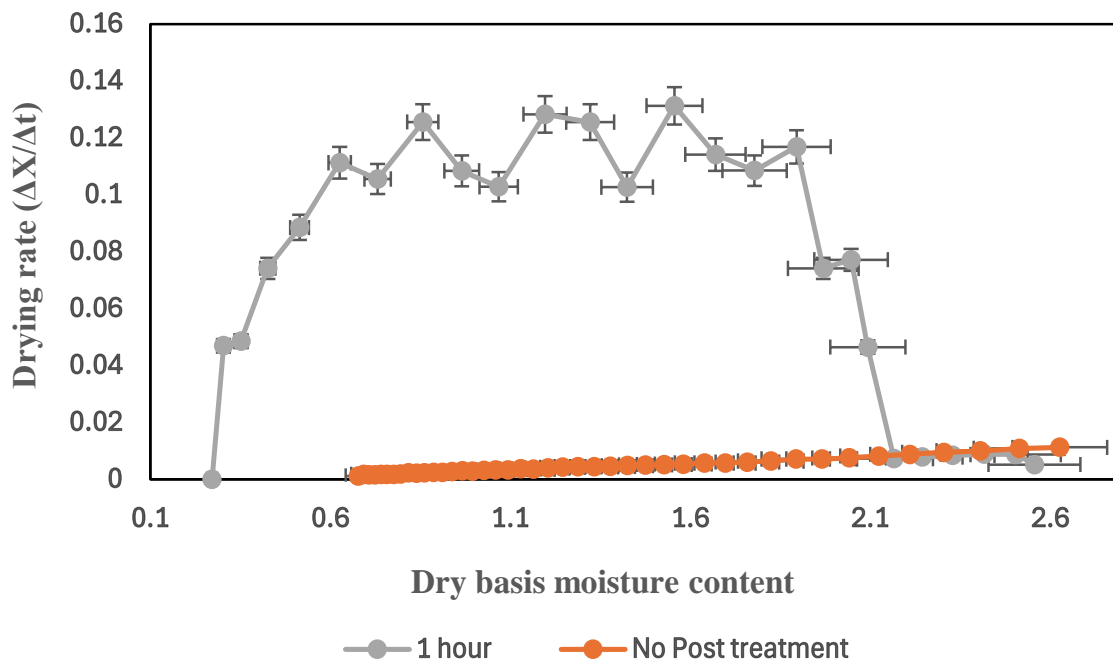
Figure 4.14 presented a comparison of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content for taro at a drying temperature of 50°C, with hot air-drying durations of 6, 4, and 1 hour.



**Figure 4.14** Comparison of different hot air-drying times following microwave treatment at 50°C

The legend in the graph indicates the corresponding hot air-drying durations for the taro samples. In general, microwave post-treatment following hot air drying ultimately resulted in a significant increase in drying rate when compared to control samples. Samples without pretreatment exhibited the lowest drying rate, whereas the combination of 1 hour of hot air drying followed by microwave post-treatment recorded the highest drying rate among all trials. Trials were also performed at 70°C to determine if it exhibited a significant increase in drying rate similar to that observed at lower temperatures.

Figure 4.15 showed the drying graph of comparison of drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content at drying temperature of 70°C, an air velocity of 1 m/s, a slice thickness of 8 mm with hot air-drying duration of 1 hour. The legend in the graph indicates the corresponding hot air-drying durations for the taro samples.



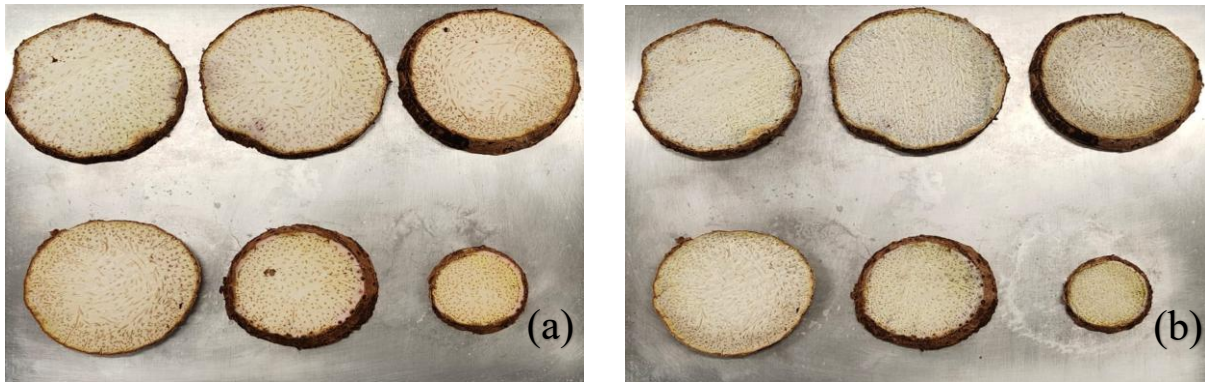
**Figure 4.15** Comparison of 1-hour hot air-drying following microwave treatment at 70°C

In general, similar to the results at 50°C, hot air drying followed by microwave treatment significantly increased the drying rate of taro samples. During hot air drying, the plotted data overlapped with that of untreated samples, indicating similar drying behaviour. However, microwave post-treatment had a significant impact by increasing the drying rate of taro samples compared to the control samples.

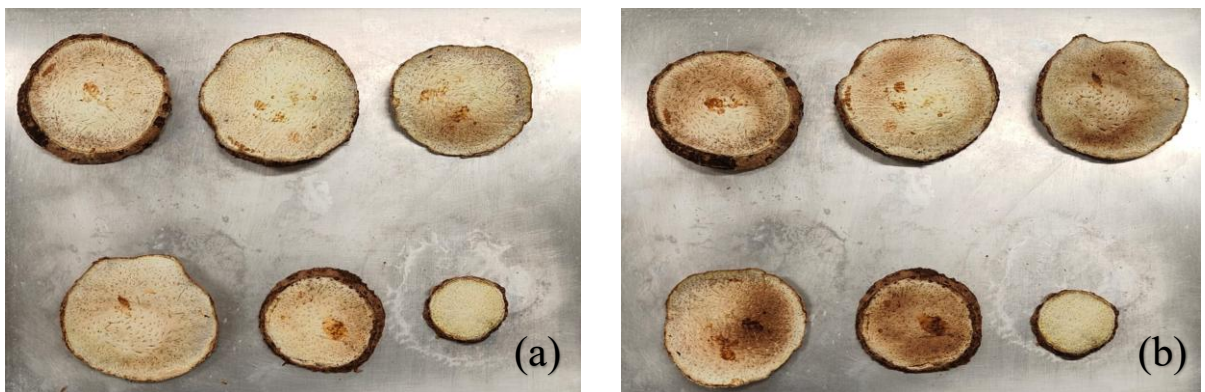
### 4.7.3. Qualitative colour analysis

One trial from every set of experiments is considered for qualitative colour analysis.

#### Six hours of hot air drying at 50°C and microwave post-treatment



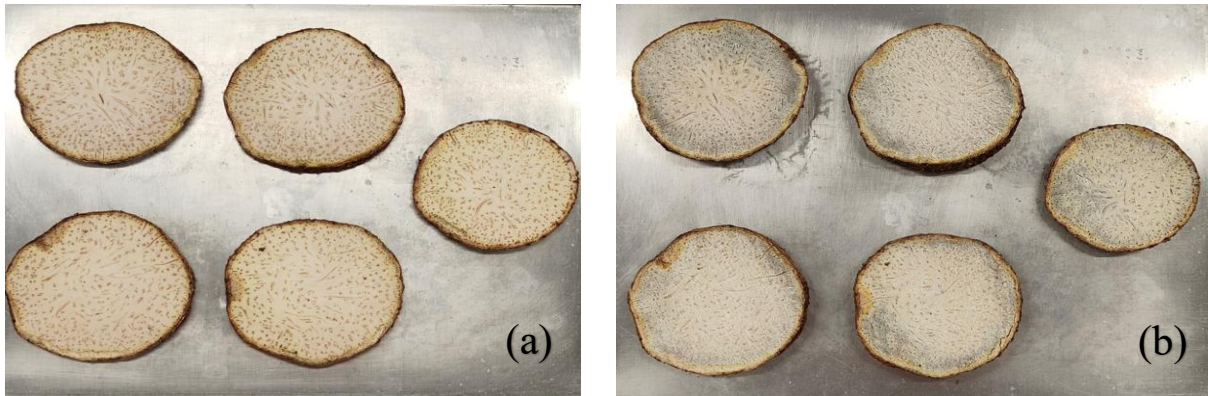
**Figure 4.16 (a)** Before Hot air-drying **(b)** After Hot air-drying



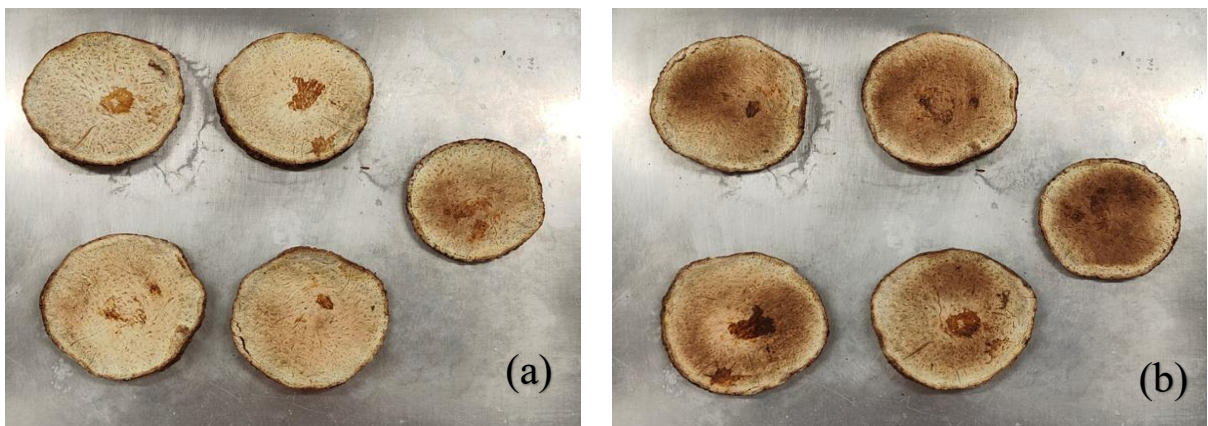
**Figure 4.17 (a)** After 11 min MPT **(b)** After 12 min MPT

Figure 4.16 and Figure 4.17 illustrate the changes in taro appearance during the drying process. In Figure 4.17 (b), which represents 6 hours of hot air drying followed by 12 minutes of microwave treatment, the taro exhibits significant darkening. This suggests that after 6 hours of hot air drying at 50°C, a maximum of 11 minutes could be used in the microwave.

**Four hours of hot air drying at 50°C and microwave post-treatment**



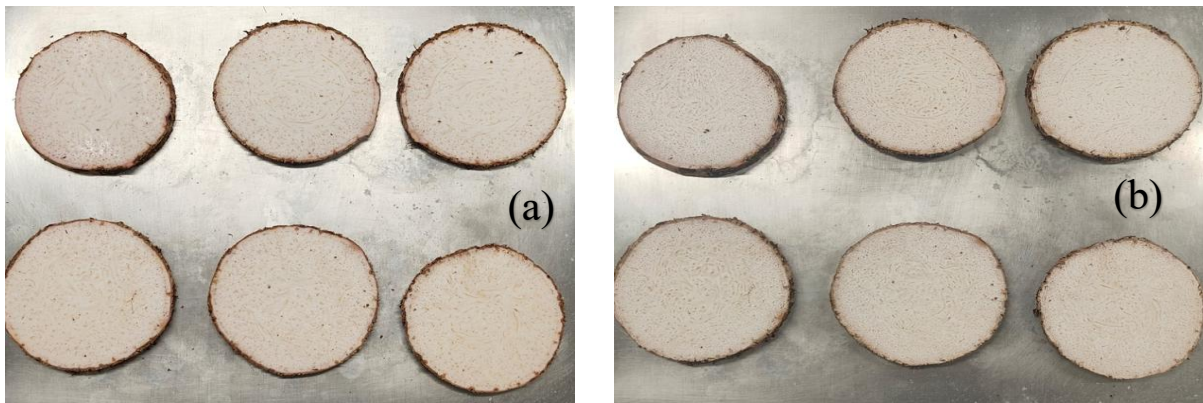
**Figure 4.18 (a) Before Hot air-drying (b) After Hot air-drying**



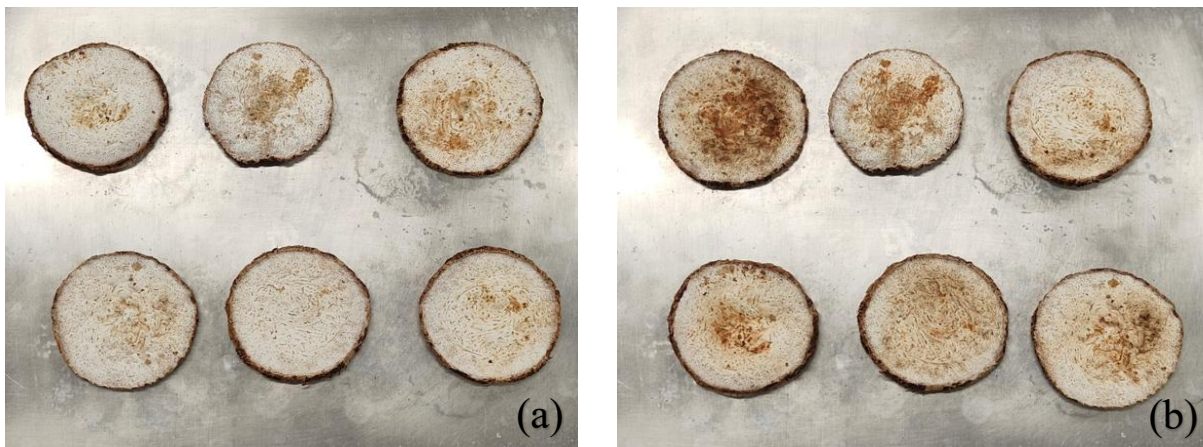
**Figure 4.19 (a) After 14 min MPT (b) After 15 min MPT**

By observing Figure 4.18 and Figure 4.19, it is evident that taro became significantly darker in Figure 4.19 (b), which corresponds to 4 hours of hot air drying followed by 15 minutes of microwave treatment. This suggests that after four hours of hot air drying at 50°C, a maximum of 14 minutes could be used in the microwave.

**One hour of hot air drying at 50°C and microwave post-treatment**



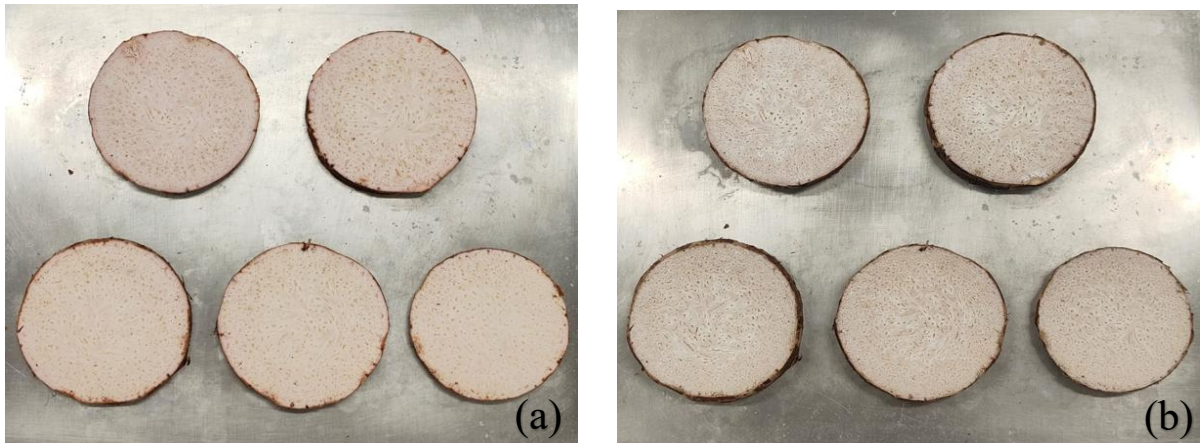
**Figure 4.20 (a) Before Hot air-drying (b) After Hot air-drying**



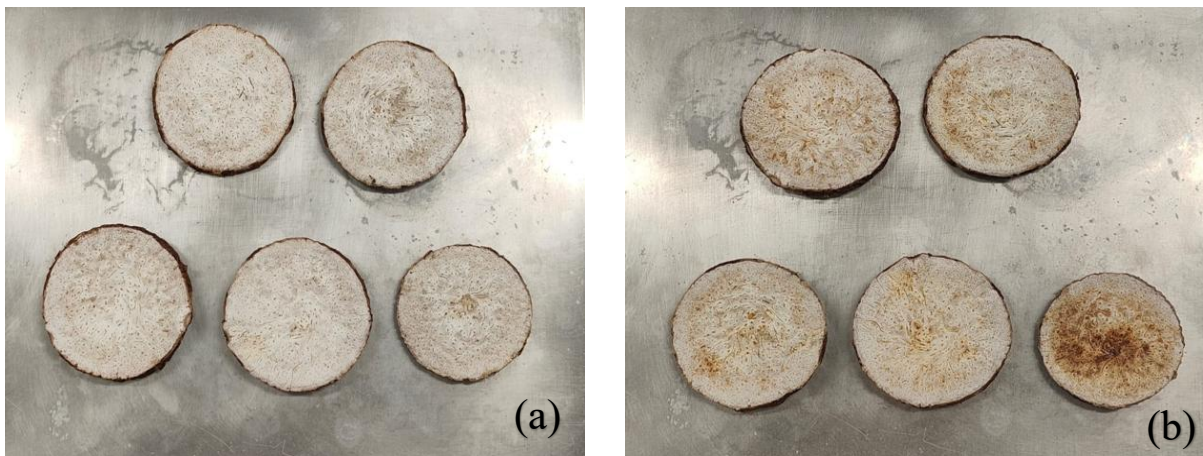
**Figure 4.21 (a) After 23 min MPT (b) After 24 min MPT**

By examining Figure 4.20 and Figure 4.21, it is evident that taro became significantly darker in Figure 4.21 (b), which corresponds to 1 hour of hot air drying followed by 24 minutes of microwave treatment. This suggests that after 1 hour of hot air drying at 50°C, a maximum of 23 minutes could be used in the microwave.

**One hour of hot air drying at 70°C and microwave post treatment**



**Figure 4.22 (a) Before Hot air-drying (b) After Hot air-drying**



**Figure 4.23 (a) After 17 min MPT (b) After 18 min MPT**

By observing Figure 4.22 and Figure 4.23, it is evident that taro became significantly darker in Figure 4.35, which corresponds to 1 hour of hot air drying followed by 18 minutes of microwave treatment. This suggests that after 1 hour of hot air drying at 70°C, a maximum of 17 minutes could be used in the microwave.

#### **4.7.4. Conclusion**

This findings align with the study by (Bhandari, 2015), which confirmed that applying microwave treatment at the final stage of the hot air-drying process enhanced the overall drying rate. Based on experimental data, hot air drying with microwave post-treatment significantly increased the drying rate of taro samples. During hot air drying, moisture is gradually lost from the surface layers, causing drying curves to overlap with those of untreated samples initially.

However, once microwave post-treatment is applied, a sudden increase in drying rate occurred due to volumetric heating, where energy was absorbed by water molecules within the taro, driving moisture outward more efficiently. The experimental results indicated that microwave post-treatment was effective across different drying temperatures, as it consistently enhanced the drying rate regardless of whether it followed lower or higher-temperature hot air drying.

## 5. COMPARISON OF DRYING TIMES

### 5.1. Introduction

Chapter 4 presented an analysis of how different treatments influenced the drying rate of taro, using a comparison graph that plotted drying rate against dry basis moisture content. The advantage of this graph was that it could deal with different initial moisture content. However, since time was not plotted on either axis, it was not suitable for comparing drying time. Therefore, this chapter examined how different treatments, both prior to and following hot air drying, had influenced the overall drying time of taro samples.

### 5.2. Analysis

Taro samples used in each trial had different initial moisture content levels. However, the lowest initial moisture content of any trial was 2.4 (dry basis), and the highest final moisture content of any trial was 1.3 (dry basis). Therefore, drying rate curves for all samples between 2.4 and 1.3 were collected and used as the basis for comparison of drying time. These points allowed for standardisation of the drying time comparisons, despite the variation in initial moisture contents and different final moisture contents.

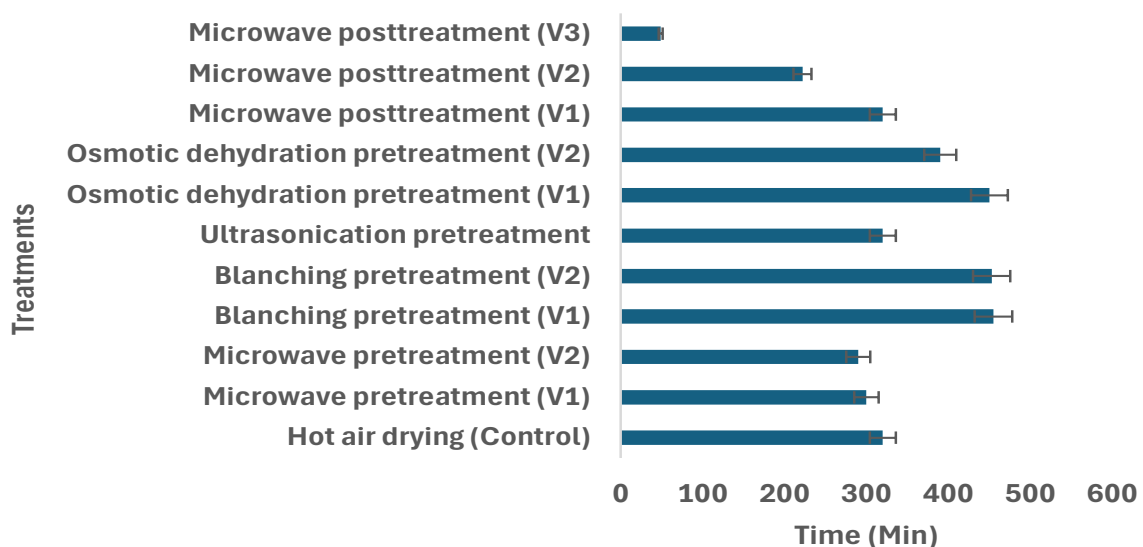


Figure 5.1. Comparison of drying times at 50°C

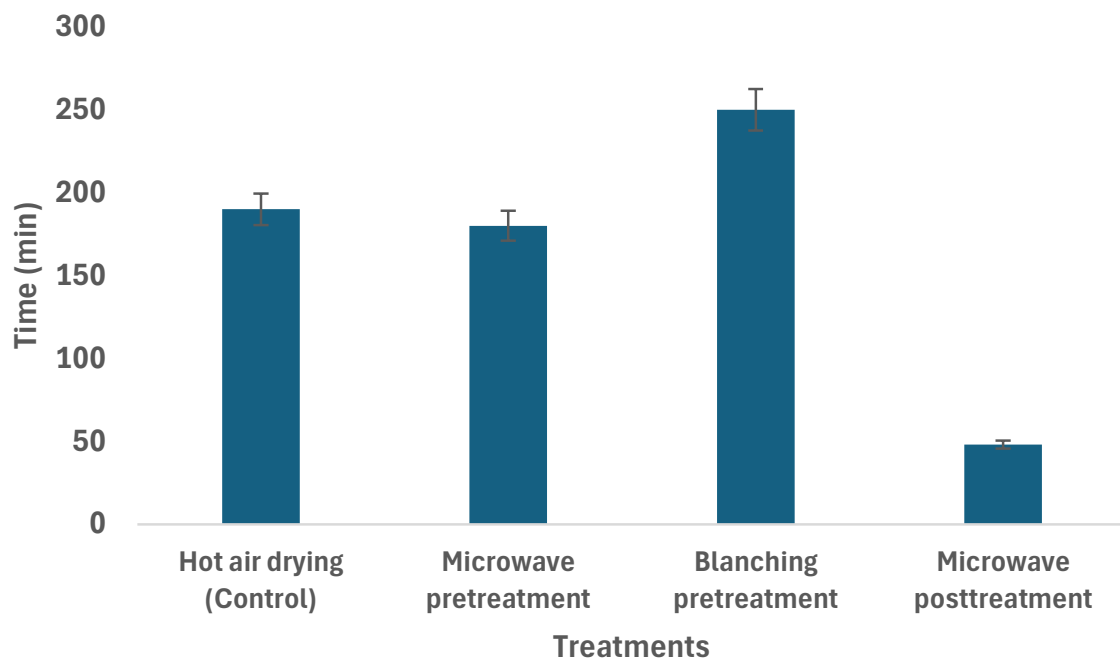
**Table 2.** Drying duration of taro at 50°C

<b>Treatment</b>	<b>Variables</b>	<b>Drying duration (Hot air + treatments)</b>	<b>Reduction in time to dry from points 2.4 to 1.3</b>
Hot air drying	50°C, 8 mm, 1 m/s	320 minutes	Control
Microwave pretreatment (V1)	2 minutes of pretreatment + HAD	300 minutes	Decreased by 20 minutes
Microwave pretreatment (V2)	1 minute of pretreatment + HAD	290 minutes	Decreased by 30 minutes
Blanching pretreatment (V1)	5 minutes of pretreatment + HAD	455 minutes	Increased by 135 minutes
Blanching pretreatment (V2)	3 minutes of pretreatment + HAD	453 minutes	Increased by 133 minutes
Ultrasonication pretreatment	20 minutes of pretreatment + HAD	320 minutes	Same as control
Osmotic dehydration pretreatment (V1)	40 minutes of pretreatment + HAD	450 minutes	Increased by 130 minutes
Osmotic dehydration pretreatment (V2)	20 minutes of pretreatment + HAD	390 minutes	Increased by 70 minutes
Microwave posttreatment (V1)	6 hours of HAD + posttreatment	320 minutes	Same as control
Microwave posttreatment (V2)	4 hours of HAD + posttreatment	222 minutes	Decreased by 98 minutes
Microwave posttreatment (V3)	1 hour of HAD + posttreatment	49 minutes	Decreased by 271 minutes

Figure 5.1 and Table 2 illustrated the time required to dry taro samples from a dry basis moisture content of 2.4 to a dry basis moisture content of 1.3 at 50°C using different treatment methods combined with hot air drying, compared to the control sample. Since the same treatments are repeated with different variables, numerical identifiers with variables (V) have been added after the treatment names for identification. The data revealed that blanching pretreatment and osmotic dehydration pretreatment increased the drying time of taro samples compared to the control. Ultrasonic pretreatment yielded results similar to control.

Microwave pretreatment showed very little decrease in drying time compared to the control. However, microwave posttreatment resulted in a significant reduction in the drying time compared to the control. Four hours of hot air drying, followed by microwave posttreatment, led to a decrease of 98 minutes in overall drying time. Additionally, one hour of hot air drying combined with microwave posttreatment resulted in a total reduction of 271 minutes compared to the control samples. The drying time for six hours of hot air drying followed by microwave posttreatment was the same as the control, as the necessary moisture reduction points had already been achieved during the hot air-drying process.

Figure 5.2 presents a comparison graph plotted time against various treatment methods at 70°C, including the control for taro samples.



**Figure 5.2.** Comparison of drying times at 70°C

**Table 3.** Drying duration of taro at 70°C

<b>Treatment</b>	<b>Variables</b>	<b>Drying duration (Hot air + treatments)</b>	<b>Reduction in time to dry from points 2.4 to 1.3</b>
Hot air drying	70°C, 8 mm, 1 m/s	190 minutes	Control
Microwave pretreatment	2 minutes of pretreatment + HAD	180 minutes	Decreased by 10 minutes
Blanching pretreatment	3 minutes of pretreatment + HAD	250 minutes	Increased by 60 minutes
Microwave posttreatment	1 hour of HAD + posttreatment	48 minutes	Decreased by 142 minutes

Figure 5.2 and Table 3 illustrate the drying time of taro samples at 70°C using different treatment methods combined with hot air drying, compared to the control sample. Blanching pretreatment increased the drying time of taro samples compared to the control. Microwave pretreatment resulted in minimal reduction in drying time. Blanching, however, increased the drying time at both lower and higher temperatures. Moreover, similar to the results at 50°C, microwave posttreatment led to a significant decrease in the drying time at 70°C compared to the control. One hour of hot air-drying followed by microwave posttreatment had resulted in a 142-minute reduction in drying time of taro samples compared to the control.

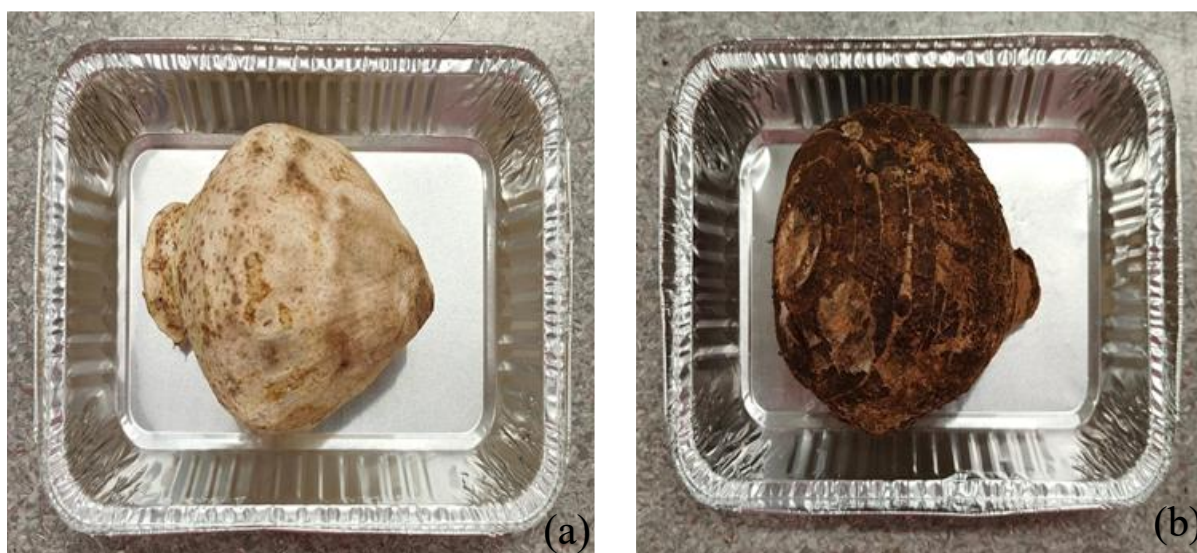
### **5.3. Conclusion**

In conclusion, blanching and osmotic dehydration pretreatment increased drying time, while microwave pretreatment and ultrasonication pretreatment resulted in only a slight reduction in drying time. However, microwave posttreatment had shown the most substantial impact on decreasing drying time compared to the control samples. When applied after 1 hour of hot air drying at both temperatures, it led to reductions of 142 minutes and 271 minutes, respectively.

## 6. EFFECTS OF TARO SKIN ON DRYING RATE AND DRYING TIME

### 6.1. Introduction

This experiment compared the drying rate and drying time of taro with the skin and without the skin. To begin with, one taro was completely peeled, as shown in Figure 6.1 (a), while the other remained unpeeled, as shown in Figure 6.1 (b). Each sample were dried in the Contherm oven at 105°C. However, obtaining taro with identical shape and mass was not possible due to natural variations in size and weight.



**Figure 6.1** (a) Peeled (Skinless trial) (b) Unpeeled (Skin trial)

In the first three trials, the unpeeled taro had a slightly greater mass than the peeled samples, while in subsequent trials, the opposite was true (Table 4). The mass of each taro sample was manually monitored using a balance every 10 minutes for over seven hours. The drying curves of both groups were analysed to determine the extent to which the skin acted as a barrier to moisture evaporation.

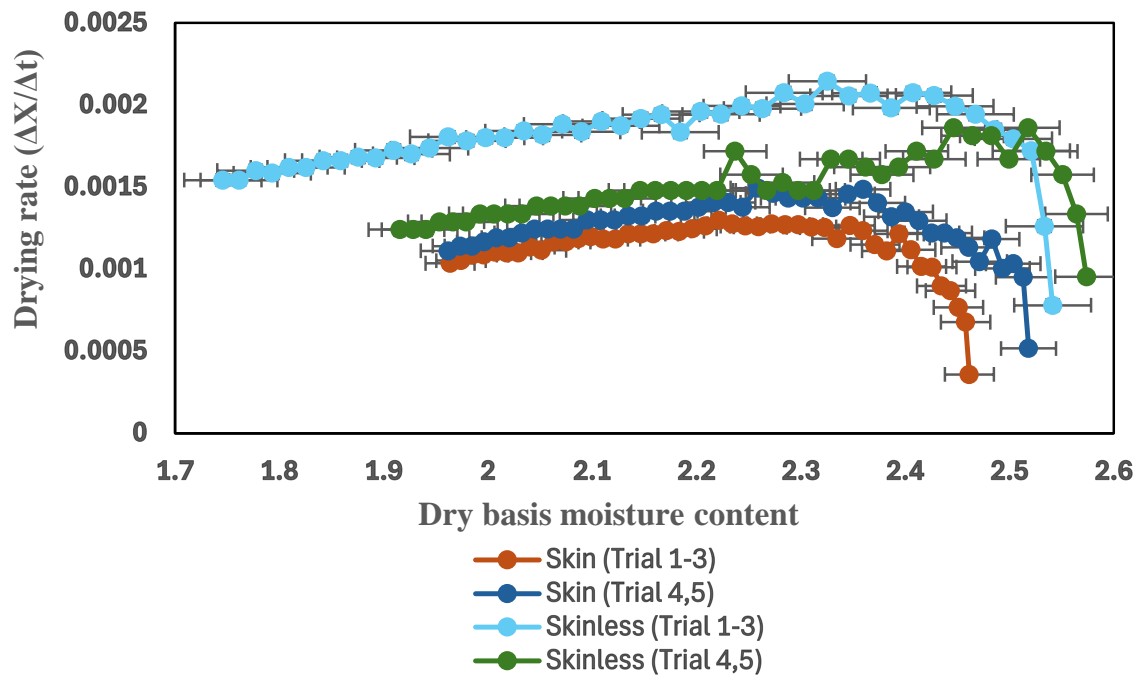
Photographs of taro samples were captured before oven drying, after drying, and one day post-drying to assess qualitative changes. The raw measurement data for the skin vs skinless experiment can be found in Appendix (A56-A65) and (Figure 10.65 to Figure 10.74).

**Table 4.** Mass of taro samples

<b>Trials</b>	<b>Taro with skin intact</b>	<b>Taro without skin</b>
Trial - 1	592 g	510 g
Trial - 2	732 g	632 g
Trial - 3	721 g	704 g
Trial - 4	702 g	833 g
Trial - 5	604 g	680 g

### 6.2. Analysis of drying rate

Figure 6.2 presented the graph plotted drying rate ( $\Delta X/\Delta t$ ) against dry basis moisture content conducted at a drying temperature of 105°C for a period of more than seven hours.



**Figure 6.2** Comparison of Skin Vs Skinless experiment

### 6.3. Analysis of drying time

As in Chapter 5, consistent data points were selected to determine the drying time in order that comparisons may be made. The lowest initial moisture content recorded across all trials (2.42 dry basis) was established as the starting point, while the highest final moisture content observed after drying across all trials (2.09 dry basis) was set as the end point. This approach ensured consistency in assessing drying behaviour.

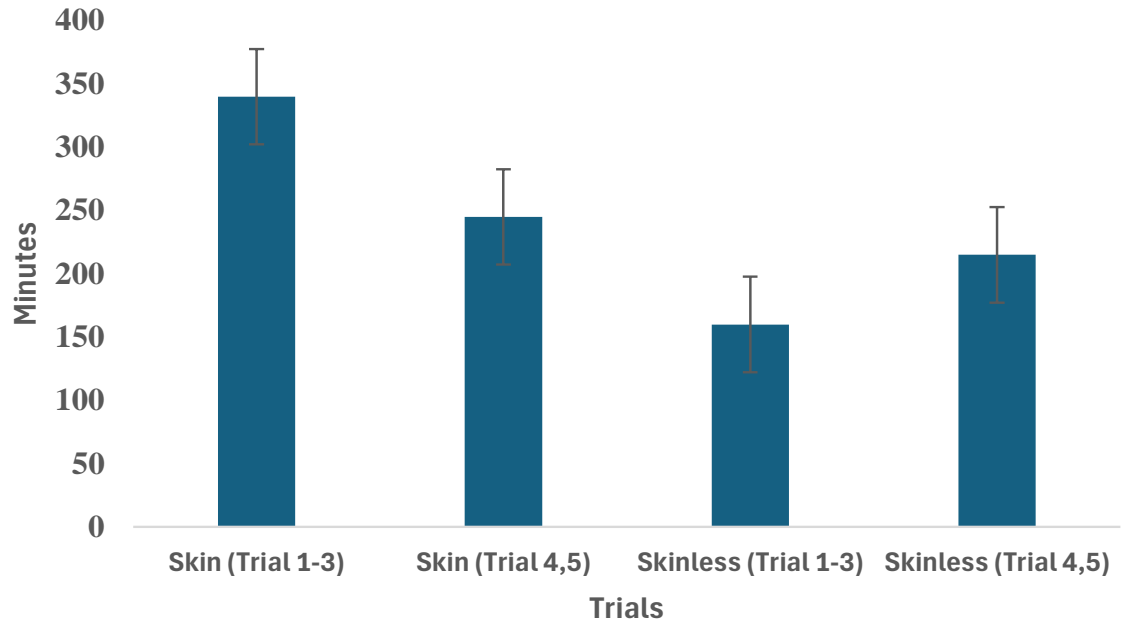
Table 5 provide a comparative analysis of drying time, highlighting the differences observed between the skin and skinless taro samples at 105°C. Figure 6.3 represented this analysis in a bar graph plotted against the minutes and trials. By tracking moisture content reduction from 2.42 to 2.09 (dry basis), the data offers insights into the role of taro’s outer skin in influencing moisture evaporation.

**Table 5.** Drying duration of skin vs skinless experiment

	<b>Skin trial</b>	<b>Skinless trial</b>	
Higher mass (compared to skinless)	Trial (1-3) - 340 minutes	Trial (1-3) - 160 minutes	Lower mass (compared to skin)
Lower mass (compared to skinless)	Trial (4,5) - 245 minutes	Trial (4,5) - 215 minutes	Higher mass (compared to skin)

By analysing the Figure 6.3 alongside Table 5, the drying time was significantly reduced in the skinless trials compared to the skin-on samples. When the mass of both the skin and skinless samples was higher, the skinless taro sample reduced drying time by approximately 37%. Similarly, when the mass was lower, the skinless sample still achieved a 35% reduction in drying time compared to the skin-on trials.

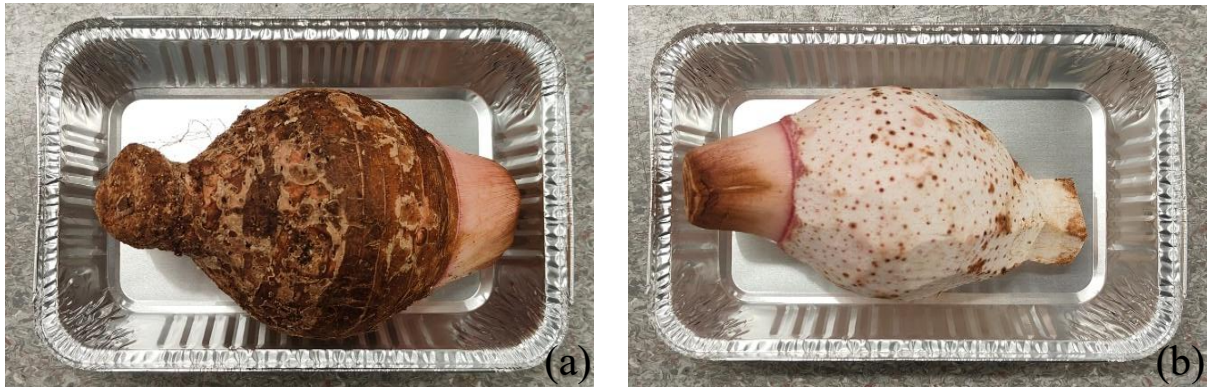
The lowest moisture content achieved after drying for 24 hours at 105°C for any of the whole taro samples was only 1.9 (dry basis) across all trials. In contrast, the sliced taro samples achieved a moisture content of less than 0.4 (dry basis) in all trials within just seven and a half hours at the same temperature, highlighting the benefit of slicing for more efficient drying.



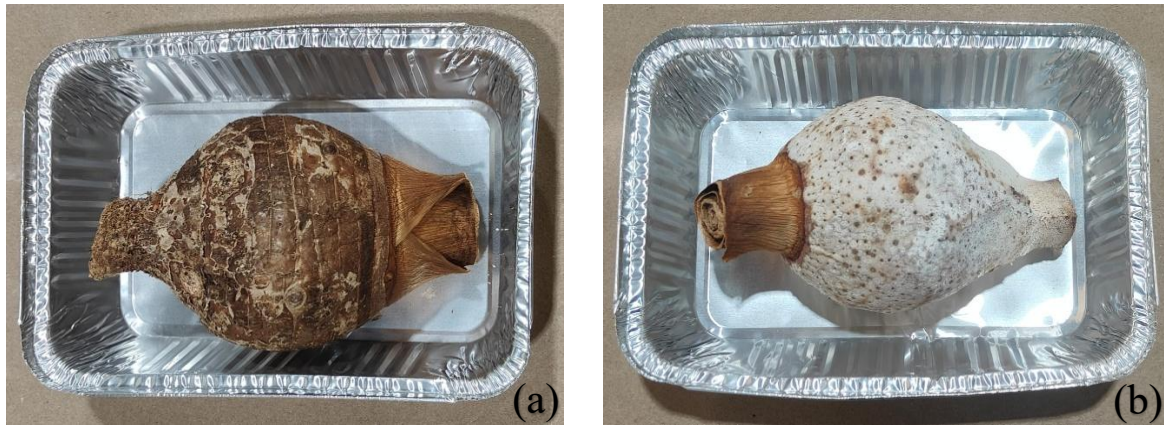
**Figure 6.3.** Comparison of drying time

#### 6.4. Qualitative analysis

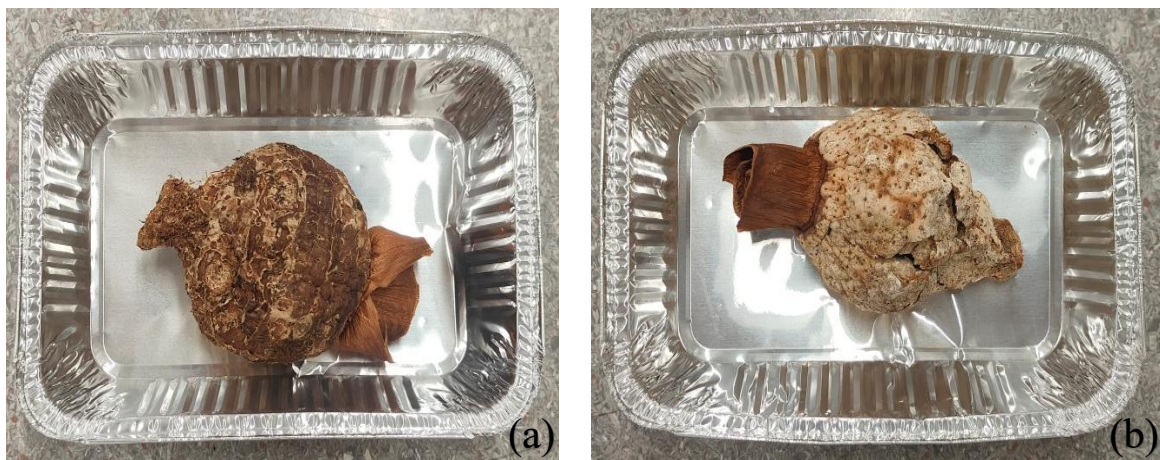
One trial from every set of experiments is considered for qualitative analysis.



**Figure 6.4** (a) before drying – skin-on (b) before drying - skinless



**Figure 6.5 (a)** after drying – skin-on **(b)** after drying - skinless



**Figure 6.6 (a)** A day after - skin-on **(b)** A day after - skinless

Figure 6.4 present the initial images taken before the trial, while Figure 6.5 illustrate the images captured after drying. The figure on the left side of the page represents the skin trial, while the figure on the right side of the page depicts the skinless trial. Figure 6.6 show photos of the taro that were placed in the oven for a day following the trials. Shrinkage is visible in figure 6.6 (b).

### 6.5. Conclusion

Based on the experimental results, the drying time was significantly reduced in the skinless trials compared to the skin-on samples. However, slicing was necessary to further reduce the moisture content within the given time. Therefore, it was concluded that taro samples should be sliced before being placed in the drying process, as this further reduced the drying time compared to the whole peeled samples.

## **7. APPLICATION FOR INDUSTRIAL TARO DRYING**

### **7.1. Introduction**

Taro, a highly perishable crop, can be transformed into a non-perishable product through drying, reducing post-harvest losses and increasing its commercial viability. Converting taro into flour enhances its value and broadens its applications, particularly in the bakery industry, where it is valued for its functional, nutritional, and technological properties (Aboubakar et al., 2008; Arıcı et al., 2016). Effective drying methods are crucial for optimising flour production while reducing drying time and energy consumption for industrial use.

### **7.2. Observation**

To achieve the desired final moisture content for taro flour production, taro must reach a final moisture content between 0.14 and 0.10 (dry basis) (Aricı et al., 2016). Drying experiments were conducted using an oven at temperatures of 40°C, 50°C, and 60°C with slice thicknesses of 0.4 cm. Air velocity combinations of 0.5 m/s, 1.25 m/s, and 2 m/s were tested, with drying times ranging from 7 to 10 hours, depending on temperature and air velocity.

Notably, using an air temperature of 60°C, an air velocity of 2 m/s, and a sample thickness of 0.4 cm, the moisture content was successfully reduced to 0.10 (dry basis) (Aricı et al., 2016). However, drying time was not specifically reported for this setup.

### **7.3. Optimised drying approach**

By slicing whole taro into 8 mm thickness, using an air velocity of 1 m/s, and applying 1 hour of hot air drying at 70°C, followed by 18 minutes of microwave post-treatment, the moisture content can be reduced to the 0.10 (dry basis). This approach results in an 85% reduction in drying time compared to conventional oven drying conducted by Arıcı et al., (2016), making it a viable strategy for industrial-scale taro flour production. Consequently, the reduction in drying time leads to lower energy consumption, thereby improving overall efficiency.

## **7.4 Conclusion**

Optimising the drying process is essential for efficient industrial taro flour production. Combining microwave post-treatment with hot air-drying helps shorten drying time while maintaining the desired moisture content, enhancing process efficiency and providing a practical solution for large-scale production. Additionally, this method reduces energy consumption, supports sustainable manufacturing practices, and lowers operational costs by improving resource utilisation. As demand for nutrient-rich and functional food ingredients continues to grow, this optimised drying method provides offers manufacturers a viable strategy seeking to boost productivity while aligning with sustainability goals.

## 8. CONCLUSION AND RECOMMENDATION

This study demonstrated that microwave post-treatment was the most effective method for improving the drying rate of taro and reducing overall drying time compared to control and other pre-treatment methods. Blanching and osmotic dehydration pretreatment at 50°C had worsened the drying efficiency, increasing the drying time compared to the control, while microwave pretreatment at 50°C had resulted in a slight decrease in drying time compared to the control. Ultrasonic pretreatment yielded results similar to control. However, Microwave post-treatment after 1 hour of hot air drying at 50°C resulted in an 85% reduction in total drying time compared to hot air drying alone. Similarly, microwave post-treatment after 1 hour of hot air drying at 70°C reduced drying time by 75% when decreasing from a moisture content of 2.4 (dry basis) to 1.3 (dry basis).

In comparison, a longer duration of hot air drying (4 hours) followed by microwave treatment at 50°C led to a more modest 31% reduction in drying time, indicating that extended hot air drying was not necessary when microwave post-treatment was applied. The presence of the skin layer on taro also played a crucial role in drying efficiency. Samples with the skin exhibited longer drying times compared to peeled samples. Removing the skin of taro samples before drying reduced the total drying time of peeled samples by approximately 36%, compared to skin-on samples. However, slicing was necessary, as the whole peeled samples took a longer time to dry compared to the sliced samples.

This study demonstrated that microwave post-treatment combined with hot air drying significantly improved the drying rate of taro. Microwave energy enabled rapid internal heating, reducing moisture content more efficiently than conventional methods. A key advantage was the reduction in drying time, enhancing industrial throughput and lowering operational costs. Additionally, shorter drying durations helped preserve nutritional quality by minimizing heat exposure. However, assessing the energy consumption of both microwave post-treatment and hot air drying is essential for economic and sustainable feasibility. Quantifying energy requirements allows researchers to balance efficiency with cost-effectiveness. A detailed energy consumption analysis is recommended to evaluate trade-offs between drying efficiency and feasibility. This assessment supports the adoption of sustainable drying techniques for industrial applications.

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## 10. APPENDIX

The appendix provides the taro images of each trial, followed by the raw data.

### Hot Air drying

70°C, 6 mm, 1 m/s - (HAD – Hot air drying)

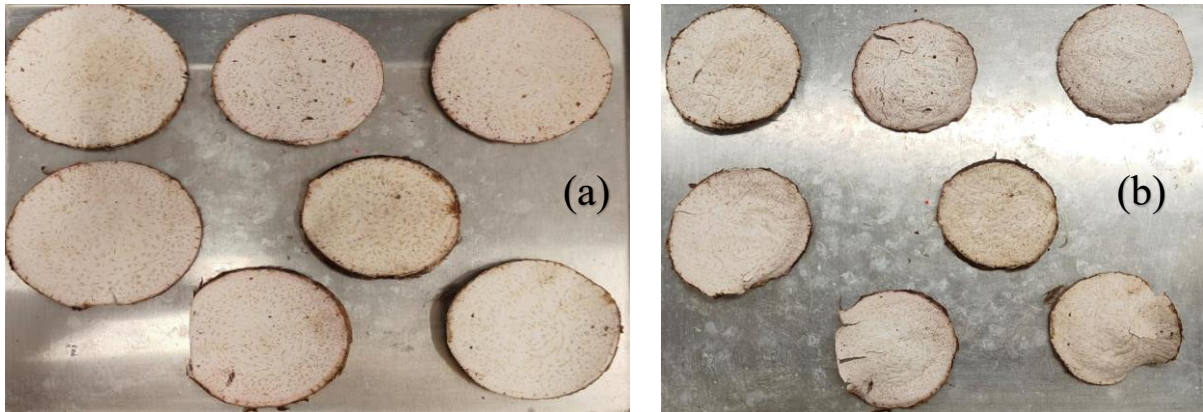


Figure 10.1 Trial-1 (a) before HAD (b) after HAD

70°C, 8 mm, 1 m/s

(HAD – Hot air drying)

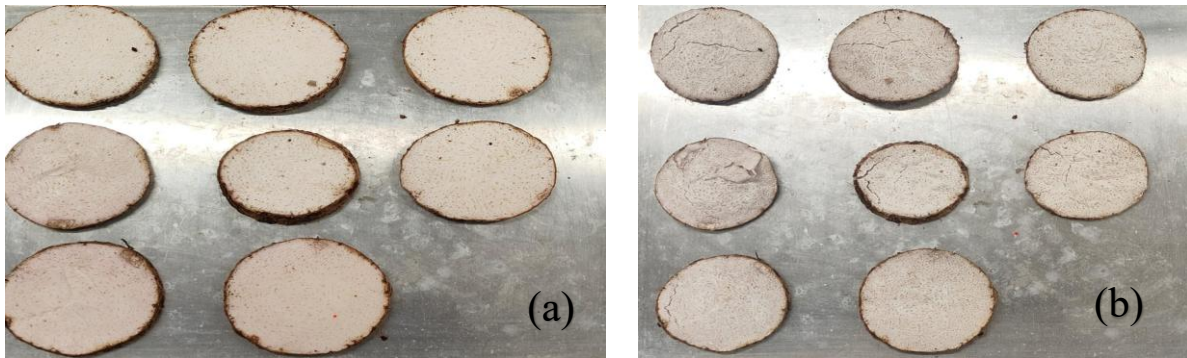


Figure 10.2 Trial-1 (a) before HAD (b) after HAD

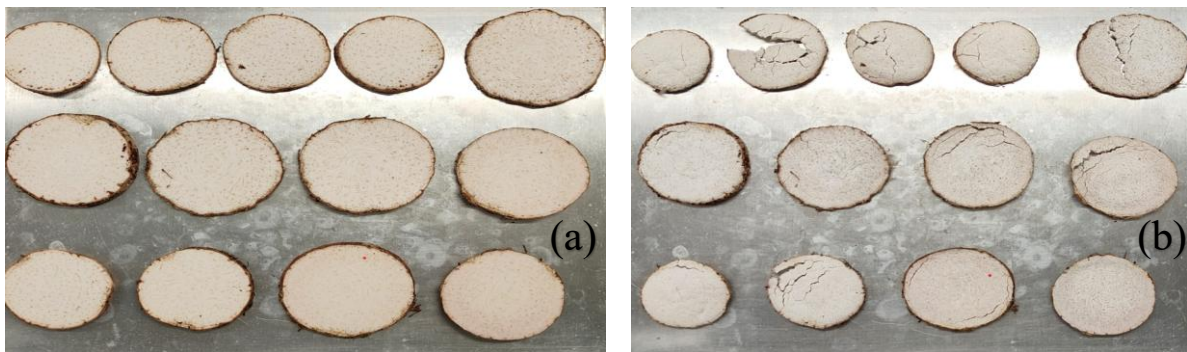


Figure 10.3 Trial-2 (a) before HAD (b) after HAD

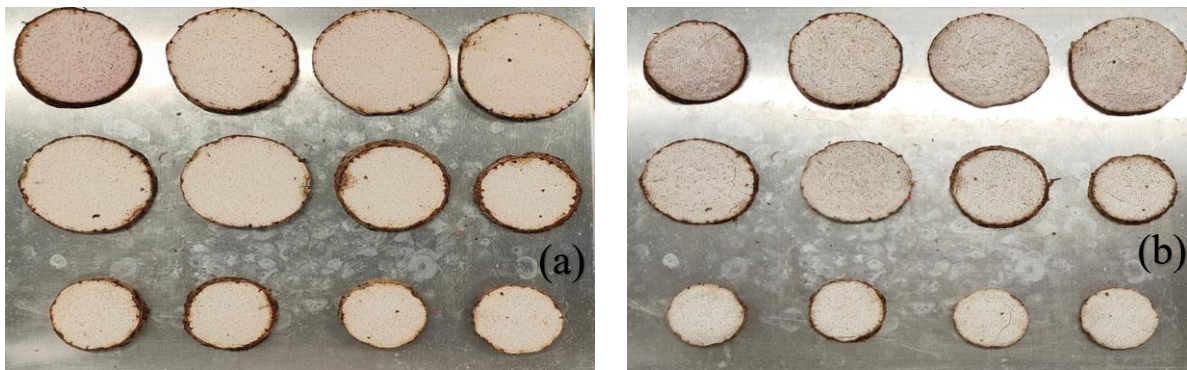


Figure 10.4 Trial-3 (a) before HAD (b) after HAD

60°C, 8 mm, 1 m/s

(HAD – Hot air drying)

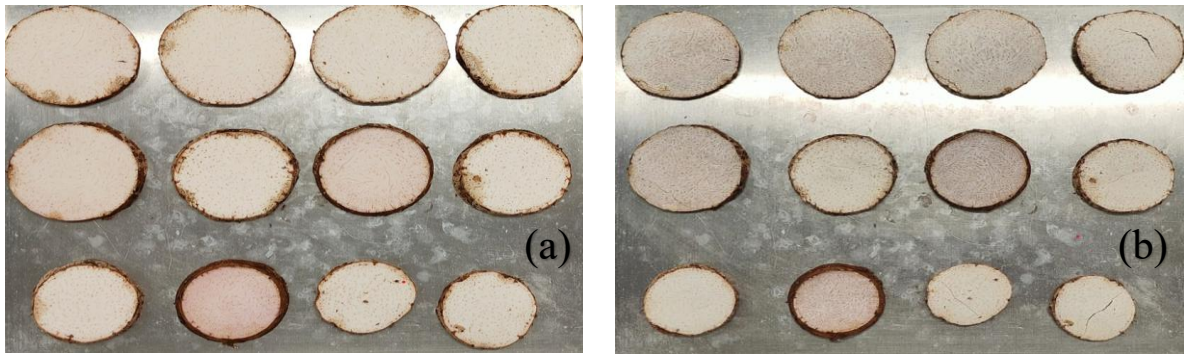


Figure 10.5 Trial-1 (a) before HAD (b) after HAD

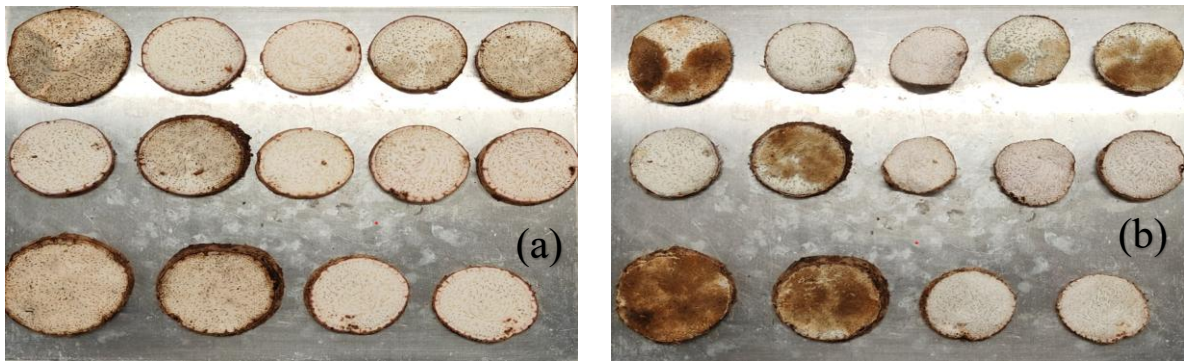


Figure 10.6 Trial-2 (a) before HAD (b) after HAD

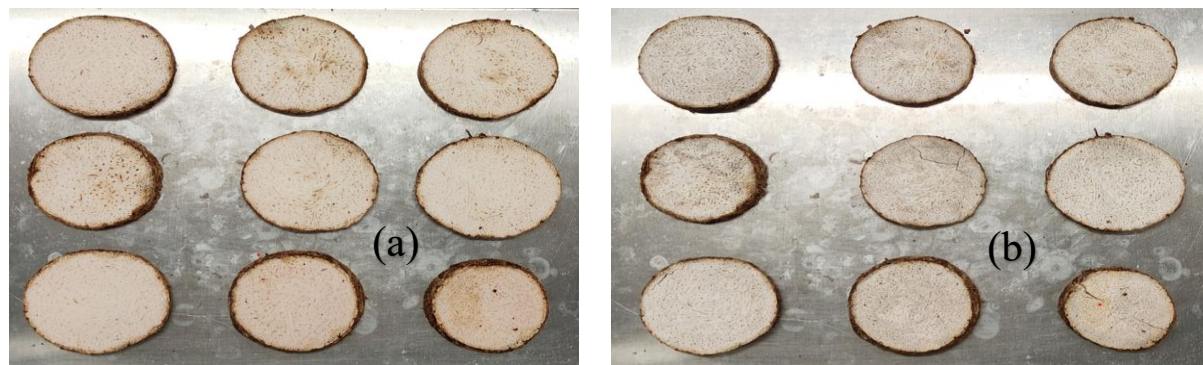


Figure 10.7 Trial-3 (a) before HAD (b) after HAD

50°C, 8 mm, 1 m/s

(HAD – Hot air drying)

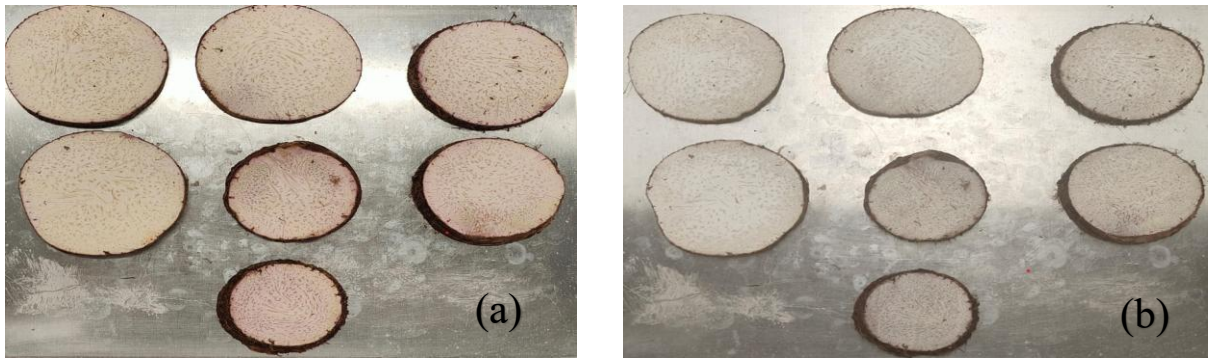


Figure 10.8 Trial-1 (a) before HAD (b) after HAD

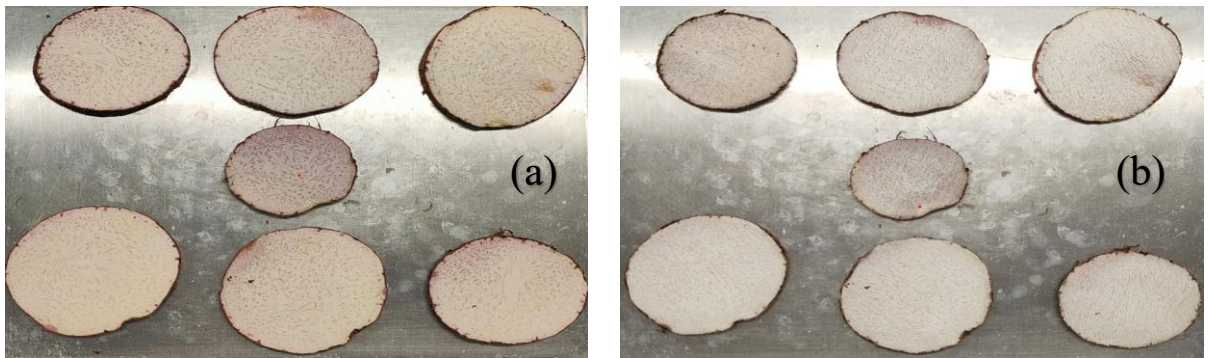


Figure 10.9 Trial-2 (a) before HAD (b) after HAD

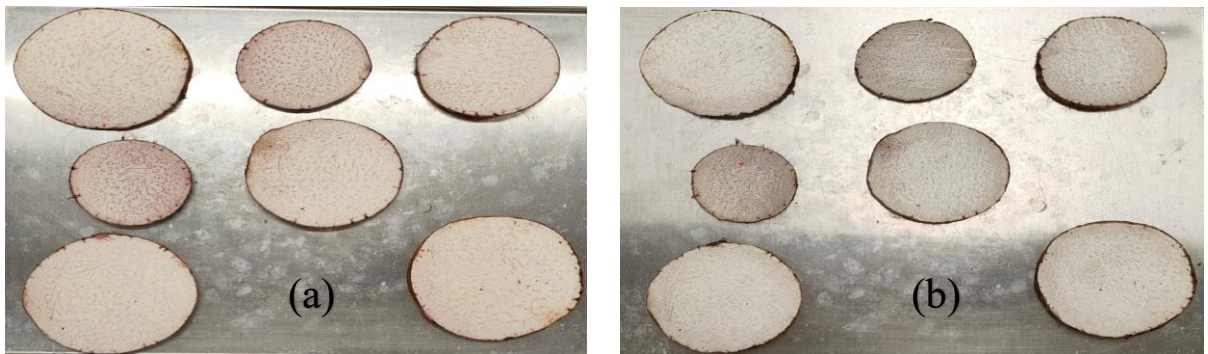


Figure 10.10 Trial-3 (a) before HAD (b) after HAD

70°C, 16 mm, 1 m/s

(HAD – Hot air drying)

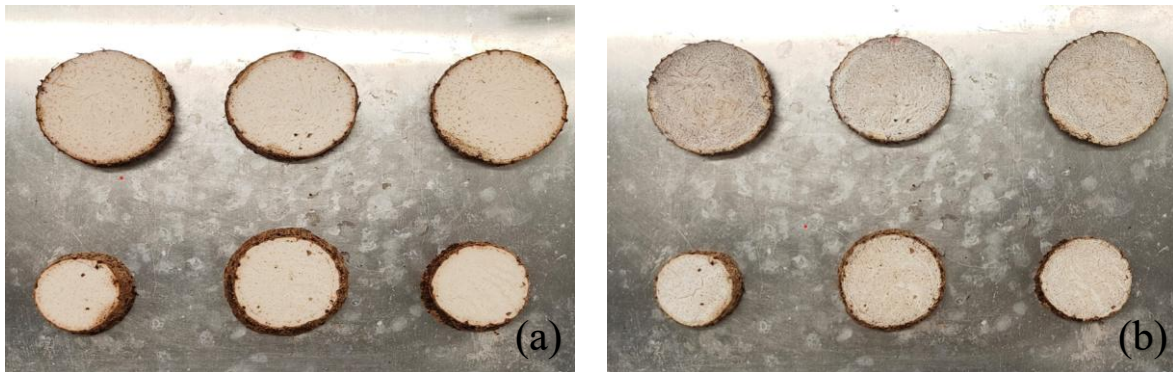


Figure 10.11 Trial-1 (a) before HAD (b) after HAD

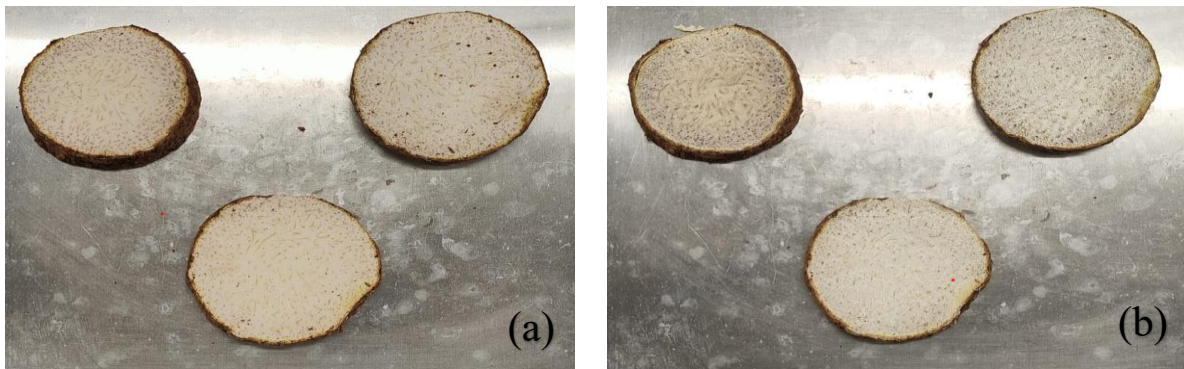


Figure 10.12 Trial-2 (a) before HAD (b) after HAD

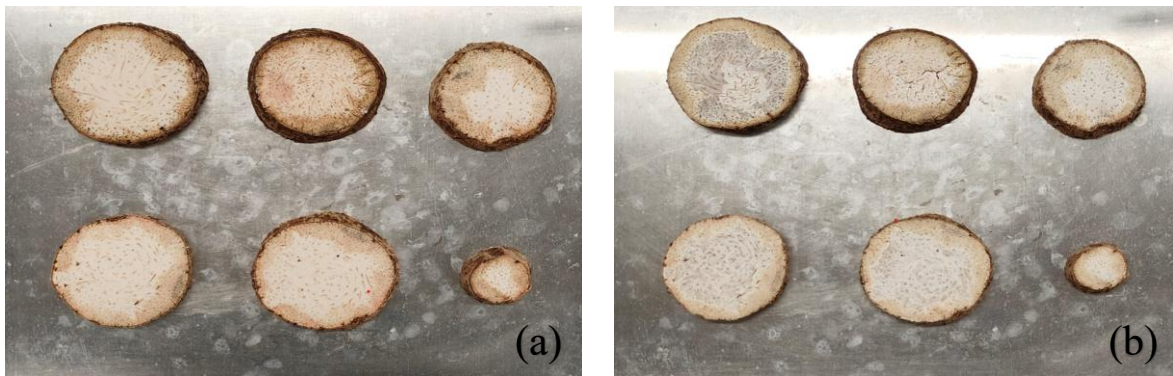


Figure 10.13 Trial-3 (a) before HAD (b) after HAD

50°C, 8 mm, 2 m/s

(HAD – Hot air drying)

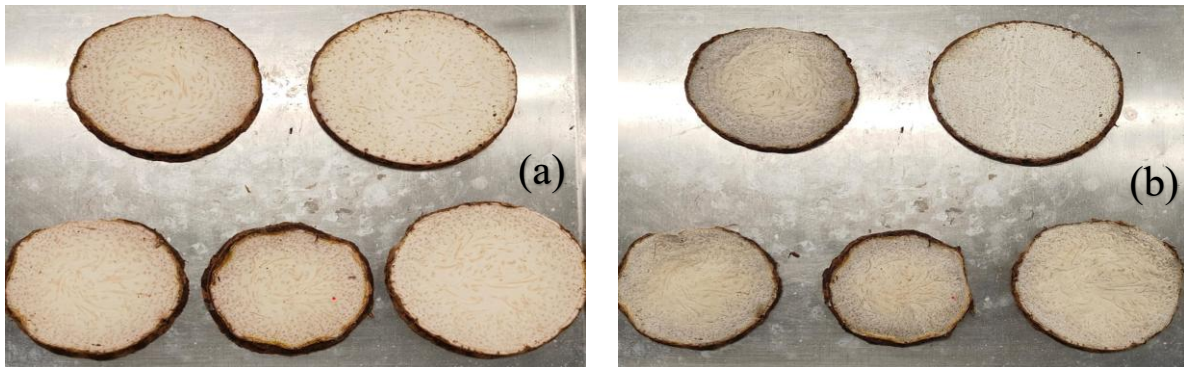


Figure 10.14 Trial-1 (a) before HAD (b) after HAD

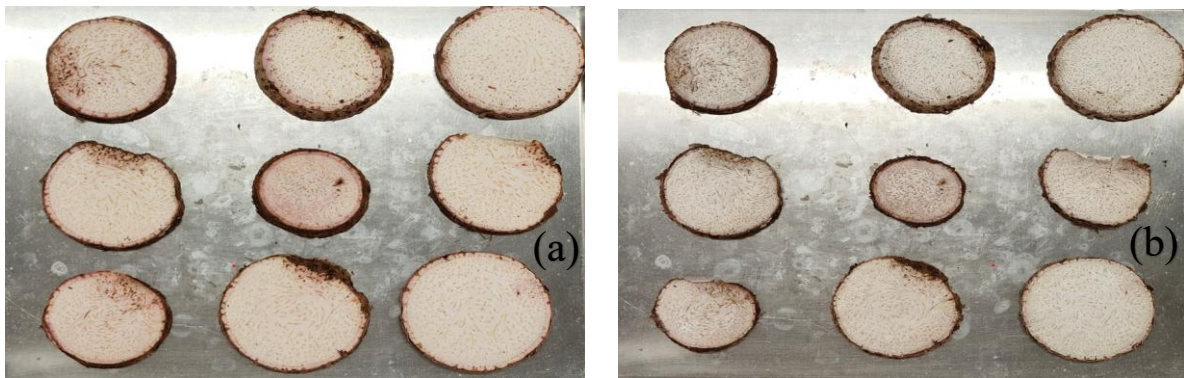


Figure 10.15 Trial-2 (a) before HAD (b) after HAD

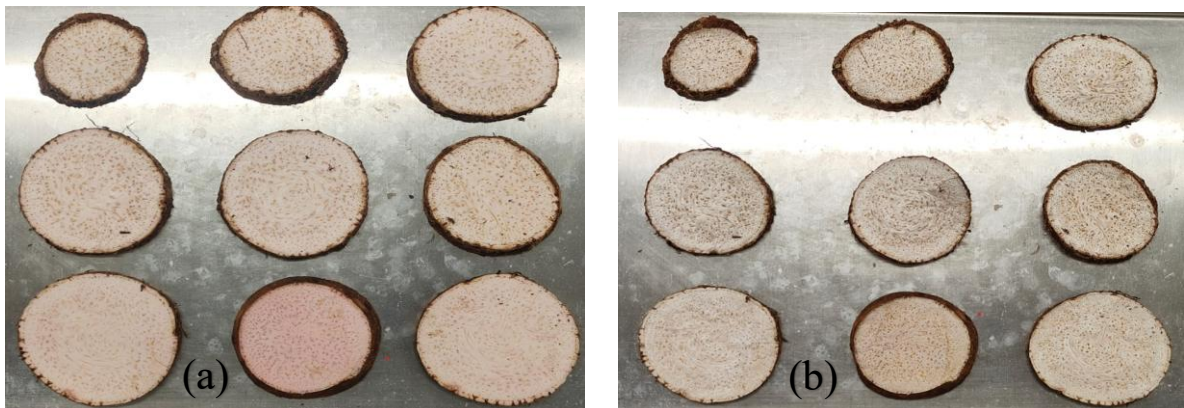


Figure 10.16 Trial-3 (a) before HAD (b) after HAD

105°C, 8 mm

(Oven drying -OVD)



Figure 10.17 Trial-1 (a) before OVD (b) after OVD



Figure 10.18 Trial-2 (a) before OVD (b) after OVD



Figure 10.19 Trial-3 (a) before OVD (b) after OVD

## Microwave power testing

### Low Power microwaving

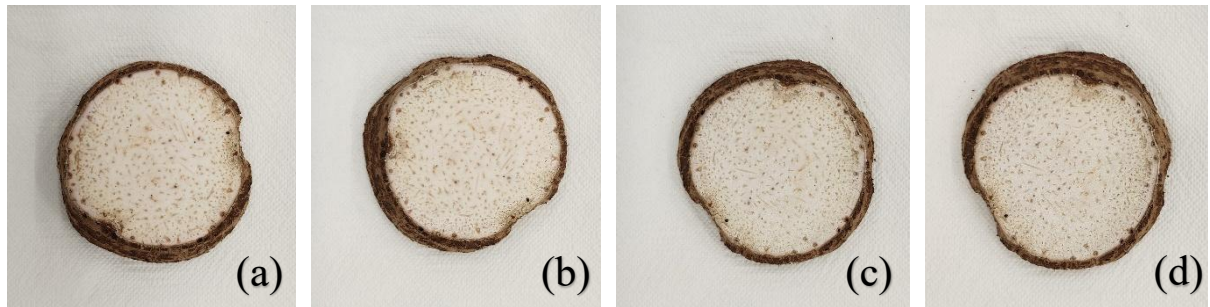


Figure 10.20 (a) 0 min (b) 2 min (c) 4 min (d) 6 min

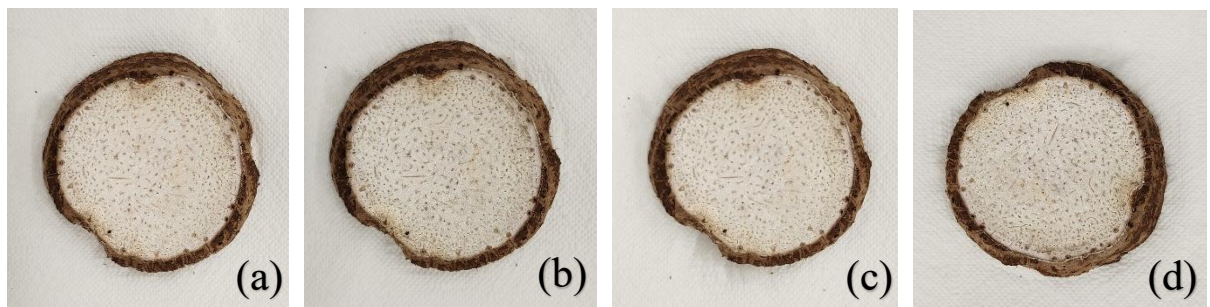


Figure 10.21 (a) 8 min (b) 10 min (c) 12 min (d) 14 min

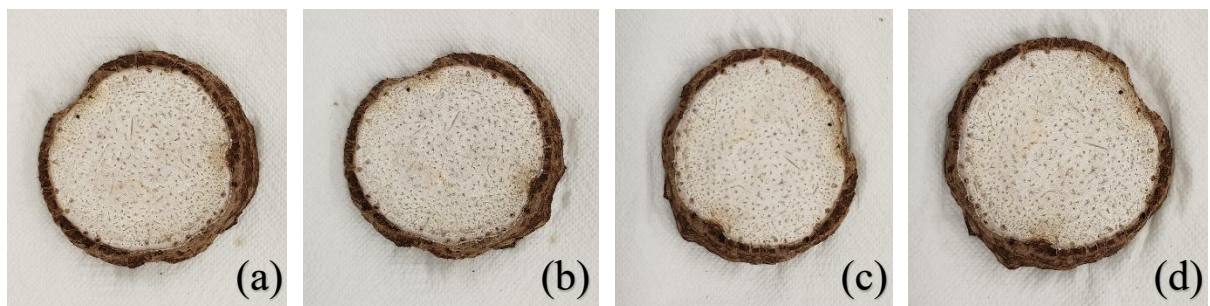


Figure 10.22 (a) 16 min (b) 18 min (c) 20 min (d) 22 min

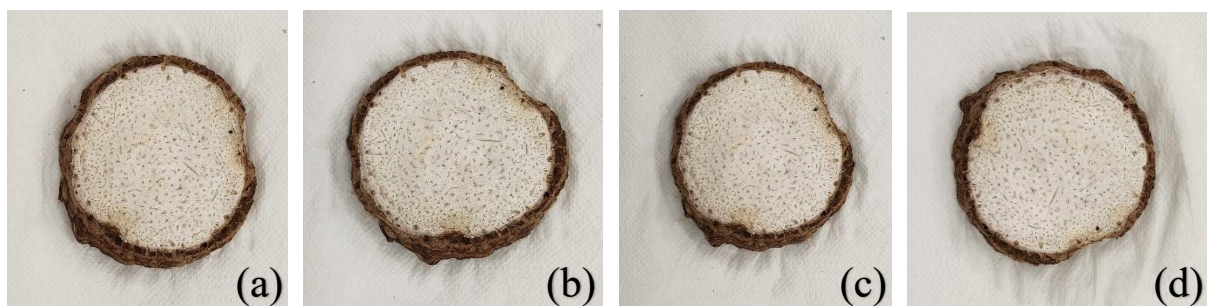


Figure 10.23 (a) 24 min (b) 26 min (c) 28 min (d) 30 min

### Medium Power microwaving

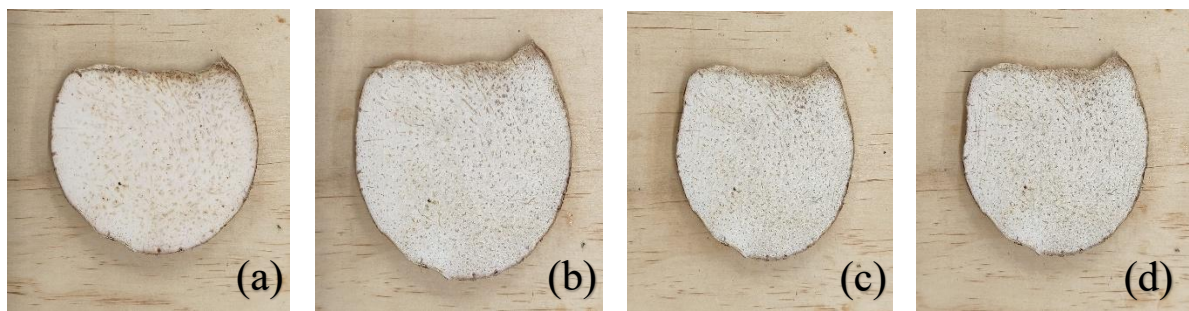


Figure 10.24 (a) 0 min (b) 2 min (c) 3 min (d) 4 min

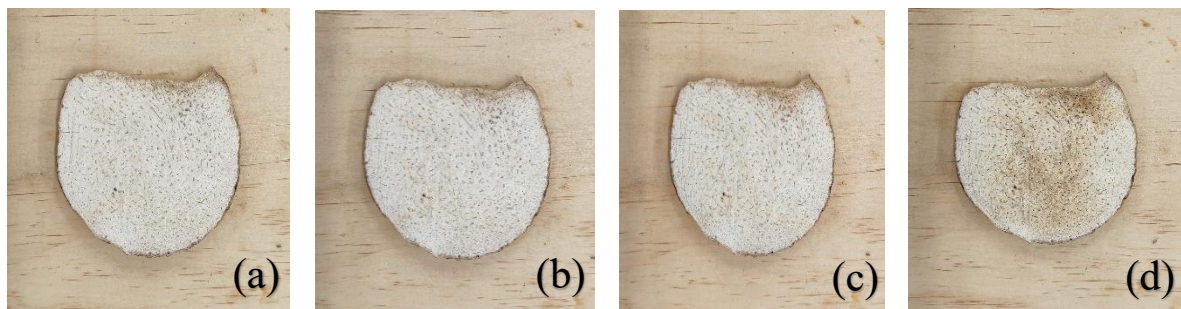


Figure 10.25 (a) 5 min (b) 6 min (c) 7 min (d) 8 min

### High Power microwaving



Figure 10.26 (a) 0 min (b) 1 min (c) 2 min

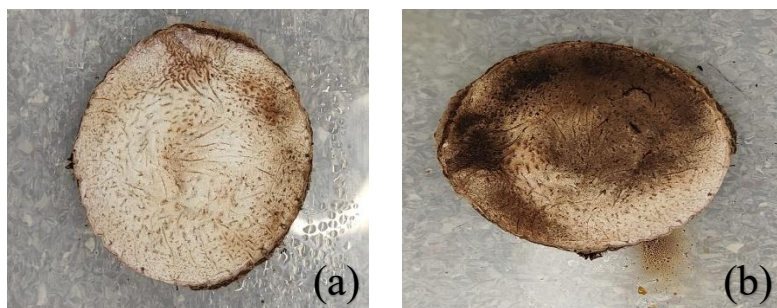


Figure 10.27 (a) 3 min (b) 4 min

## Microwave pretreatment and Hot air drying

2 Minutes of microwave pretreatment and Hot air drying (50°C, 8 mm, 1 m/s)

BM – Before microwaving	AM – After microwaving	HAD – Hot air drying
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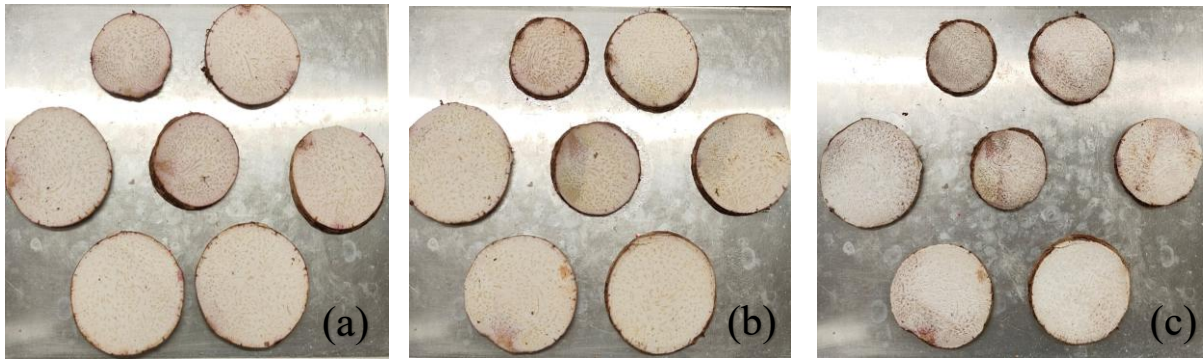


Figure 10.28 Trial-1 (a) BM (b) AM (c) After HAD

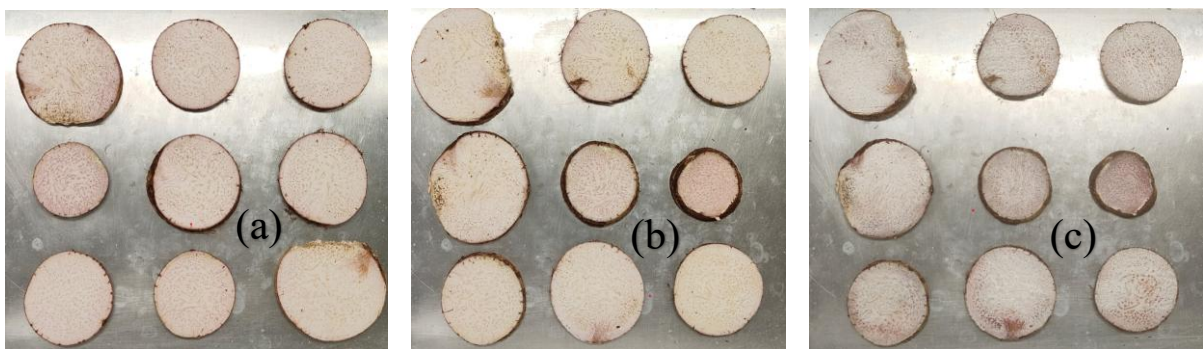


Figure 10.29 Trial-2 (a) BM (b) AM (c) After HAD

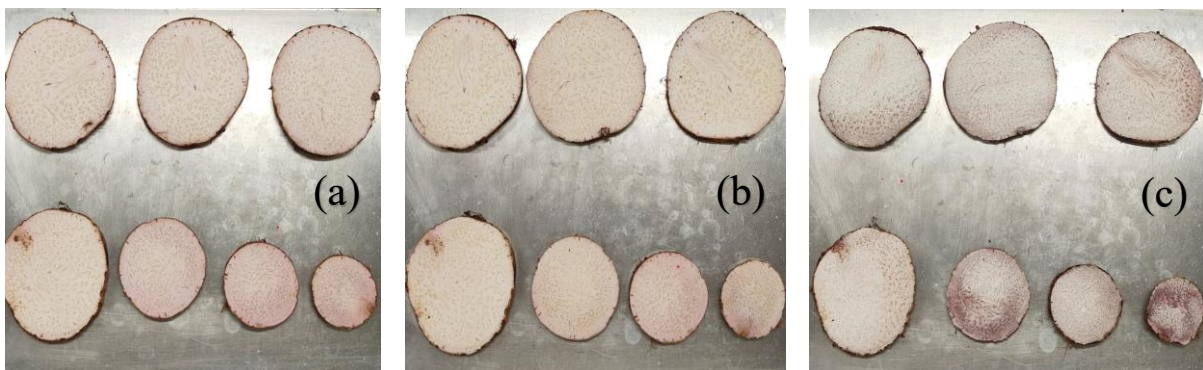
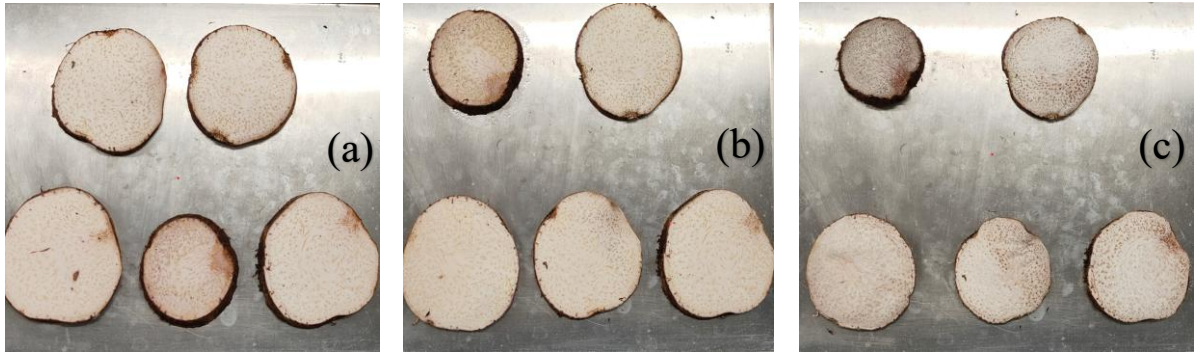


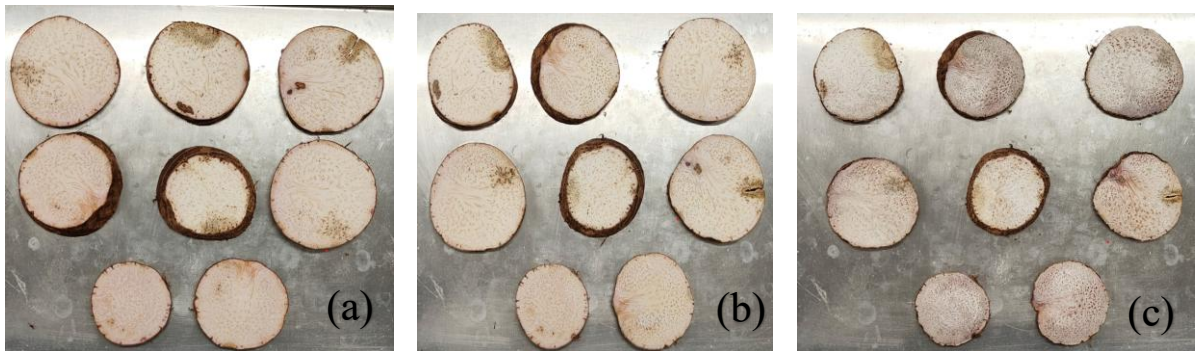
Figure 10.30 Trial-3 (a) BM (b) AM (c) After HAD

**2 Minutes of microwave pretreatment and Hot air drying (50°C, 8 mm, 1 m/s)**

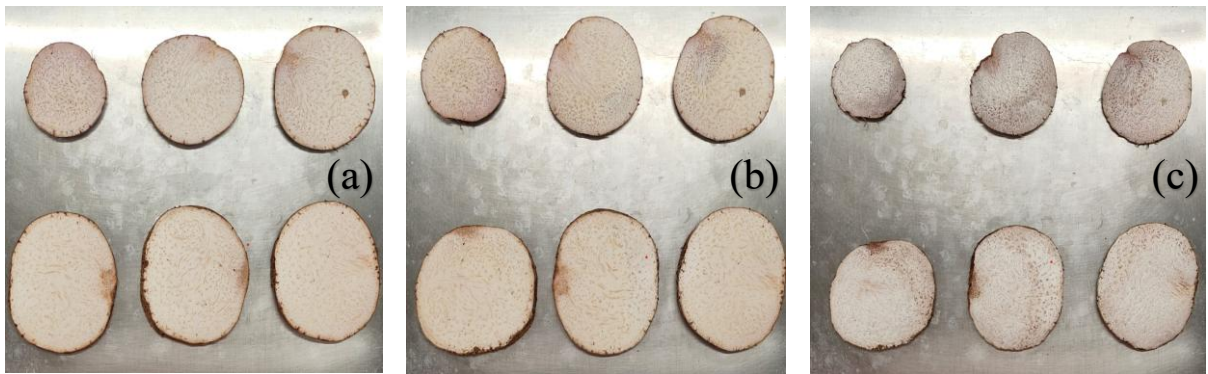
BM – Before microwaving	AM – After microwaving	HAD – Hot air drying
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**Figure 10.31 Trial-1 (a) BM (b) AM (c) After HAD**



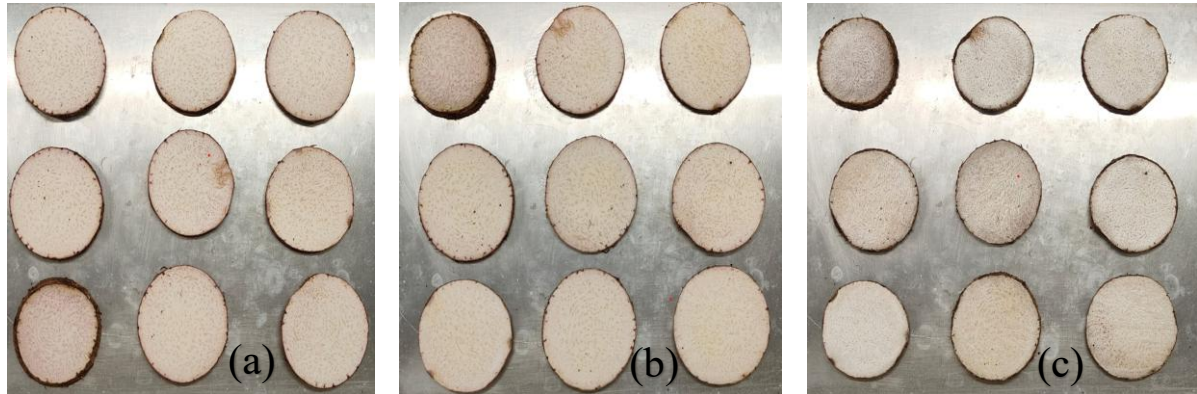
**Figure 10.32 Trial-2 (a) BM (b) AM (c) After HAD**



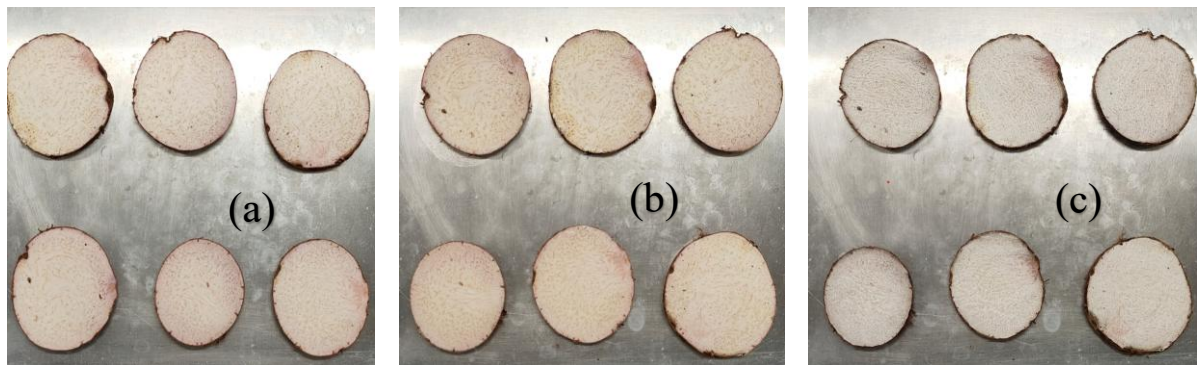
**Figure 10.33 Trial-3 (a) BM (b) AM (c) After HAD**

**1 Minute of microwave pretreatment and hot air drying (70°C, 8 mm, 1 m/s)**

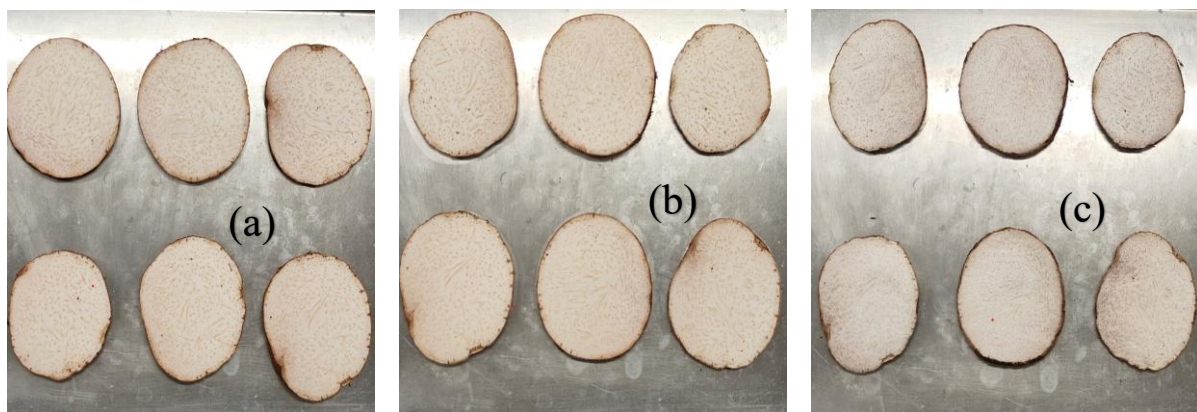
BM – Before microwaving	AM – After microwaving	HAD – Hot air drying
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**Figure 10.34 Trial-1 (a) BM (b) AM (c) After HAD**



**Figure 10.35 Trial-2 (a) BM (b) AM (c) After HAD**

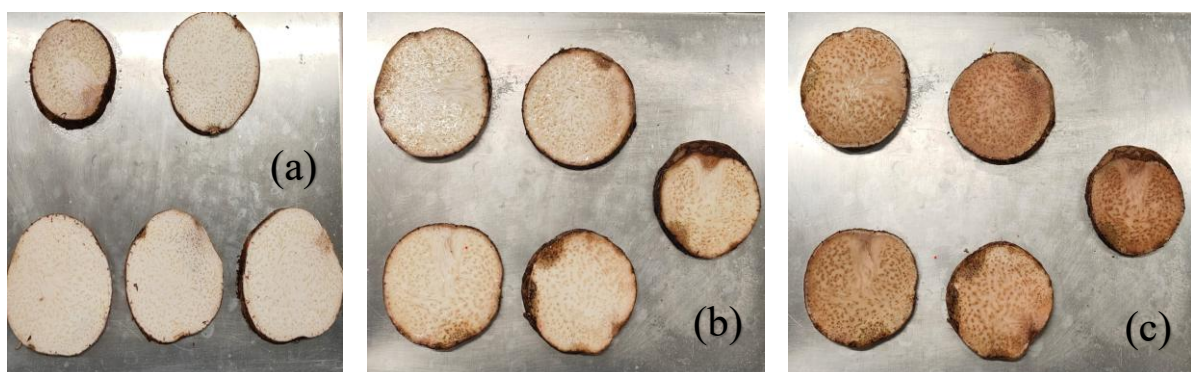
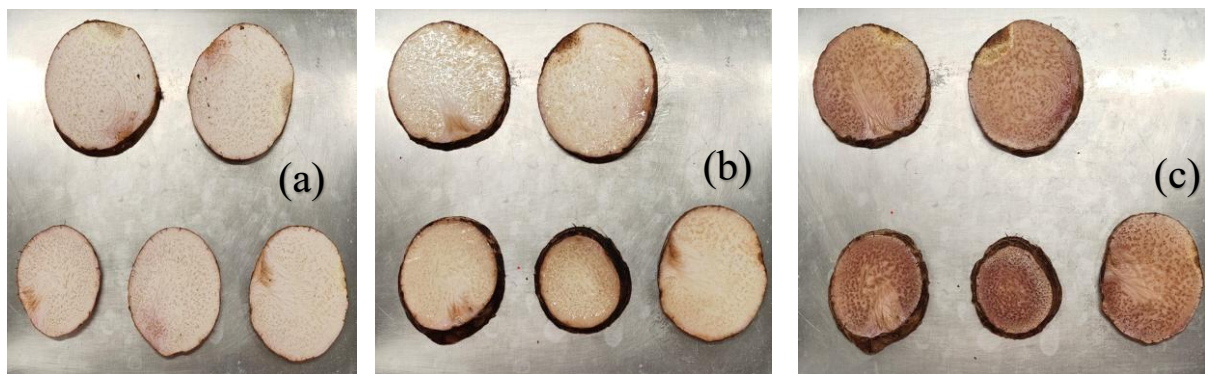
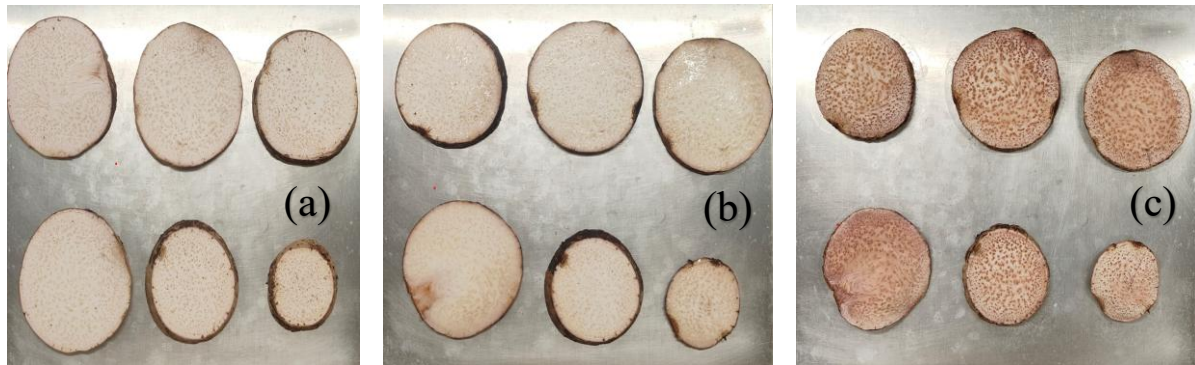


**Figure 10.36 Trial-3 (a) BM (b) AM (c) After HAD**

## Hot water blanching pretreatment and Hot air drying

3 Minutes of blanching pretreatment and hot air drying (50°C, 8 mm, 1 m/s)

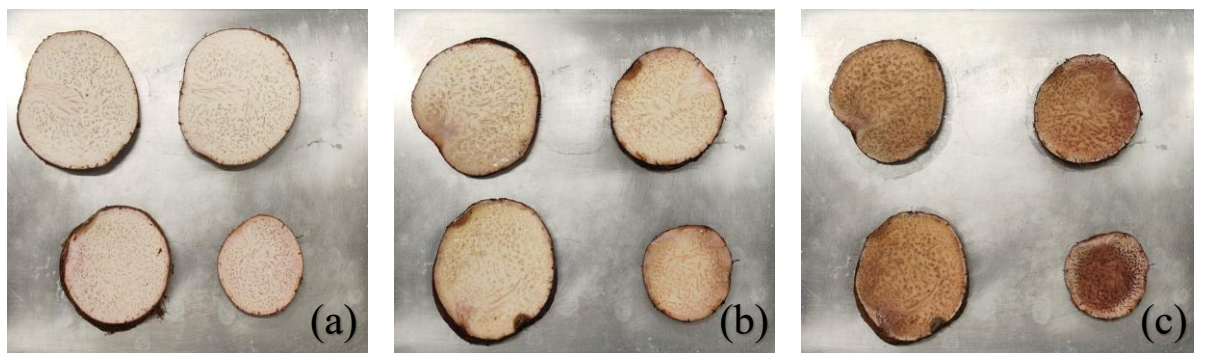
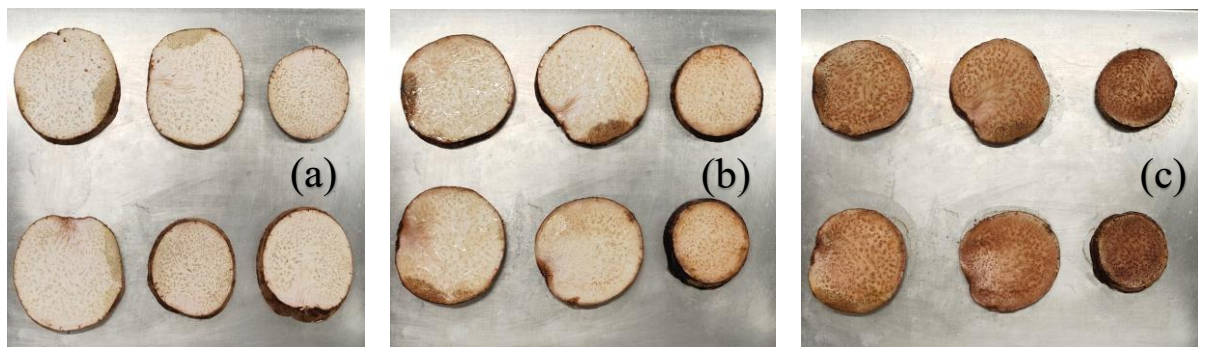
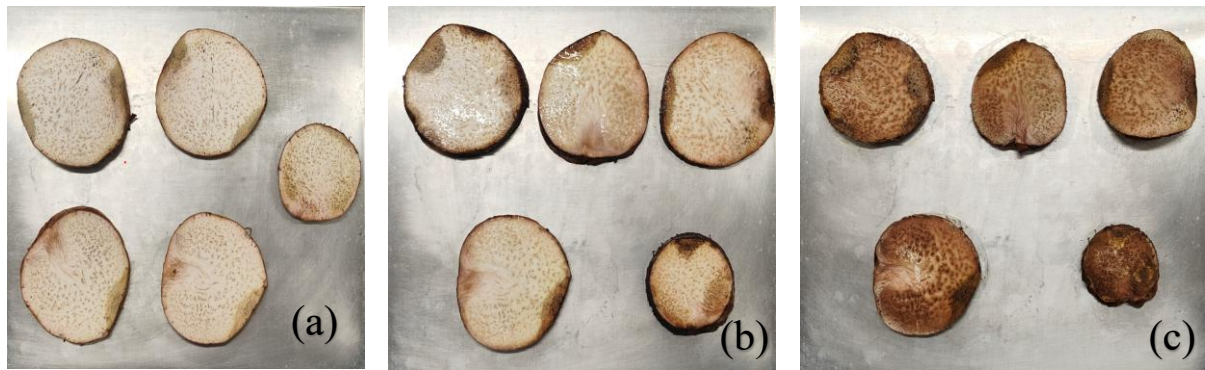
BH – Before blanching	AM – After blanching	HAD – Hot air drying
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### 3 Minutes blanching pretreatment and Hot air drying

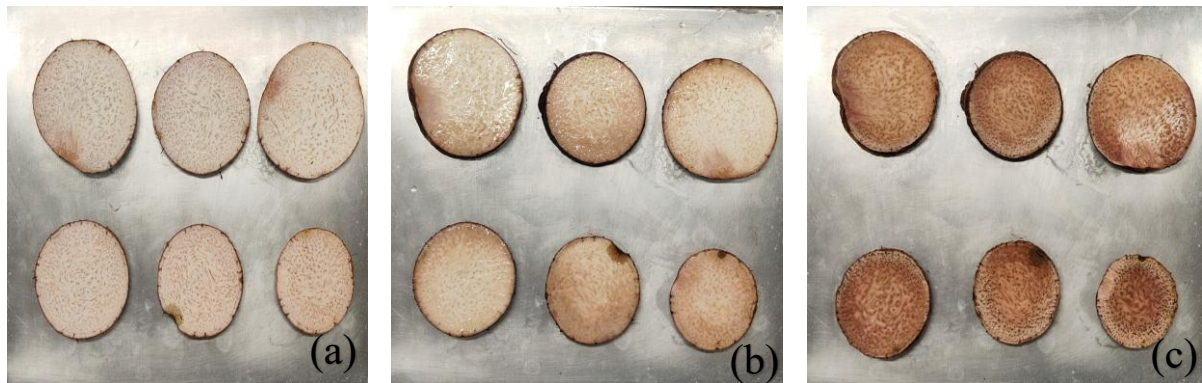
### 3 Minutes of blanching pretreatment and hot air drying (70°C, 8 mm, 1 m/s)

BH – Before blanching	AM – After blanching	HAD – Hot air drying
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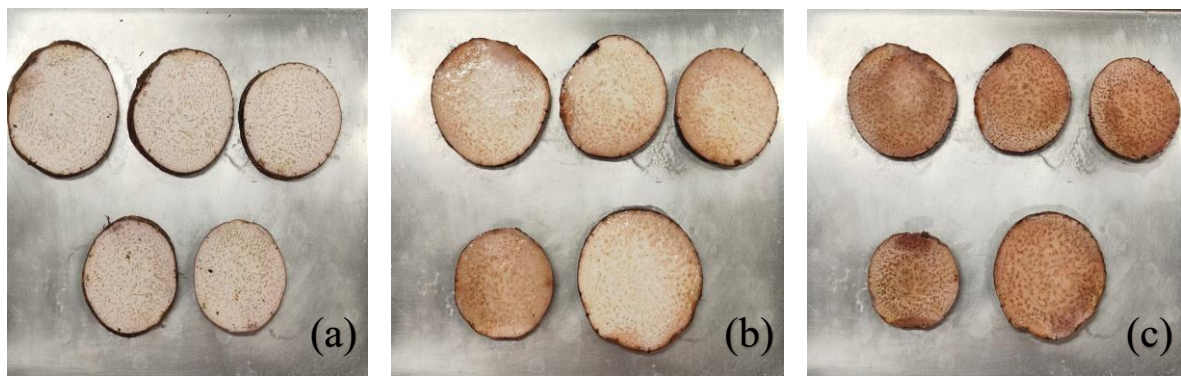


**5 Minutes of blanching pretreatment and hot air drying (50°C, 8 mm, 1 m/s)**

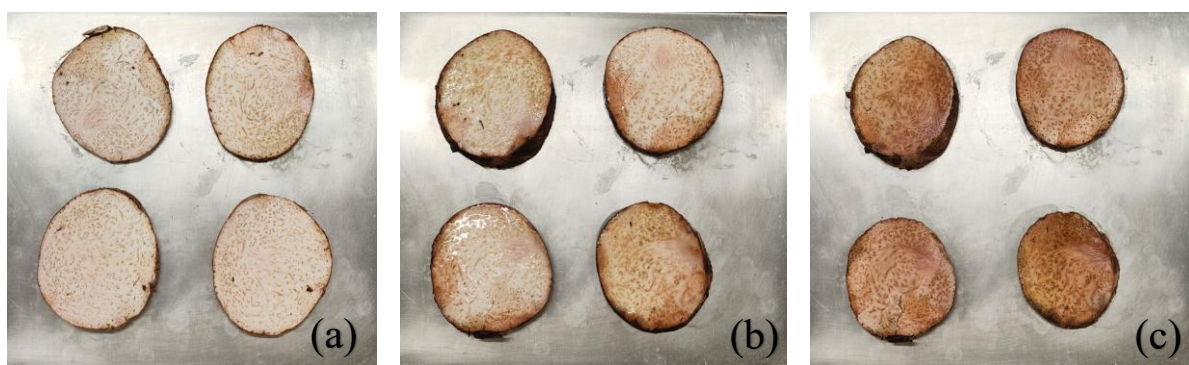
BH – Before blanching	AM – After blanching	HAD – Hot air drying
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**Figure 10.43 Trial-1 (a) BH (b) AH (c) After HAD**



**Figure 10.44 Trial-2 (a) BH (b) AH (c) After HAD**



**Figure 10.45 Trial-3 (a) BH (b) AH (c) After HAD**

## Ultrasonication pretreatment and Hot air drying

20 Minutes of ultrasonic pretreatment and hot air drying (50°C, 8 mm, 1 m/s)

BU – Before ultrasonication	HAD – Hot air drying
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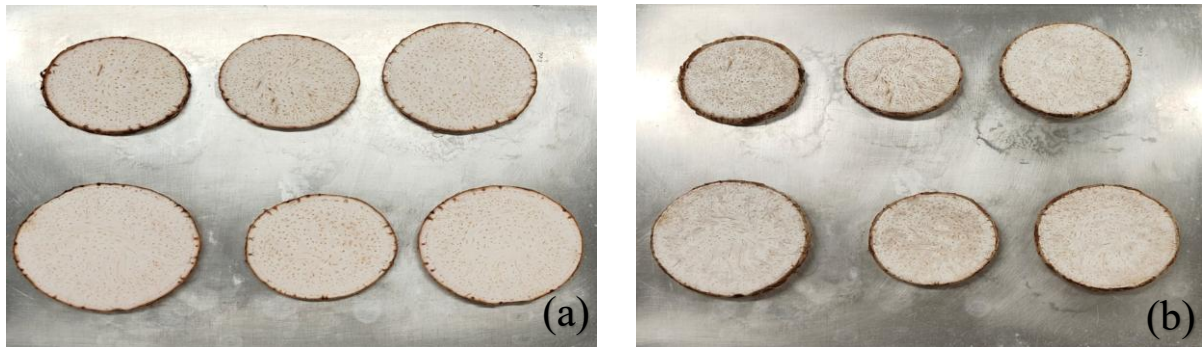


Figure 10.46 Trial-1 (a) BU (b) After HAD

## Osmotic dehydration pretreatment and Hot air drying

20 Minutes of osmotic dehydration pretreatment and hot air drying (50°C, 8 mm, 1 m/s)

BO – Before osmotic dehydration	AO – After osmotic dehydration	HAD – Hot air drying
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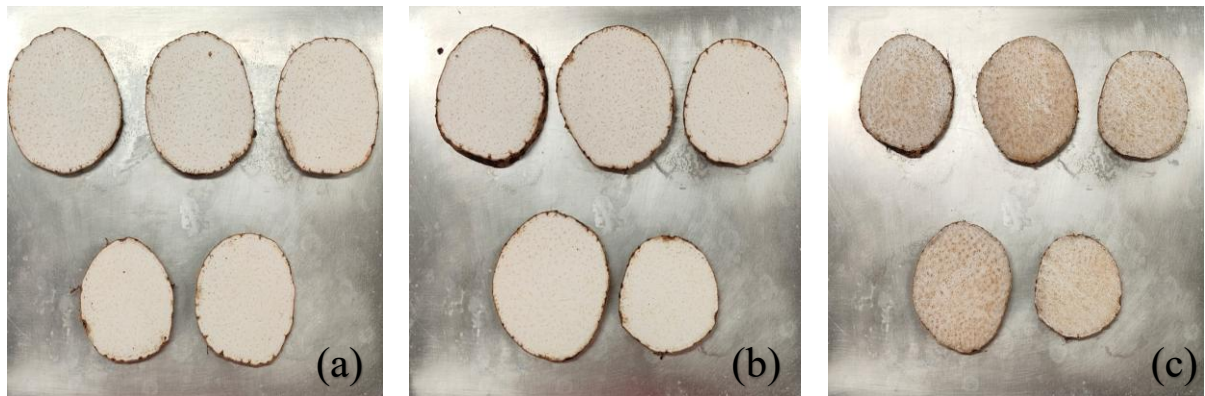


Figure 10.47 Trial-1 (a) BO (b) AO (c) After HAD

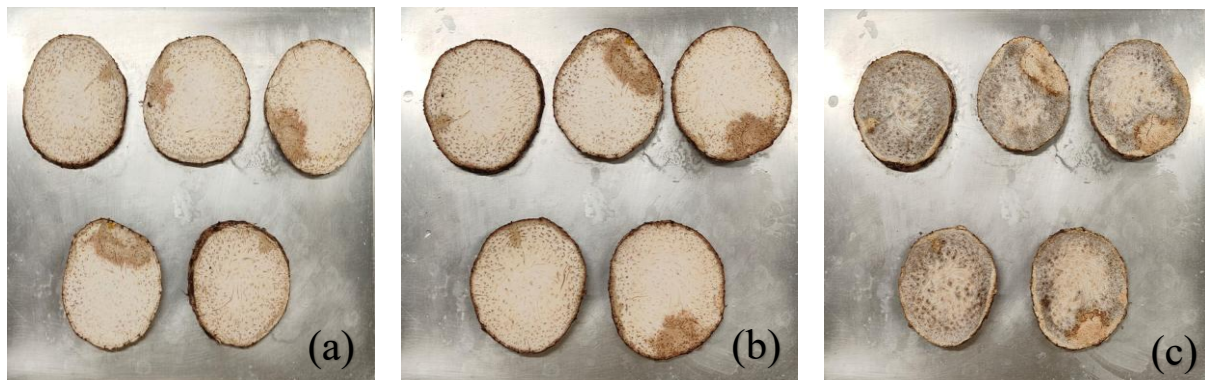


Figure 10.48 Trial-2 (a) BO (b) AO (c) After HAD

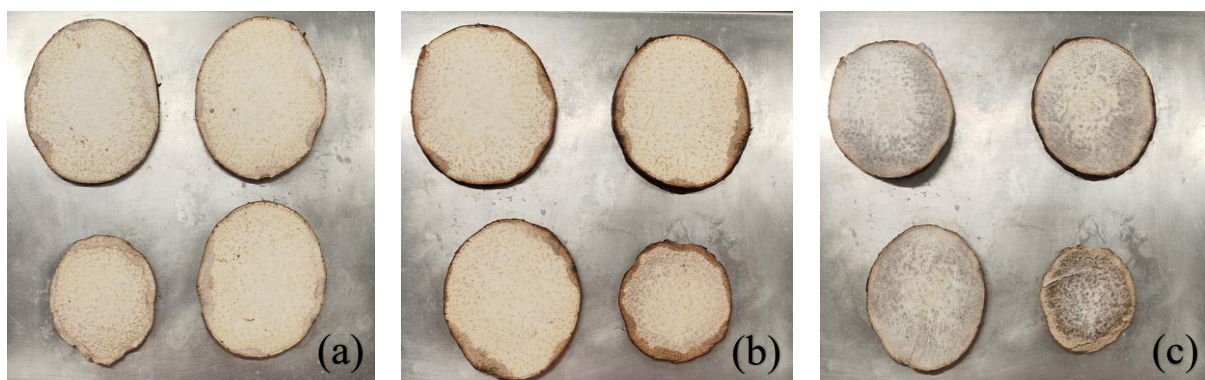
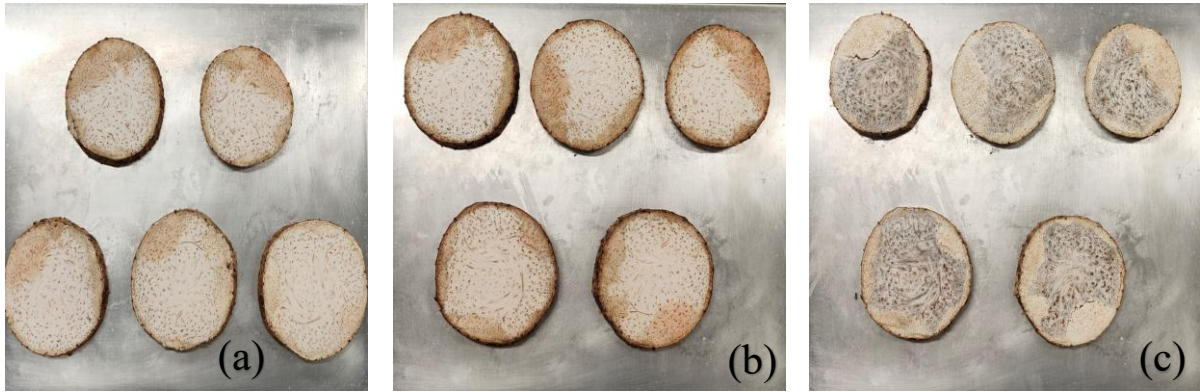


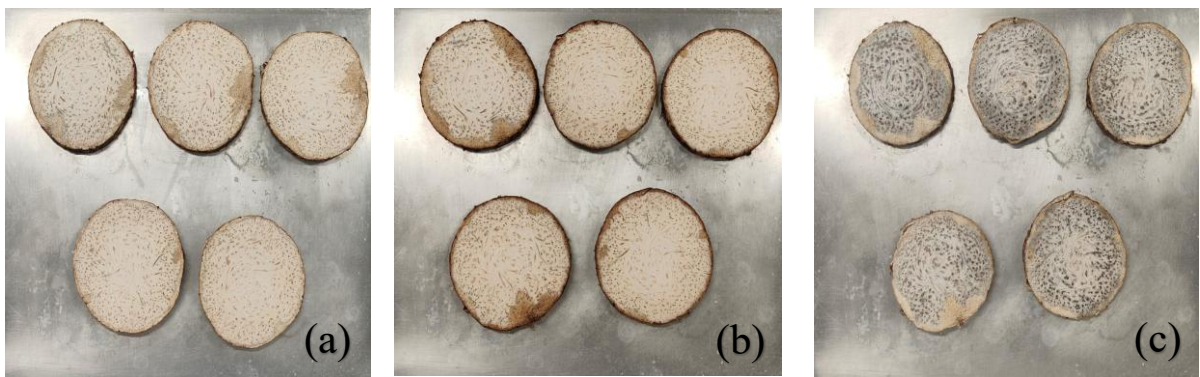
Figure 10.49 Trial-3 (a) BO (b) AO (c) After HAD

**40 Minutes of osmotic dehydration pretreatment and hot air drying (50°C, 8 mm, 1 m/s)**

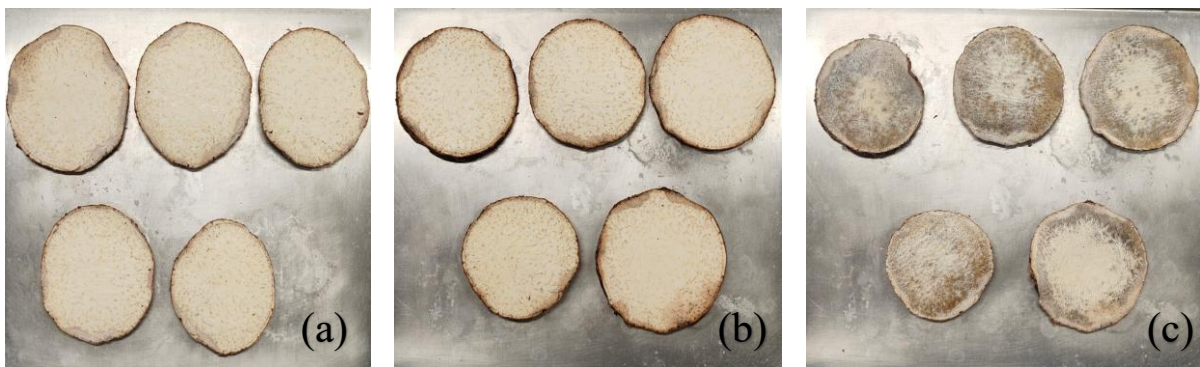
BO – Before osmotic dehydration	AO – After osmotic dehydration	HAD – Hot air drying
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**Figure 10.50 Trial-1 (a) BO (b) AO (c) After HAD**



**Figure 10.51 Trial-2 (a) BO (b) AO (c) After HAD**



**Figure 10.52 Trial-3 (a) BO (b) AO (c) After HAD**

## Hot air drying and Microwave post treatment

6 hours of hot air drying and microwave post treatment (50°C, 8 mm, 1 m/s)

HAD – Hot air drying		
M3 – HAD and 3 minutes microwaving	M4 – HAD and 4 minutes microwaving	M6 – HAD and 6 minutes microwaving
M8 – HAD and 8 minutes microwaving	M9 – HAD and 9 minutes microwaving	M10 – HAD and 10 minutes microwaving
M12 – HAD and 12 minutes microwaving		

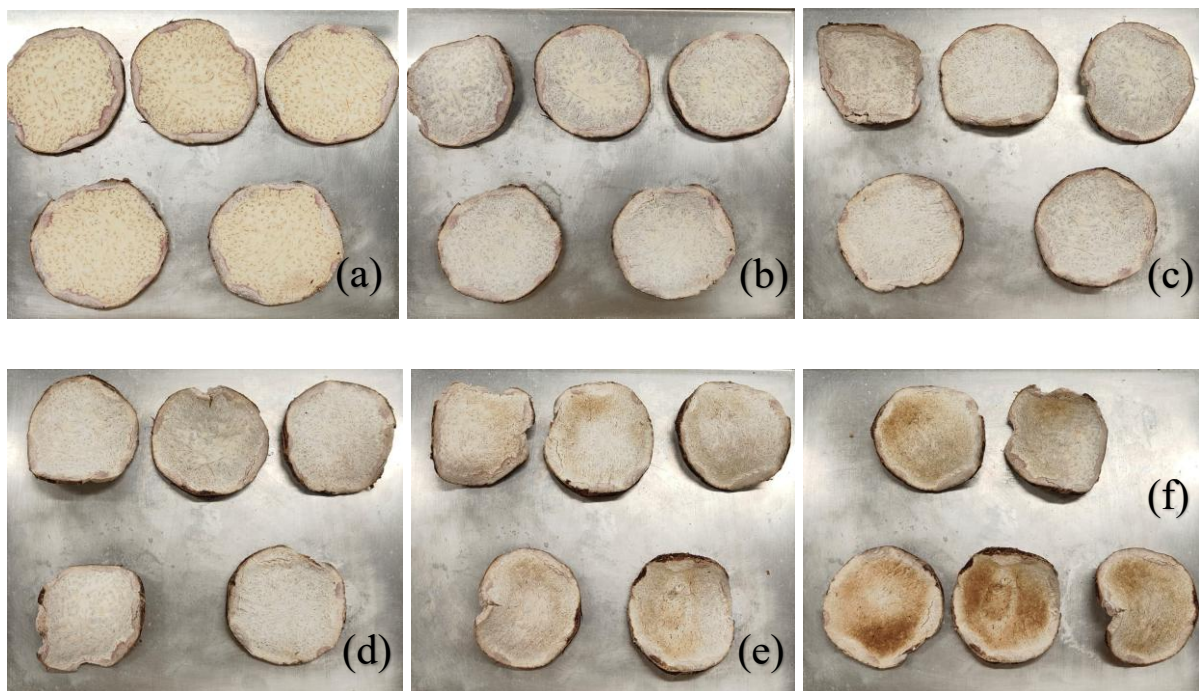
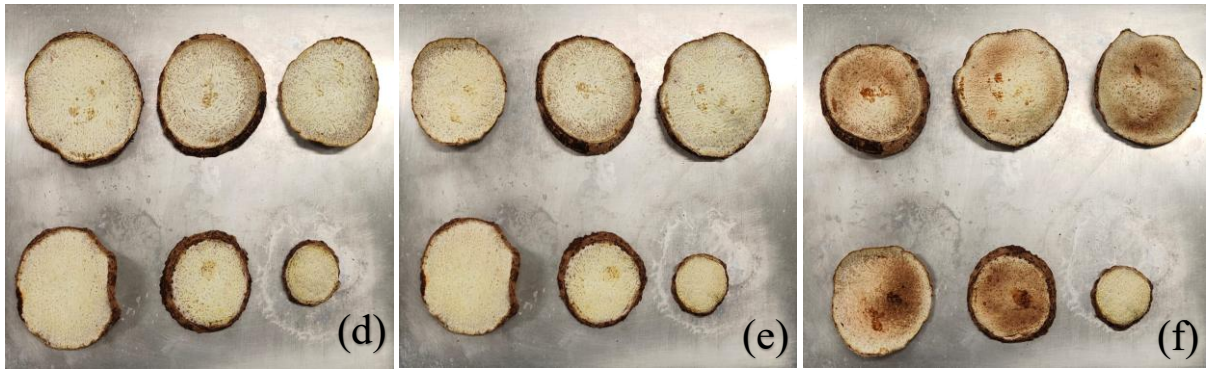
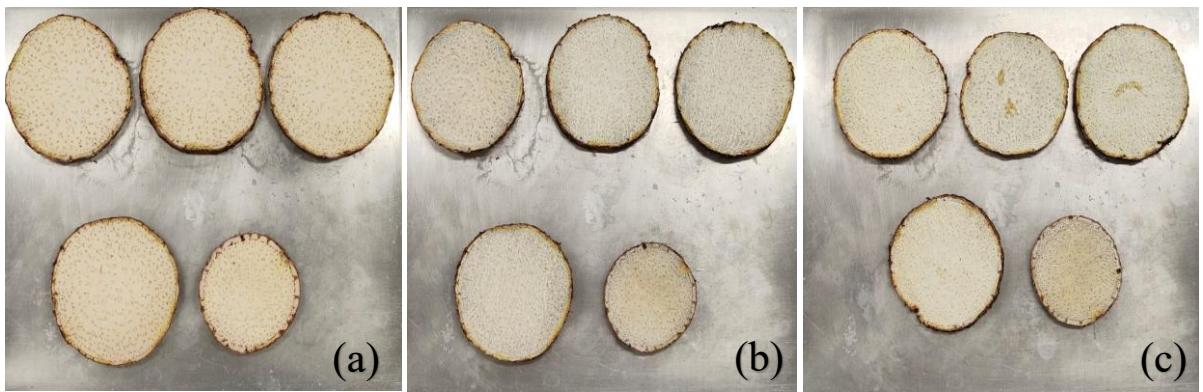


Figure 10.53 Trial-1 (a) Before HAD (b) After HAD (c) M4 (d) M8 (e) M10 (f) M12





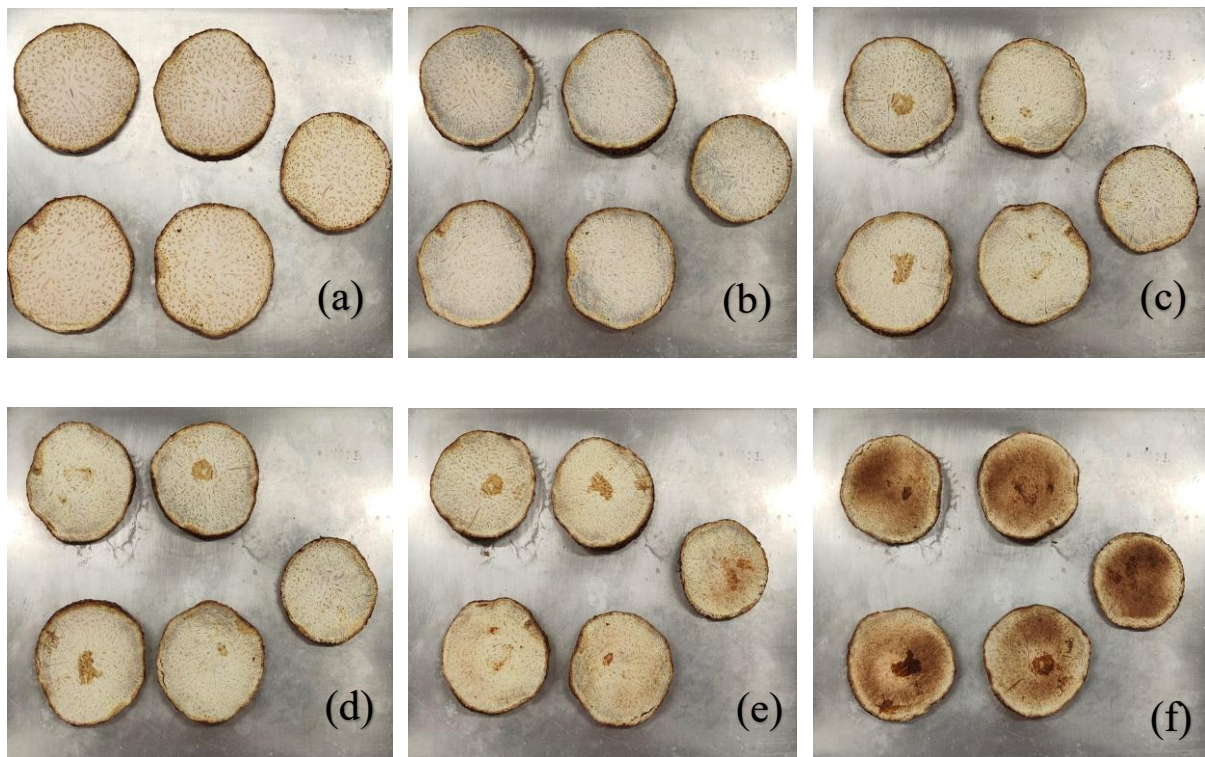
**Figure 10.54** Trial-2 (a) Before HAD (b) After HAD (c) M3 (d) M6 (e) M9 (f) M12



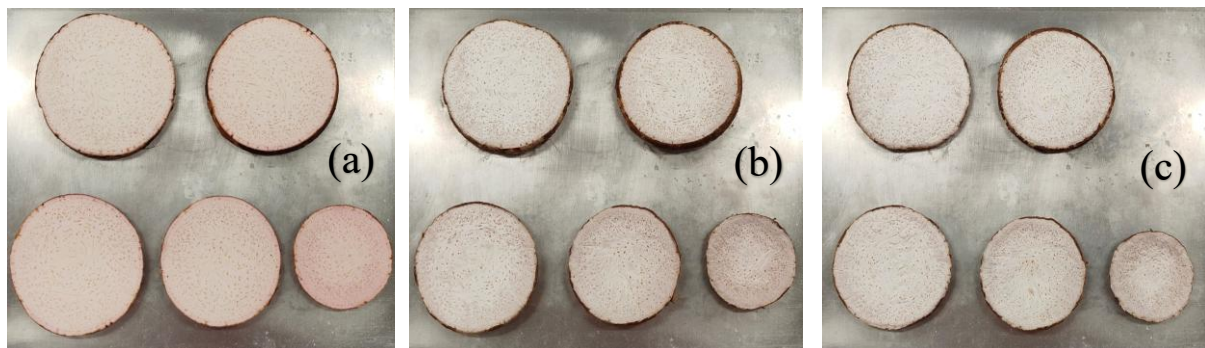
**Figure 10.55** Trial-3 (a) Before HAD (b) After HAD (c) M3 (d) M6 (e) M9 (f) M12

**4 hours of hot air drying and microwave post treatment (50°C, 8 mm, 1 m/s)**

HAD – Hot air drying		
M6 – HAD and 6 minutes microwaving	M9 – HAD and 9 minutes microwaving	M13 – HAD and 13 minutes microwaving
M15 – HAD and 15 minutes microwaving		

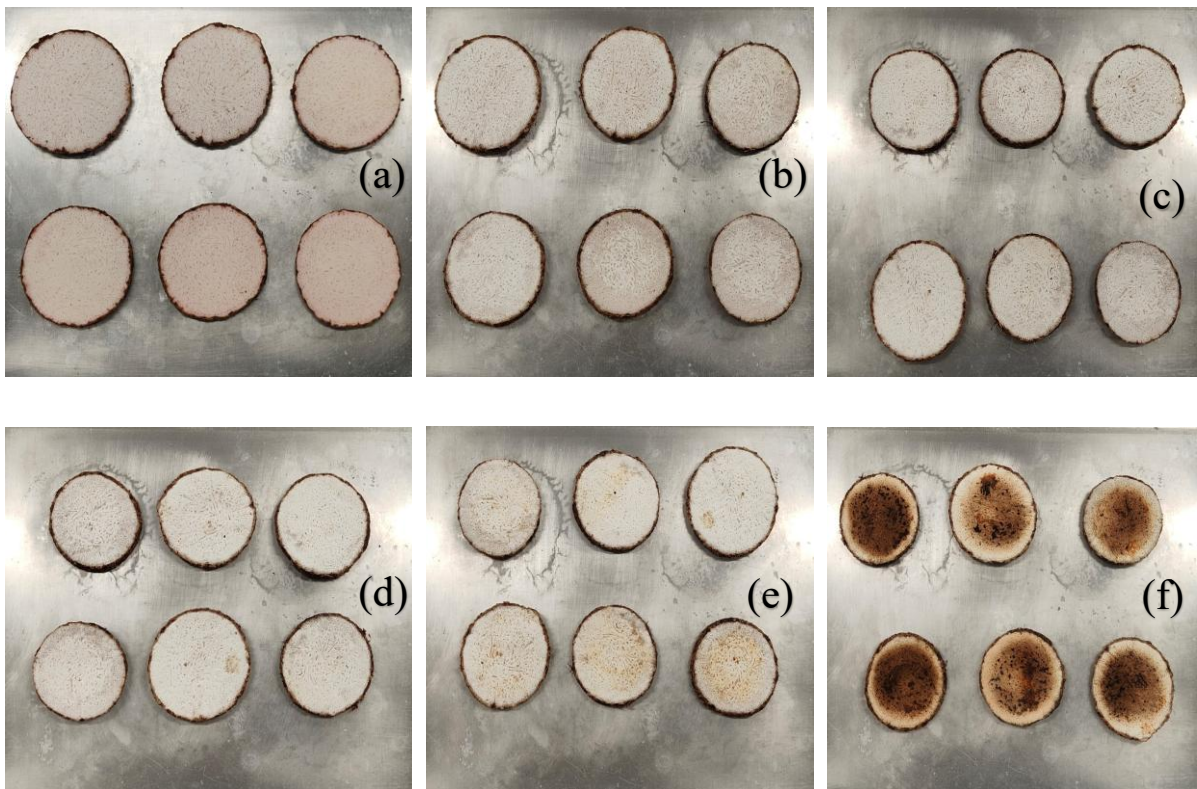


**Figure 10.56 Trial-1 (a) Before HAD (b) After HAD (c) M6 (d) M9 (e) M13 (f) M15**





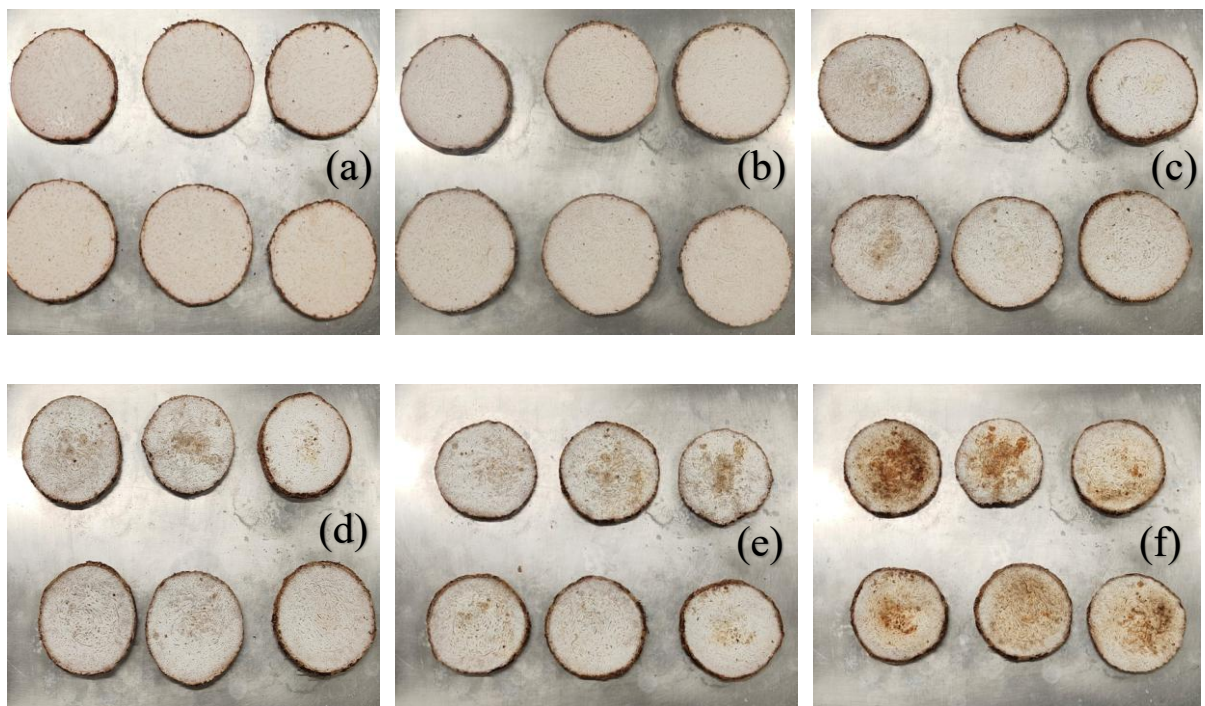
**Figure 10.57** Trial-2 (a) Before HAD (b) After HAD (c) M6 (d) M9 (e) M13 (f) M15



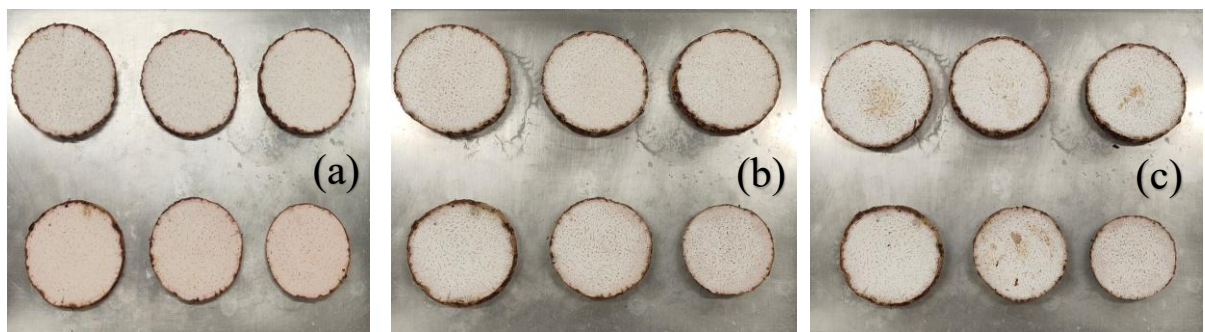
**Figure 10.58** Trial-3 (a) Before HAD (b) After HAD (c) M6 (d) M9 (e) M13 (f) M15

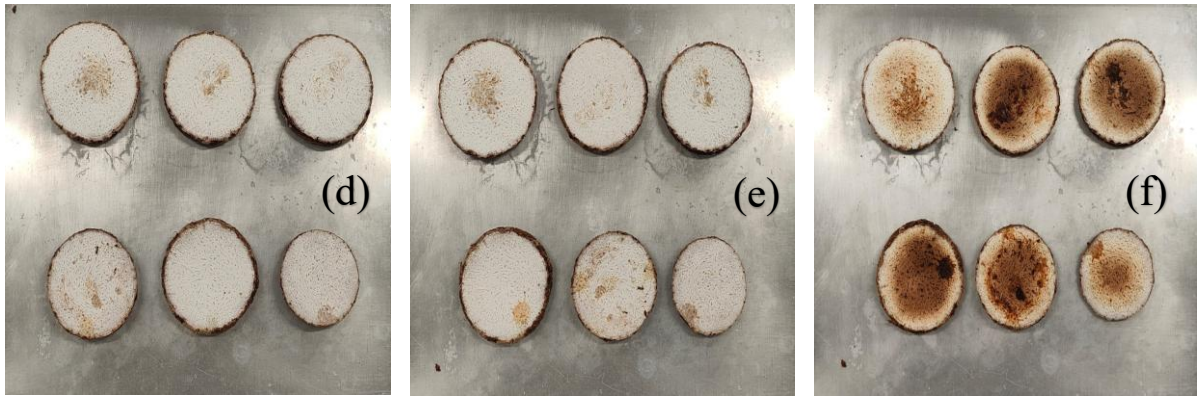
**1 hour of hot air drying and microwave post treatment (50°C, 8 mm, 1 m/s)**

HAD – Hot air drying		
M5 – HAD and 5 minutes microwaving	M6 – HAD and 6 minutes microwaving	M10 – HAD and 10 minutes microwaving
M12 – HAD and 12 minutes microwaving	M15 – HAD and 15 minutes microwaving	M20 – HAD and 20 minutes microwaving
M22 – HAD and 22 minutes microwaving	M23 – HAD and 23 minutes microwaving	M24 – HAD and 24 minutes microwaving

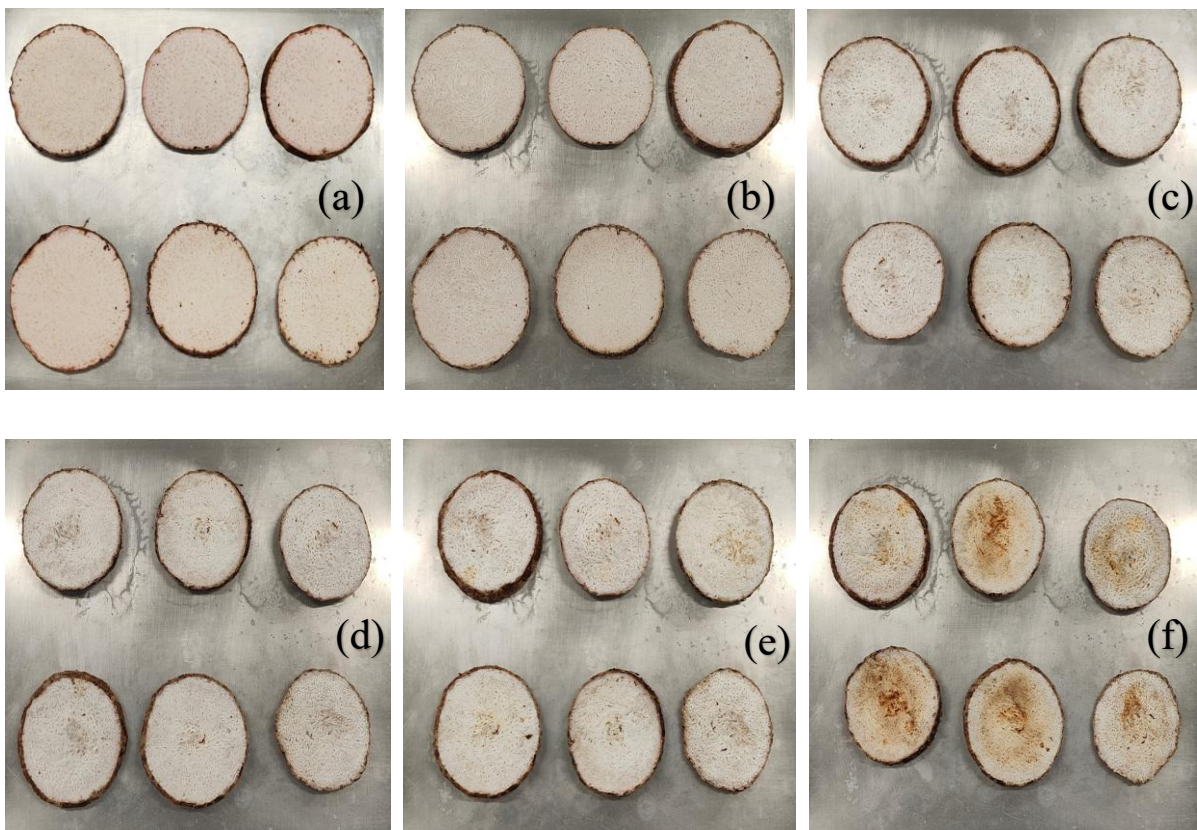


**Figure 10.59** Trial-1 (a) Before HAD (b) After HAD (c) M6 (d) M12 (e) M22 (f) M24





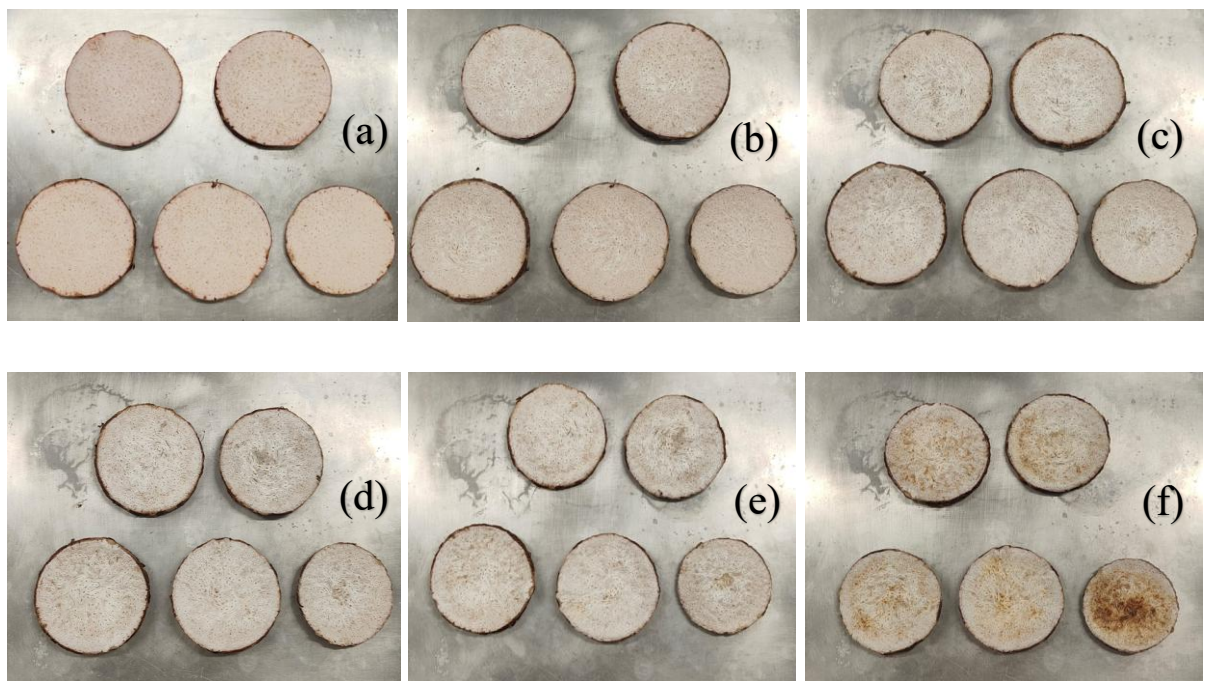
**Figure 10.60** Trial-2 (a) Before HAD (b) After HAD (c) M5 (d) M10 (e) M15 (f) M20



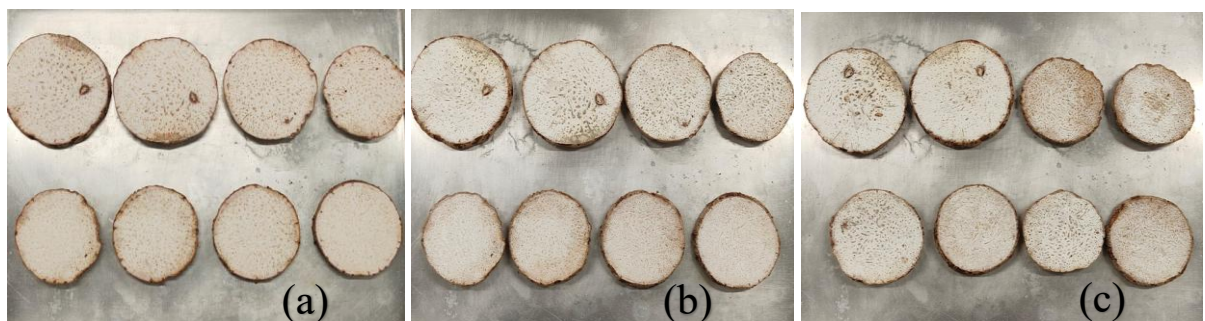
**Figure 10.61** Trial-3 (a) Before HAD (b) After HAD (c) M10 (d) M15 (e) M20 (f) M23

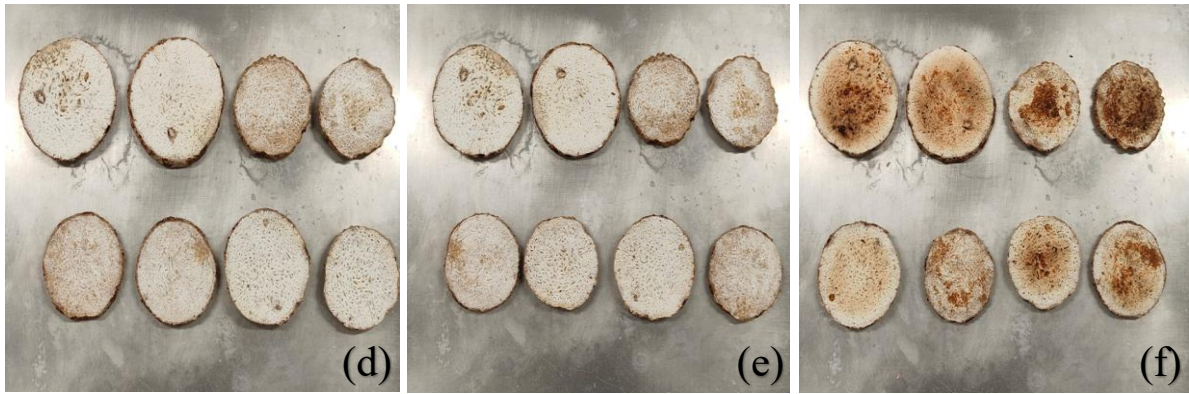
**1 hour of hot air drying and microwave post treatment (70°C, 8 mm, 1 m/s)**

HAD – Hot air drying		
M5 – HAD and 5 minutes microwaving	M6 – HAD and 6 minutes microwaving	M10 – HAD and 10 minutes microwaving
M12 – HAD and 12 minutes microwaving	M15 – HAD and 15 minutes microwaving	M20 – HAD and 20 minutes microwaving
M22 – HAD and 22 minutes microwaving	M23 – HAD and 23 minutes microwaving	

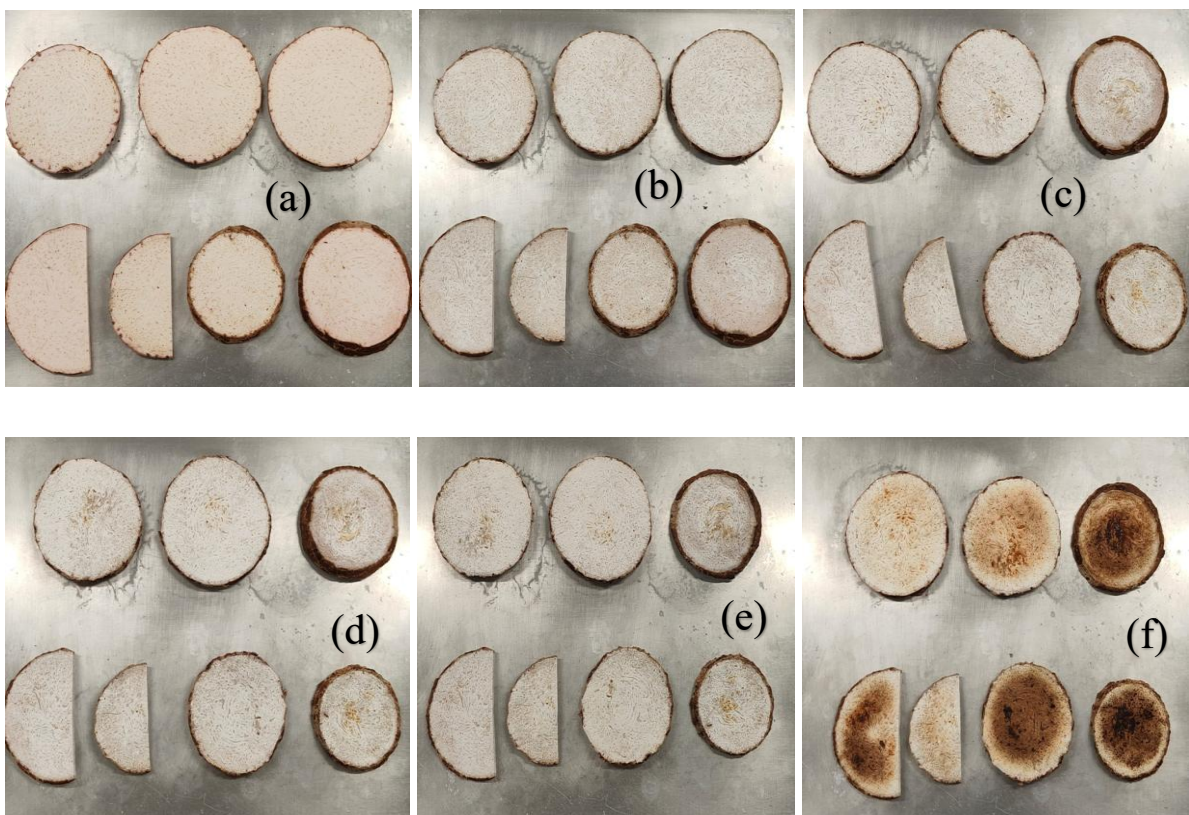


**Figure 10.62** Trial-1 (a) Before HAD (b) After HAD (c) M5 (d) M10 (e) M17 (f) M18





**Figure 10.63** Trial-2 (a) Before HAD (b) After HAD (c) M6 (d) M10 (e) M15 (f) M19



**Figure 10.64** Trial-3 (a) Before HAD (b) After HAD (c) M5 (d) M10 (e) M15 (f) M19

## Skin Trial

Initial – Before oven drying	Final – After Oven drying	A day after – Taro continued drying until next day
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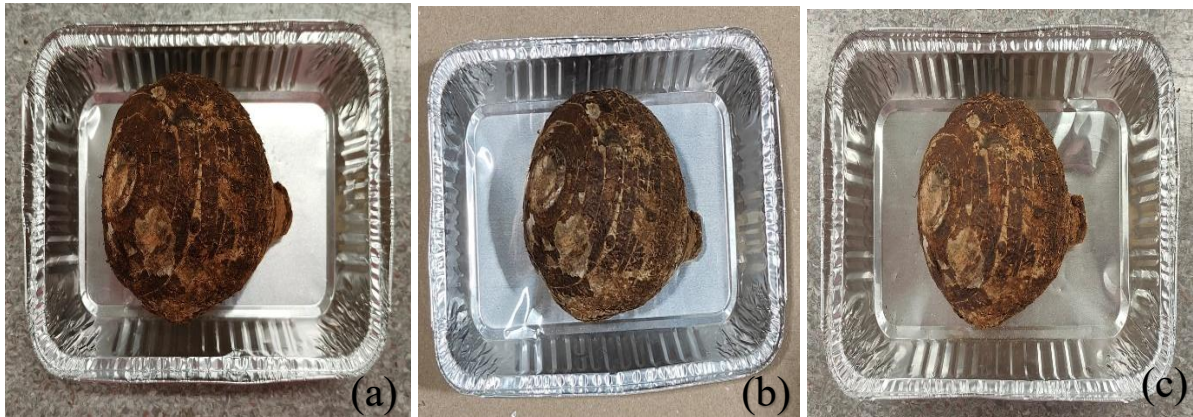


Figure 10.65 Trial-1 (a) initial (b) final (c) A Day after

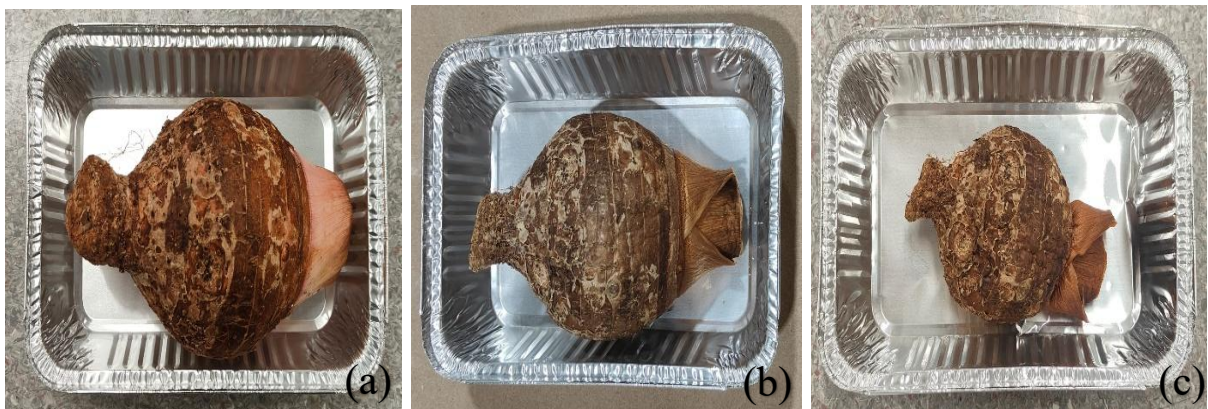


Figure 10.66 Trial-2 (a) initial (b) final (c) A Day after



Figure 10.67 Trial-3 (a) initial (b) final (c) A Day after



**Figure 10.68** Trial-4 (a) initial (b) A Day after



**Figure 10.69** Trial-5 (a) initial (b) A Day after

## Skinless Trial

Initial – Before oven drying	Final – After Oven drying	A day after – Taro continued drying until next day
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Figure 10.70 Trial-1 (a) initial (b) final (c) A Day after

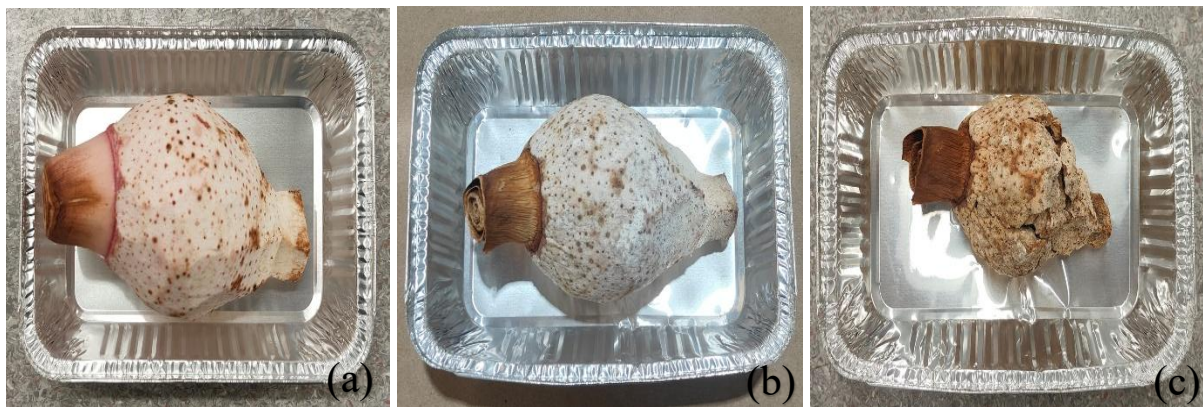


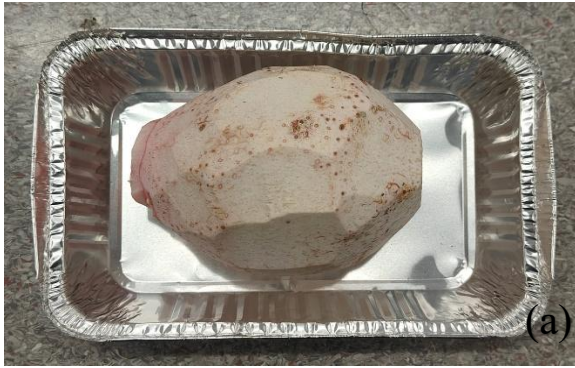
Figure 10.71 Trial-2 (a) initial (b) final (c) A Day after



Figure 10.72 Trial-3 (a) initial (b) final (c) A Day after



**Figure 10.73** Trial-4 (a) initial (b) A Day after



**Figure 10.74** Trial-5 (a) initial (b) A Day after

**A.1: Raw data for hot air-drying Trial 1 (70°C, 1 m/s, 6 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	6 mm				
<b>Trial</b>	1				
<b>Date</b>	08-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of Water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:49:22	303.99	219.6845	1.0000	2.6058	
09:59:22	292.92	208.6145	0.9496	2.4745	0.0116
10:05:26	283.15	198.8445	0.9051	2.3586	0.0183
10:15:26	267.69	183.3845	0.8348	2.1752	0.0173
10:25:26	253.11	168.8045	0.7684	2.0023	0.0128
10:33:24	242.32	158.0145	0.7193	1.8743	0.0147
10:43:24	229.9	145.5945	0.6627	1.7270	0.0136
10:53:25	218.41	134.1045	0.6104	1.5907	0.0147
10:55:39	206.02	121.7145	0.5540	1.4437	0.0118
11:05:39	196.07	111.7645	0.5087	1.3257	0.0112
11:15:39	186.63	102.3245	0.4658	1.2137	0.0097
11:25:40	178.49	94.1845	0.4287	1.1172	0.0090
11:35:40	170.92	86.6145	0.3943	1.0274	0.0091
11:45:40	163.26	78.9545	0.3594	0.9365	0.0082

11:55:41	156.34	72.0345	0.3279	0.8544	0.0075
12:05:41	150.05	65.7445	0.2993	0.7798	0.0069
12:15:41	144.2	59.8945	0.2726	0.7104	0.0069
12:25:41	138.41	54.1045	0.2463	0.6418	0.0063
12:35:42	133.12	48.8145	0.2222	0.5790	0.0056
12:45:28	128.36	44.0545	0.2005	0.5226	0.0053
12:55:29	123.93	39.6245	0.1804	0.4700	0.0050
13:05:29	119.71	35.4045	0.1612	0.4200	0.0053
13:15:29	115.24	30.9345	0.1408	0.3669	0.0038
13:26:17	112	27.6945	0.1261	0.3285	0.0032
13:36:17	109.3	24.9945	0.1138	0.2965	0.0036
13:45:13	106.29	21.9845	0.1001	0.2608	0.0033
13:55:14	103.55	19.2445	0.0876	0.2283	0.0024
14:05:14	101.56	17.2545	0.0785	0.2047	0.0024
14:15:14	99.53	15.2245	0.0693	0.1806	0.0027
14:25:15	97.26	12.9545	0.0590	0.1537	0.0015
14:35:15	96.02	11.7145	0.0533	0.1390	0.0015
14:45:15	94.72	10.4145	0.0474	0.1235	0.0015
14:55:16	93.43	9.1245	0.0415	0.1082	0.0015
15:05:16	92.14	7.8345	0.0357	0.0929	0.0011
15:15:17	91.21	6.9045	0.0314	0.0819	0.0008
15:25:17	90.51	6.2045	0.0282	0.0736	
<b>Data End</b>					

**A.2: Raw data for hot air-drying Trial 1 (70°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	09-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:30:15	439.32	319.6095	1	2.6698	0.0058
09:35:16	435.86	316.1495	0.9891	2.6409	0.0094
09:40:16	430.23	310.5195	0.9715	2.5939	0.0109
09:45:16	423.72	304.0095	0.9511	2.5395	0.0111
09:50:17	417.07	297.3595	0.9303	2.4839	0.0105
09:55:17	410.78	291.0695	0.9107	2.4314	0.0108
10:00:18	404.29	284.5795	0.8903	2.3772	0.0096
10:05:18	398.54	278.8295	0.8724	2.3292	0.0101
10:10:18	392.5	272.7895	0.8535	2.2787	0.0093
10:15:18	386.92	267.2095	0.8360	2.2321	0.0088
10:20:18	381.64	261.9295	0.8195	2.1880	0.0086
10:25:19	376.47	256.7595	0.8033	2.1448	0.0084
10:30:19	371.47	251.7595	0.7877	2.1030	0.0080
10:35:19	366.7	246.9895	0.7727	2.0632	0.0078
10:40:19	362.05	242.3395	0.7582	2.0243	0.0072
10:45:21	357.75	238.0395	0.7447	1.9884	0.0074
10:50:21	353.34	233.6295	0.7309	1.9516	0.0068
10:55:21	349.28	229.5695	0.7182	1.9177	0.0074
11:00:22	344.86	225.1495	0.7044	1.8807	0.0072
11:05:22	340.53	220.8195	0.6909	1.8446	0.0061
11:10:22	336.85	217.1395	0.6793	1.8138	0.0063
11:15:22	333.07	213.3595	0.6675	1.7822	0.0068
11:20:28	329.02	209.3095	0.6548	1.7484	0.0057
11:25:28	325.61	205.8995	0.6442	1.7199	0.0063

11:30:28	321.83	202.1195	0.6323	1.6884	0.0054
11:35:28	318.59	198.8796	0.6223	1.6613	0.0057
11:40:29	315.15	195.4396	0.6115	1.6326	0.0056
11:45:29	311.79	192.0796	0.6010	1.6045	0.0059
11:50:30	308.27	188.5596	0.5900	1.5751	0.0052
11:55:30	305.16	185.4496	0.5802	1.5492	0.0049
12:00:30	302.21	182.4996	0.5710	1.5245	0.0050
12:05:30	299.24	179.5296	0.5617	1.4997	0.0051
12:10:31	296.2	176.4896	0.5522	1.4743	0.0051
12:15:31	293.16	173.4496	0.5427	1.4489	0.0047
12:20:31	290.34	170.6296	0.5339	1.4254	0.0049
12:25:31	287.42	167.7096	0.5247	1.4010	0.0047
12:30:32	284.59	164.8796	0.5159	1.3773	0.0045
12:35:32	281.88	162.1696	0.5074	1.3547	0.0042
12:40:32	279.36	159.6496	0.4995	1.3336	0.0046
12:45:32	276.63	156.9196	0.4910	1.3108	0.0045
12:50:33	273.93	154.2196	0.4825	1.2883	0.0047
12:55:33	271.13	151.4196	0.4738	1.2649	0.0038
13:00:33	268.86	149.1496	0.4667	1.2459	0.0047
13:05:34	266.07	146.3596	0.4579	1.2226	0.0038
13:10:34	263.81	144.0996	0.4509	1.2037	0.0040
13:15:35	261.39	141.6796	0.4433	1.1835	0.0039
13:20:30	259.03	139.3196	0.4359	1.1638	0.0034
13:25:31	256.98	137.2696	0.4295	1.1467	0.0034
13:30:31	254.93	135.2196	0.4231	1.1296	0.0038
13:35:31	252.68	132.9696	0.4160	1.1108	0.0033
13:40:31	250.73	131.0196	0.4099	1.0945	0.0033
13:45:32	248.73	129.0196	0.4037	1.0778	0.0034
13:50:32	246.68	126.9696	0.3973	1.0606	0.0035
13:55:33	244.58	124.8696	0.3907	1.0431	0.0030
14:00:33	242.79	123.0796	0.3851	1.0281	0.0031
14:05:33	240.93	121.2196	0.3793	1.0126	0.0031
14:10:33	239.05	119.3396	0.3734	0.9969	0.0029
14:15:34	237.33	117.6196	0.3680	0.9825	0.0028
14:20:34	235.64	115.9296	0.3627	0.9684	0.0030
14:25:34	233.87	114.1596	0.3572	0.9536	0.0027

14:30:34	232.27	112.5596	0.3522	0.9403	0.0027
14:35:34	230.67	110.9596	0.3472	0.9269	0.0024
14:40:34	229.25	109.5396	0.3427	0.9150	0.0026
14:45:34	227.71	107.9996	0.3379	0.9022	0.0025
14:50:34	226.22	106.5096	0.3332	0.8897	0.0024
14:55:34	224.79	105.0796	0.3288	0.8778	0.0023
15:00:34	223.42	103.7096	0.3245	0.8663	0.0026
15:05:34	221.86	102.1496	0.3196	0.8533	0.0023
15:10:35	220.5	100.7896	0.3154	0.8419	0.0021
15:15:35	219.23	99.5196	0.3114	0.8313	0.0023
15:20:35	217.85	98.1396	0.3071	0.8198	0.0022
15:25:35	216.51	96.7996	0.3029	0.8086	0.0020
15:30:36	215.32	95.6096	0.2991	0.7987	0.0021
15:35:36	214.04	94.3296	0.2951	0.7880	0.0017
15:40:36	213	93.2896	0.2919	0.7793	0.0017
15:45:36	211.97	92.2596	0.2887	0.7707	0.0021
15:50:36	210.7	90.9896	0.2847	0.7601	0.0016
15:55:37	209.77	90.0596	0.2818	0.7523	0.0018
16:00:37	208.71	88.9996	0.2785	0.7435	0.0016
16:05:33	207.74	88.0296	0.2754	0.7354	0.0017
16:10:33	206.75	87.0396	0.2723	0.7271	0.0015
16:15:33	205.84	86.1296	0.2695	0.7195	0.0014
16:20:34	204.99	85.2796	0.2668	0.7124	0.0016
16:25:34	204.03	84.3196	0.2638	0.7044	0.0008
16:30:34	203.56	83.8496	0.2624	0.7004	0.0021
16:35:34	202.29	82.5796	0.2584	0.6898	0.0013
16:40:34	201.52	81.8096	0.2560	0.6834	0.0011
16:45:34	200.87	81.1596	0.2539	0.6780	0.0013
16:50:35	200.07	80.3596	0.2514	0.6713	0.0012
16:55:35	199.35	79.6396	0.2492	0.6653	
<b>Data End</b>					

**A.3: Raw data for hot air-drying Trial 2 (70°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	15-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:40:51	412.16	302.9492	1	2.7740	0.0090
09:50:51	402.35	293.1392	0.9676	2.6842	0.0128
10:00:51	388.4	279.1892	0.9216	2.5564	0.0125
10:10:52	374.7	265.4892	0.8763	2.4310	0.0113
10:20:52	362.35	253.1392	0.8356	2.3179	0.0107
10:30:53	350.68	241.4692	0.7971	2.2110	0.0099
10:40:53	339.82	230.6092	0.7612	2.1116	0.0091
10:50:53	329.87	220.6592	0.7284	2.0205	0.0085
11:00:54	320.58	211.3692	0.6977	1.9354	0.0081
11:10:54	311.72	202.5092	0.6685	1.8543	0.0079
11:20:55	303.14	193.9292	0.6401	1.7757	0.0072
11:30:55	295.27	186.0592	0.6142	1.7037	0.0068
11:40:56	287.83	178.6192	0.5896	1.6355	0.0066
11:50:56	280.58	171.3692	0.5657	1.5692	0.0064
12:00:56	273.58	164.3692	0.5426	1.5051	0.0057
12:10:31	267.37	158.1592	0.5221	1.4482	0.0059
12:20:31	260.98	151.7692	0.5010	1.3897	0.0056
12:30:31	254.88	145.6692	0.4808	1.3338	0.0050

12:40:31	249.43	140.2192	0.4628	1.2839	0.0049
12:50:32	244.04	134.8292	0.4451	1.2346	0.0048
13:00:32	238.76	129.5492	0.4276	1.1862	0.0047
13:10:32	233.68	124.4692	0.4109	1.1397	0.0044
13:20:32	228.9	119.6892	0.3951	1.0959	0.0039
13:30:32	224.6	115.3892	0.3809	1.0566	0.0038
13:40:33	220.43	111.2192	0.3671	1.0184	0.0039
13:50:33	216.13	106.9192	0.3529	0.9790	0.0035
14:00:33	212.35	103.1392	0.3405	0.9444	0.0034
14:10:34	208.68	99.4692	0.3283	0.9108	0.0033
14:20:34	205.12	95.9092	0.3166	0.8782	0.0030
14:30:34	201.84	92.6292	0.3058	0.8482	0.0028
14:40:35	198.82	89.6092	0.2958	0.8205	0.0027
14:50:35	195.86	86.6492	0.2860	0.7934	0.0023
15:00:35	193.33	84.1192	0.2777	0.7702	0.0026
15:10:35	190.5	81.2892	0.2683	0.7443	0.0019
15:20:35	188.43	79.2192	0.2615	0.7254	0.0022
15:30:36	186.02	76.8092	0.2535	0.7033	0.0023
15:40:36	183.53	74.3192	0.2453	0.6805	0.0016
15:50:37	181.76	72.5492	0.2395	0.6643	0.0017
16:00:37	179.89	70.6792	0.2333	0.6472	0.0015
16:10:35	178.21	68.9992	0.2278	0.6318	0.0016
16:20:35	176.45	67.2392	0.2219	0.6157	0.0014
16:30:35	174.94	65.7292	0.2170	0.6019	0.0015
16:40:35	173.31	64.0992	0.2116	0.5869	0.0013
16:50:35	171.85	62.6392	0.2068	0.5736	0.0012
17:00:35	170.59	61.3792	0.2026	0.5620	
<b>Data End</b>					

**A.4: Raw data for hot air-drying Trial 3 (70°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	16-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:35:30	414.34	301.7531	1	2.6802	0.0079
09:45:31	405.39	292.8031	0.9703	2.6007	0.0101
09:55:31	394.07	281.4831	0.9328	2.5001	0.0095
10:05:31	383.39	270.8031	0.8974	2.4053	0.0091
10:15:31	373.15	260.5631	0.8635	2.3143	0.0084
10:25:32	363.73	251.1431	0.8323	2.2307	0.0077
10:35:32	355.01	242.4231	0.8034	2.1532	0.0075
10:45:32	346.52	233.9331	0.7752	2.0778	0.0068
10:55:32	338.81	226.2231	0.7497	2.0093	0.0065
11:05:33	331.5	218.9131	0.7255	1.9444	0.0063
11:15:33	324.45	211.8631	0.7021	1.8818	0.0059
11:25:34	317.85	205.2631	0.6802	1.8232	0.0057
11:35:34	311.41	198.8231	0.6589	1.7660	0.0051
11:45:35	305.62	193.0331	0.6397	1.7145	0.0052
11:55:35	299.72	187.1331	0.6202	1.6621	0.0052
12:05:35	293.86	181.2731	0.6007	1.6101	0.0048
12:15:36	288.43	175.8431	0.5827	1.5618	0.0045
12:25:36	283.37	170.7831	0.5660	1.5169	0.0046

12:35:36	278.17	165.5831	0.5487	1.4707	0.0041
12:45:37	273.52	160.9331	0.5333	1.4294	0.0040
12:55:37	269.03	156.4431	0.5184	1.3895	0.0040
13:05:37	264.53	151.9431	0.5035	1.3496	0.0037
13:15:36	260.38	147.7931	0.4898	1.3127	0.0039
13:25:37	256.01	143.4231	0.4753	1.2739	0.0035
13:35:37	252.02	139.4331	0.4621	1.2384	0.0033
13:45:38	248.25	135.6631	0.4496	1.2050	0.0033
13:55:38	244.55	131.9631	0.4373	1.1721	0.0031
14:05:39	241.07	128.4831	0.4258	1.1412	0.0031
14:15:39	237.54	124.9531	0.4141	1.1098	0.0027
14:25:39	234.53	121.9431	0.4041	1.0831	0.0031
14:35:39	231.01	118.4231	0.3925	1.0518	0.0026
14:45:40	228.1	115.5131	0.3828	1.0260	0.0026
14:55:40	225.19	112.6031	0.3732	1.0001	0.0025
15:05:40	222.33	109.7431	0.3637	0.9747	0.0025
15:15:41	219.46	106.8731	0.3542	0.9493	0.0022
15:25:42	216.98	104.3931	0.3460	0.9272	0.0024
15:35:42	214.3	101.7131	0.3371	0.9034	0.0021
15:45:42	211.99	99.4031	0.3294	0.8829	0.0018
15:55:42	209.91	97.3231	0.3225	0.8644	0.0020
16:05:42	207.69	95.1031	0.3152	0.8447	0.0018
16:15:42	205.69	93.1031	0.3085	0.8269	0.0019
16:25:42	203.58	90.9931	0.3015	0.8082	0.0016
16:35:43	201.74	89.1531	0.2955	0.7919	0.0018
16:45:43	199.72	87.1331	0.2888	0.7739	0.0014
16:55:44	198.18	85.5931	0.2837	0.7602	
<b>Data End</b>					

**A.5: Raw data for hot air-drying Trial 1 (60°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	60°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	18-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:35:30	409.56	295.8961	1	2.6033	
09:45:31	400.65	286.9861	0.9699	2.5249	0.0102
09:55:31	389.01	275.3461	0.9305	2.4225	0.0095
10:05:32	378.25	264.5861	0.8942	2.3278	0.0092
10:15:32	367.76	254.0961	0.8587	2.2355	0.0085
10:25:33	358.14	244.4761	0.8262	2.1509	0.0081
10:35:33	348.92	235.2561	0.7951	2.0698	0.0078
10:45:33	340.01	226.3461	0.7650	1.9914	0.0073
10:55:33	331.66	217.9961	0.7367	1.9179	0.0067
11:05:34	324	210.3361	0.7108	1.8505	0.0068
11:15:34	316.32	202.6561	0.6849	1.7829	0.0062
11:25:35	309.22	195.5561	0.6609	1.7205	0.0062
11:35:35	302.18	188.5161	0.6371	1.6585	0.0054
11:45:35	296.07	182.4061	0.6165	1.6048	0.0057
11:55:35	289.55	175.8861	0.5944	1.5474	0.0054
12:05:36	283.41	169.7461	0.5737	1.4934	0.0051
12:15:36	277.59	163.9261	0.5540	1.4422	0.0049

12:25:36	271.98	158.3161	0.5350	1.3928	0.0048
12:35:37	266.56	152.8961	0.5167	1.3452	0.0046
12:45:37	261.35	147.6861	0.4991	1.2993	0.0045
12:55:37	256.25	142.5861	0.4819	1.2545	0.0043
13:05:38	251.32	137.6561	0.4652	1.2111	0.0042
13:15:38	246.5	132.8361	0.4489	1.1687	0.0040
13:25:38	241.95	128.2861	0.4336	1.1286	0.0040
13:35:38	237.45	123.7861	0.4183	1.0891	0.0038
13:45:39	233.11	119.4461	0.4037	1.0509	0.0033
13:55:39	229.39	115.7261	0.3911	1.0181	0.0035
14:05:39	225.38	111.7161	0.3776	0.9829	0.0030
14:15:39	221.99	108.3261	0.3661	0.9530	0.0030
14:25:39	218.57	104.9061	0.3545	0.9230	0.0030
14:35:40	215.2	101.5361	0.3431	0.8933	0.0027
14:45:40	212.08	98.4161	0.3326	0.8659	0.0025
14:55:40	209.25	95.5861	0.3230	0.8410	0.0026
15:05:41	206.26	92.5961	0.3129	0.8146	0.0024
15:15:41	203.56	89.8961	0.3038	0.7909	0.0025
15:25:41	200.73	87.0661	0.2942	0.7660	0.0021
15:35:42	198.3	84.6361	0.2860	0.7446	0.0020
15:45:42	196.07	82.4061	0.2785	0.7250	0.0022
15:55:42	193.54	79.8761	0.2699	0.7027	0.0019
16:05:43	191.42	77.7561	0.2628	0.6841	0.0017
16:15:43	189.44	75.7761	0.2561	0.6667	0.0018
16:25:44	187.39	73.7261	0.2492	0.6486	0.0017
16:35:44	185.42	71.7561	0.2425	0.6313	
<b>Data End</b>					

**A.6: Raw data for hot air-drying Trial 2 (60°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	60°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	22-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:20:30	409.27	294.0503	1	2.5521	
09:30:30	401.3	286.0803	0.9729	2.4829	0.0094
09:40:30	390.45	275.2303	0.9360	2.3887	0.0097
09:50:31	379.3	264.0803	0.8981	2.2920	0.0091
10:00:31	368.82	253.6003	0.8624	2.2010	0.0087
10:10:32	358.84	243.6203	0.8285	2.1144	0.0079
10:20:32	349.71	234.4903	0.7974	2.0352	0.0077
10:30:32	340.82	225.6003	0.7672	1.9580	0.0072
10:40:32	332.53	217.3103	0.7390	1.8861	0.0067
10:50:32	324.8	209.5803	0.7127	1.8190	0.0062
11:00:32	317.67	202.4503	0.6885	1.7571	0.0061
11:10:32	310.67	195.4503	0.6647	1.6963	0.0057
11:20:33	304.16	188.9403	0.6425	1.6398	0.0054
11:30:33	297.94	182.7203	0.6214	1.5858	0.0051
11:40:34	292.05	176.8303	0.6014	1.5347	0.0051
11:50:35	286.12	170.9003	0.5812	1.4833	0.0048
12:00:35	280.6	165.3803	0.5624	1.4353	0.0048
12:10:35	275.11	159.8903	0.5438	1.3877	0.0043
12:20:36	270.15	154.9303	0.5269	1.3447	0.0041

12:30:36	265.43	150.2103	0.5108	1.3037	0.0039
12:40:36	260.94	145.7203	0.4956	1.2647	0.0036
12:50:36	256.76	141.5403	0.4813	1.2284	0.0036
13:00:37	252.64	137.4203	0.4673	1.1927	0.0034
13:10:37	248.69	133.4703	0.4539	1.1584	0.0032
13:20:37	245.06	129.8403	0.4416	1.1269	0.0035
13:30:37	241.04	125.8203	0.4279	1.0920	0.0030
13:40:37	237.55	122.3303	0.4160	1.0617	0.0029
13:50:38	234.19	118.9703	0.4046	1.0326	0.0030
14:00:38	230.72	115.5003	0.3928	1.0024	0.0026
14:10:39	227.77	112.5503	0.3828	0.9768	0.0029
14:20:39	224.48	109.2603	0.3716	0.9483	0.0025
14:30:39	221.61	106.3903	0.3618	0.9234	0.0024
14:40:39	218.84	103.6203	0.3524	0.8993	0.0024
14:50:39	216.13	100.9103	0.3432	0.8758	0.0023
15:00:39	213.51	98.2903	0.3343	0.8531	0.0021
15:10:40	211.1	95.8803	0.3261	0.8322	0.0020
15:20:40	208.77	93.5503	0.3181	0.8119	0.0018
15:30:41	206.66	91.4403	0.3110	0.7936	0.0018
15:40:41	204.61	89.3903	0.3040	0.7758	0.0017
15:50:41	202.67	87.4503	0.2974	0.7590	0.0018
16:00:41	200.54	85.3203	0.2902	0.7405	0.0016
16:10:41	198.66	83.4403	0.2838	0.7242	0.0017
16:20:42	196.7	81.4803	0.2771	0.7072	0.0015
16:30:42	194.92	79.7003	0.2710	0.6917	0.0014
16:40:42	193.25	78.0303	0.2654	0.6772	0.0014
16:50:39	191.61	76.3903	0.2598	0.6630	0.0014
17:00:39	189.94	74.7203	0.2541	0.6485	
<b>Data End</b>					

**A.7: Raw data for hot air-drying Trial 3 (60°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	60°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	23-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:30:25	394.47	285.7340	1	2.6278	
09:40:26	387.63	278.8940	0.9761	2.5649	0.0088
09:50:26	378.08	269.3440	0.9426	2.4770	0.0081
10:00:26	369.26	260.5240	0.9118	2.3959	0.0075
10:10:27	361.08	252.3440	0.8831	2.3207	0.0070
10:20:27	353.43	244.6940	0.8564	2.2503	0.0068
10:30:28	346.02	237.2840	0.8304	2.1822	0.0059
10:40:28	339.57	230.8340	0.8079	2.1229	0.0058
10:50:28	333.25	224.5140	0.7857	2.0648	0.0052
11:00:29	327.55	218.8140	0.7658	2.0123	0.0049
11:10:29	322.18	213.4440	0.7470	1.9630	0.0049
11:20:29	316.81	208.0740	0.7282	1.9136	0.0045
11:30:30	311.91	203.1740	0.7111	1.8685	0.0047
11:40:30	306.85	198.1140	0.6934	1.8220	0.0044
11:50:30	302.08	193.3440	0.6767	1.7781	0.0040
12:00:30	297.69	188.9540	0.6613	1.7377	0.0040
12:10:30	293.34	184.6040	0.6461	1.6977	0.0040
12:20:30	289.02	180.2840	0.6310	1.6580	0.0035

12:30:30	285.21	176.4740	0.6176	1.6230	0.0035
12:40:31	281.35	172.6140	0.6041	1.5875	0.0035
12:50:31	277.53	168.7940	0.5907	1.5523	0.0034
13:00:31	273.86	165.1240	0.5779	1.5186	0.0032
13:10:32	270.37	161.6340	0.5657	1.4865	0.0031
13:20:32	266.96	158.2240	0.5537	1.4551	0.0030
13:30:32	263.66	154.9240	0.5422	1.4248	0.0027
13:40:33	260.71	151.9740	0.5319	1.3976	0.0029
13:50:34	257.56	148.8240	0.5208	1.3687	0.0026
14:00:34	254.75	146.0140	0.5110	1.3428	0.0025
14:10:34	252.03	143.2940	0.5015	1.3178	0.0025
14:20:34	249.29	140.5540	0.4919	1.2926	0.0025
14:30:34	246.6	137.8640	0.4825	1.2679	0.0023
14:40:34	244.08	135.3440	0.4737	1.2447	0.0021
14:50:34	241.76	133.0240	0.4656	1.2234	0.0023
15:00:35	239.28	130.5440	0.4569	1.2006	0.0020
15:10:35	237.12	128.3840	0.4493	1.1807	0.0021
15:20:35	234.82	126.0840	0.4413	1.1595	0.0019
15:30:35	232.72	123.9840	0.4339	1.1402	0.0019
15:40:35	230.68	121.9440	0.4268	1.1215	0.0018
15:50:36	228.67	119.9340	0.4197	1.1030	0.0017
16:00:36	226.83	118.0940	0.4133	1.0861	0.0017
16:10:36	225.02	116.2840	0.4070	1.0694	0.0017
16:20:36	223.16	114.4240	0.4005	1.0523	0.0014
16:30:36	221.61	112.8740	0.3950	1.0381	0.0014
16:40:36	220.09	111.3540	0.3897	1.0241	0.0017
16:50:36	218.27	109.5340	0.3833	1.0073	0.0015
17:00:37	216.69	107.9540	0.3778	0.9928	
<b>Data End</b>					

**A.8: Raw data for hot air-drying Trial 1 (50°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	12-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:45:43	436.99	318.2502	1	2.6802	
09:55:43	431.95	313.2102	0.9842	2.6378	0.0061
10:05:31	424.73	305.9902	0.9615	2.5770	0.0061
10:15:31	417.43	298.6902	0.9385	2.5155	0.0058
10:25:32	410.58	291.8402	0.9170	2.4578	0.0057
10:35:32	403.81	285.0702	0.8957	2.4008	0.0056
10:45:32	397.19	278.4502	0.8749	2.3450	0.0052
10:55:32	391.04	272.3002	0.8556	2.2933	0.0049
11:05:32	385.22	266.4802	0.8373	2.2442	0.0048
11:15:32	379.47	260.7302	0.8193	2.1958	0.0046
11:25:33	373.96	255.2202	0.8019	2.1494	0.0044
11:35:33	368.75	250.0102	0.7856	2.1055	0.0044
11:45:34	363.53	244.7902	0.7692	2.0616	0.0040
11:55:34	358.74	240.0002	0.7541	2.0212	0.0040
12:05:34	353.94	235.2002	0.7390	1.9808	0.0040
12:15:34	349.17	230.4302	0.7241	1.9406	0.0039
12:25:35	344.55	225.8102	0.7095	1.9017	0.0033
12:35:24	340.58	221.8402	0.6971	1.8683	0.0034

12:45:32	336.55	217.8102	0.6844	1.8343	0.0034
12:55:32	332.47	213.7302	0.6716	1.8000	0.0032
13:05:32	328.64	209.9002	0.6595	1.7677	0.0031
13:15:32	325	206.2602	0.6481	1.7371	0.0031
13:25:32	321.31	202.5702	0.6365	1.7060	0.0029
13:35:32	317.9	199.1602	0.6258	1.6773	0.0029
13:45:32	314.47	195.7302	0.6150	1.6484	0.0027
13:55:32	311.3	192.5602	0.6051	1.6217	0.0028
14:05:33	307.97	189.2302	0.5946	1.5937	0.0029
14:15:33	304.51	185.7702	0.5837	1.5645	0.0025
14:25:34	301.53	182.7902	0.5744	1.5394	0.0025
14:35:34	298.61	179.8702	0.5652	1.5148	0.0025
14:45:34	295.6	176.8602	0.5557	1.4895	0.0026
14:55:35	292.54	173.8002	0.5461	1.4637	0.0022
15:05:36	289.92	171.1802	0.5379	1.4416	0.0022
15:15:36	287.29	168.5502	0.5296	1.4195	0.0022
15:25:36	284.68	165.9402	0.5214	1.3975	0.0023
15:35:37	281.91	163.1702	0.5127	1.3742	0.0021
15:45:37	279.46	160.7202	0.5050	1.3535	0.0021
15:55:37	276.97	158.2302	0.4972	1.3326	0.0019
16:05:37	274.69	155.9502	0.4900	1.3134	0.0021
16:15:37	272.22	153.4802	0.4823	1.2926	0.0018
16:25:37	270.06	151.3202	0.4755	1.2744	0.0019
16:35:38	267.77	149.0302	0.4683	1.2551	0.0018
16:45:38	265.69	146.9502	0.4617	1.2376	0.0018
16:55:38	263.59	144.8502	0.4551	1.2199	0.0018
17:05:38	261.51	142.7702	0.4486	1.2024	
<b>Data End</b>					

**A.9: Raw data for hot air-drying Trial 2 (50°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	13-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:55:32	417.65	306.6377	1	2.7622	
09:05:32	412.9	301.8877	0.9845	2.7194	0.0065
09:15:32	405.68	294.6677	0.9610	2.6544	0.0065
09:25:33	398.49	287.4777	0.9375	2.5896	0.0064
09:35:33	391.44	280.4277	0.9145	2.5261	0.0061
09:45:33	384.62	273.6077	0.8923	2.4647	0.0061
09:55:34	377.86	266.8477	0.8702	2.4038	0.0058
10:05:34	371.37	260.3577	0.8491	2.3453	0.0057
10:15:34	365.05	254.0377	0.8285	2.2884	0.0054
10:25:35	359.1	248.0877	0.8091	2.2348	0.0050
10:35:35	353.5	242.4877	0.7908	2.1843	0.0053
10:45:36	347.59	236.5777	0.7715	2.1311	0.0047
10:55:36	342.32	231.3077	0.7543	2.0836	0.0046
11:05:37	337.25	226.2377	0.7378	2.0380	0.0046
11:15:37	332.11	221.0977	0.7210	1.9916	0.0042
11:25:37	327.44	216.4277	0.7058	1.9496	0.0044
11:35:37	322.56	211.5477	0.6899	1.9056	0.0040
11:45:37	318.09	207.0777	0.6753	1.8654	0.0041

11:55:37	313.51	202.4977	0.6604	1.8241	0.0035
12:05:37	309.62	198.6077	0.6477	1.7891	0.0037
12:15:38	305.46	194.4477	0.6341	1.7516	0.0035
12:25:38	301.56	190.5477	0.6214	1.7165	0.0033
12:35:38	297.85	186.8377	0.6093	1.6830	0.0032
12:45:38	294.29	183.2777	0.5977	1.6510	0.0033
12:55:39	290.61	179.5977	0.5857	1.6178	0.0031
13:05:39	287.17	176.1577	0.5745	1.5868	0.0029
13:15:39	283.97	172.9577	0.5640	1.5580	0.0029
13:25:40	280.8	169.7877	0.5537	1.5294	0.0027
13:35:40	277.8	166.7877	0.5439	1.5024	0.0028
13:45:40	274.65	163.6377	0.5337	1.4740	0.0026
13:55:41	271.81	160.7977	0.5244	1.4485	0.0026
14:05:41	268.94	157.9277	0.5150	1.4226	0.0024
14:15:42	266.25	155.2377	0.5063	1.3984	0.0026
14:25:42	263.41	152.3977	0.4970	1.3728	0.0024
14:35:42	260.71	149.6977	0.4882	1.3485	0.0022
14:45:42	258.26	147.2477	0.4802	1.3264	0.0024
14:55:42	255.59	144.5777	0.4715	1.3024	0.0022
15:05:43	253.14	142.1277	0.4635	1.2803	0.0023
15:15:44	250.64	139.6277	0.4554	1.2578	0.0021
15:25:44	248.28	137.2677	0.4477	1.2365	0.0022
15:35:45	245.82	134.8077	0.4396	1.2143	0.0020
15:45:46	243.55	132.5377	0.4322	1.1939	0.0020
15:55:46	241.3	130.2877	0.4249	1.1736	0.0022
16:05:46	238.87	127.8577	0.4170	1.1517	0.0020
16:15:46	236.67	125.6577	0.4098	1.1319	0.0019
16:25:47	234.56	306.6377	1.0000	2.7622	
<b>Data End</b>					

**A.10: Raw data for hot air-drying Trial 3 (50°C, 1 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	15-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:01:27	427.34	311.0053	1	2.6734	
09:11:28	423.34	307.0053	0.9871	2.6390	0.0054
09:21:28	417.11	300.7753	0.9671	2.5854	0.0057
09:31:29	410.5	294.1653	0.9459	2.5286	0.0056
09:41:29	404.01	287.6753	0.9250	2.4728	0.0056
09:51:29	397.53	281.1953	0.9041	2.4171	0.0055
10:01:30	391.18	274.8453	0.8837	2.3625	0.0053
10:11:30	384.99	268.6553	0.8638	2.3093	0.0053
10:21:30	378.86	262.5253	0.8441	2.2566	0.0050
10:31:31	373	256.6653	0.8253	2.2063	0.0045
10:41:31	367.72	251.3853	0.8083	2.1609	0.0046
10:51:31	362.34	246.0053	0.7910	2.1146	0.0042
11:01:32	357.44	241.1053	0.7752	2.0725	0.0044
11:11:33	352.31	235.9753	0.7588	2.0284	0.0040
11:21:33	347.68	231.3453	0.7439	1.9886	0.0040
11:31:33	343.07	226.7353	0.7290	1.9490	0.0039
11:41:33	338.58	222.2453	0.7146	1.9104	0.0038
11:51:33	334.14	217.8053	0.7003	1.8722	0.0035

12:01:33	330.02	213.6853	0.6871	1.8368	0.0035
12:11:34	325.97	209.6353	0.6741	1.8020	0.0034
12:21:34	322.01	205.6753	0.6613	1.7680	0.0033
12:31:34	318.2	201.8653	0.6491	1.7352	0.0030
12:41:34	314.68	198.3453	0.6378	1.7050	0.0029
12:51:34	311.25	194.9153	0.6267	1.6755	0.0031
13:01:34	307.64	191.3053	0.6151	1.6444	0.0028
13:11:35	304.34	188.0053	0.6045	1.6161	0.0029
13:21:35	301	184.6653	0.5938	1.5874	0.0027
13:31:36	297.85	181.5153	0.5836	1.5603	0.0026
13:41:36	294.86	178.5253	0.5740	1.5346	0.0027
13:51:36	291.72	175.3853	0.5639	1.5076	0.0025
14:01:36	288.79	172.4553	0.5545	1.4824	0.0025
14:11:36	285.91	169.5753	0.5452	1.4577	0.0024
14:21:36	283.15	166.8153	0.5364	1.4339	0.0023
14:31:37	280.42	164.0853	0.5276	1.4105	0.0023
14:41:37	277.75	161.4153	0.5190	1.3875	0.0021
14:51:38	275.27	158.9353	0.5110	1.3662	0.0023
15:01:38	272.63	156.2953	0.5025	1.3435	0.0021
15:11:38	270.13	153.7953	0.4945	1.3220	0.0020
15:21:38	267.86	151.5253	0.4872	1.3025	0.0020
15:31:38	265.49	149.1553	0.4796	1.2821	0.0021
15:41:39	262.99	146.6553	0.4716	1.2606	0.0020
15:51:39	260.72	144.3853	0.4643	1.2411	0.0019
16:01:39	258.5	142.1653	0.4571	1.2220	0.0018
16:11:39	256.4	140.0653	0.4504	1.2040	0.0016
16:21:40	254.5	138.1653	0.4443	1.1877	0.0020
16:31:40	252.2	135.8653	0.4369	1.1679	
<b>Data End</b>					

**A.11: Raw data for Oven drying Trial 1 (105°C, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	105°C				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	12-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:55:32	448.8	320.0901	1	2.4869	
09:05:32	438.3	309.5901	0.9672	2.4053	0.0068
09:15:32	429.5	300.7901	0.9397	2.3370	0.0068
09:25:33	420.8	292.0901	0.9125	2.2694	0.0078
09:35:33	410.7	281.9901	0.8810	2.1909	0.0080
09:45:33	400.4	271.6901	0.8488	2.1109	0.0077
09:55:34	390.5	261.7901	0.8179	2.0340	0.0081
10:05:34	380.1	251.3901	0.7854	1.9532	0.0078
10:15:34	370	241.2901	0.7538	1.8747	0.0077
10:25:35	360.1	231.3901	0.7229	1.7978	0.0072
10:35:35	350.8	222.0901	0.6938	1.7255	0.0064
10:45:36	342.6	213.8901	0.6682	1.6618	0.0069
10:55:36	333.7	204.9901	0.6404	1.5927	0.0070
11:05:37	324.7	195.9901	0.6123	1.5227	0.0065
11:15:37	316.3	187.5901	0.5861	1.4575	0.0063
11:25:37	308.2	179.4901	0.5607	1.3945	0.0059
11:35:37	300.6	171.8901	0.5370	1.3355	0.0057
11:45:37	293.2	164.4901	0.5139	1.2780	0.0052
11:55:37	286.5	157.7901	0.4930	1.2259	0.0052

12:05:37	279.8	151.0901	0.4720	1.1739	0.0051
12:15:38	273.3	144.5901	0.4517	1.1234	0.0047
12:25:38	267.2	138.4901	0.4327	1.0760	0.0046
12:35:38	261.3	132.5901	0.4142	1.0301	0.0045
12:45:38	255.5	126.7901	0.3961	0.9851	0.0041
12:55:39	250.2	121.4901	0.3795	0.9439	0.0044
13:05:39	244.5	115.7901	0.3617	0.8996	0.0041
13:15:39	239.2	110.4901	0.3452	0.8584	0.0041
13:25:40	233.9	105.1901	0.3286	0.8173	0.0040
13:35:40	228.8	100.0901	0.3127	0.7776	0.0039
13:45:40	223.8	95.0901	0.2971	0.7388	0.0038
13:55:41	218.9	90.1901	0.2818	0.7007	0.0038
14:05:41	214	85.2901	0.2665	0.6627	0.0035
14:15:42	209.5	80.7901	0.2524	0.6277	0.0026
14:25:42	206.2	77.4901	0.2421	0.6021	0.0025
14:35:42	203	74.2901	0.2321	0.5772	0.0034
14:45:42	198.6	69.8901	0.2183	0.5430	0.0023
14:55:42	195.6	66.8901	0.2090	0.5197	0.0024
15:05:43	192.5	63.7901	0.1993	0.4956	0.0024
15:15:44	189.4	60.6901	0.1896	0.4715	0.0019
15:25:44	187	58.2901	0.1821	0.4529	0.0019
15:35:45	184.6	55.8901	0.1746	0.4342	0.0020
15:45:46	182	53.2901	0.1665	0.4140	0.0016
15:55:46	179.9	51.1901	0.1599	0.3977	0.0016
16:05:46	177.8	49.0901	0.1534	0.3814	0.0016
16:15:46	175.7	46.9901	0.1468	0.3651	0.0016
16:25:47	173.7	44.9901	0.1406	0.3495	
<b>Data End</b>					

**A.12: Raw data for Oven drying Trial 2 (105°C, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	105°C				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	13-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:30:25	431.1	308.3099	1	2.5109	
09:40:26	422.3	299.5099	0.9715	2.4392	0.0067
09:50:26	414.1	291.3099	0.9449	2.3724	0.0076
10:00:26	404.8	282.0099	0.9147	2.2967	0.0078
10:10:27	395.2	272.4099	0.8836	2.2185	0.0079
10:20:27	385.5	262.7099	0.8521	2.1395	0.0077
10:30:28	376.1	253.3099	0.8216	2.0630	0.0079
10:40:28	366.4	243.6099	0.7901	1.9840	0.0075
10:50:28	357.2	234.4099	0.7603	1.9090	0.0075
11:00:29	348	225.2099	0.7305	1.8341	0.0070
11:10:29	339.4	216.6099	0.7026	1.7641	0.0071
11:20:29	330.7	207.9099	0.6744	1.6932	0.0065
11:30:30	322.7	199.9099	0.6484	1.6281	0.0066
11:40:30	314.6	191.8099	0.6221	1.5621	0.0061
11:50:30	307.1	184.3099	0.5978	1.5010	0.0059
12:00:30	299.9	177.1099	0.5745	1.4424	0.0059
12:10:30	292.6	169.8099	0.5508	1.3829	0.0054
12:20:30	286	163.2099	0.5294	1.3292	0.0055
12:30:30	279.2	156.4099	0.5073	1.2738	0.0050

12:40:31	273	150.2099	0.4872	1.2233	0.0050
12:50:31	266.8	144.0099	0.4671	1.1728	0.0046
13:00:31	261.1	138.3099	0.4486	1.1264	0.0045
13:10:32	255.6	132.8099	0.4308	1.0816	0.0042
13:20:32	250.4	127.6099	0.4139	1.0393	0.0042
13:30:32	245.2	122.4099	0.3970	0.9969	0.0041
13:40:33	240.2	117.4099	0.3808	0.9562	0.0038
13:50:34	235.5	112.7099	0.3656	0.9179	0.0041
14:00:34	230.5	107.7099	0.3494	0.8772	0.0033
14:10:34	226.5	103.7099	0.3364	0.8446	0.0035
14:20:34	222.2	99.4099	0.3224	0.8096	0.0034
14:30:34	218	95.2099	0.3088	0.7754	0.0032
14:40:34	214.1	91.3099	0.2962	0.7436	0.0030
14:50:34	210.4	87.6099	0.2842	0.7135	0.0030
15:00:35	206.7	83.9099	0.2722	0.6834	0.0030
15:10:35	203	80.2099	0.2602	0.6532	0.0028
15:20:35	199.6	76.8099	0.2491	0.6255	0.0026
15:30:35	196.4	73.6099	0.2388	0.5995	0.0026
15:40:35	193.2	70.4099	0.2284	0.5734	0.0024
15:50:36	190.3	67.5099	0.2190	0.5498	0.0023
16:00:36	187.5	64.7099	0.2099	0.5270	0.0022
16:10:36	184.8	62.0099	0.2011	0.5050	0.0022
16:20:36	182.1	59.3099	0.1924	0.4830	0.0020
16:30:36	179.6	56.8099	0.1843	0.4627	0.0020
16:40:36	177.2	54.4099	0.1765	0.4431	0.0017
16:50:36	175.1	52.3099	0.1697	0.4260	0.0008
17:00:37	174.1	51.3099	0.1664	0.4179	
<b>Data End</b>					

**A.13: Raw data for Oven drying Trial 3 (105°C, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	105°C				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	15-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:05:32	468.1	331.8177	1	2.4348	
09:15:32	460.5	324.2177	0.9771	2.3790	0.0060
09:25:33	452.3	316.0177	0.9524	2.3188	0.0070
09:35:33	442.8	306.5177	0.9238	2.2491	0.0078
09:45:33	432.2	295.9177	0.8918	2.1714	0.0073
09:55:34	422.2	285.9177	0.8617	2.0980	0.0073
10:05:34	412.3	276.0177	0.8318	2.0253	0.0079
10:15:34	401.6	265.3177	0.7996	1.9468	0.0076
10:25:35	391.3	255.0177	0.7685	1.8712	0.0068
10:35:35	382	245.7177	0.7405	1.8030	0.0071
10:45:36	372.3	236.0177	0.7113	1.7318	0.0072
10:55:36	362.5	226.2177	0.6818	1.6599	0.0067
11:05:37	353.4	217.1177	0.6543	1.5931	0.0067
11:15:37	344.3	208.0177	0.6269	1.5264	0.0065
11:25:37	335.4	199.1177	0.6001	1.4611	0.0057
11:35:37	327.6	191.3177	0.5766	1.4038	0.0064
11:45:37	318.9	182.6177	0.5504	1.3400	0.0058
11:55:37	311	174.7177	0.5265	1.2820	0.0057
12:05:37	303.2	166.9177	0.5030	1.2248	0.0057

12:15:38	295.4	159.1177	0.4795	1.1676	0.0052
12:25:38	288.3	152.0177	0.4581	1.1155	0.0054
12:35:38	281	144.7177	0.4361	1.0619	0.0050
12:45:38	274.2	137.9177	0.4156	1.0120	0.0051
12:55:39	267.3	131.0177	0.3948	0.9614	0.0050
13:05:39	260.5	124.2177	0.3744	0.9115	0.0047
13:15:39	254.1	117.8177	0.3551	0.8645	0.0048
13:25:40	247.5	111.2177	0.3352	0.8161	0.0042
13:35:40	241.8	105.5177	0.3180	0.7743	0.0043
13:45:40	236	99.7177	0.3005	0.7317	0.0042
13:55:41	230.3	94.0177	0.2833	0.6899	0.0035
14:05:41	225.5	89.2177	0.2689	0.6547	0.0040
14:15:42	220	83.7177	0.2523	0.6143	0.0035
14:25:42	215.2	78.9177	0.2378	0.5791	0.0035
14:35:42	210.4	74.1177	0.2234	0.5439	0.0032
14:45:42	206.1	69.8177	0.2104	0.5123	0.0032
14:55:42	201.8	65.5177	0.1975	0.4808	0.0029
15:05:43	197.8	61.5177	0.1854	0.4514	0.0028
15:15:44	194	57.7177	0.1739	0.4235	0.0027
15:25:44	190.3	54.0177	0.1628	0.3964	0.0024
15:35:45	187	50.7177	0.1528	0.3722	0.0023
15:45:46	183.8	47.5177	0.1432	0.3487	0.0022
15:55:46	180.8	44.5177	0.1342	0.3267	0.0019
16:05:46	178.2	41.9177	0.1263	0.3076	0.0017
16:15:46	175.9	39.6177	0.1194	0.2907	0.0016
16:25:47	173.7	37.4177	0.1128	0.2746	0.0012
16:35:47	172	35.7177	0.1076	0.2621	
<b>Data End</b>					

**A.14: Raw data for Hot air-drying Trial 1 (70°C, 1 m/s, 16 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	16 mm				
<b>Trial</b>	1				
<b>Date</b>	25-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:26:32	388.12	264.0349	1	2.1279	0.0036
09:36:32	383.64	259.5549	0.9830	2.0917	0.0049
09:46:33	377.62	253.5349	0.9602	2.0432	0.0048
09:56:33	371.72	247.6349	0.9379	1.9957	0.0046
10:06:34	366.05	241.9649	0.9164	1.9500	0.0043
10:16:34	360.68	236.5949	0.8961	1.9067	0.0040
10:26:34	355.76	231.6749	0.8774	1.8671	0.0038
10:36:35	351.09	227.0049	0.8598	1.8294	0.0037
10:46:35	346.49	222.4049	0.8423	1.7924	0.0034
10:56:35	342.23	218.1449	0.8262	1.7580	0.0034
11:06:35	338.01	213.9249	0.8102	1.7240	0.0035
11:16:35	333.7	209.6149	0.7939	1.6893	0.0032
11:26:35	329.71	205.6249	0.7788	1.6571	0.0033
11:36:36	325.67	201.5849	0.7635	1.6246	0.0030
11:46:36	321.95	197.8649	0.7494	1.5946	0.0031
11:56:36	318.09	194.0049	0.7348	1.5635	0.0026
12:06:37	314.83	190.7449	0.7224	1.5372	0.0029

12:16:37	311.24	187.1549	0.7088	1.5083	0.0027
12:26:37	307.89	183.8049	0.6961	1.4813	0.0027
12:36:38	304.55	180.4649	0.6835	1.4544	0.0024
12:46:38	301.62	177.5349	0.6724	1.4308	0.0028
12:56:38	298.1	174.0149	0.6591	1.4024	0.0024
13:06:39	295.07	170.9849	0.6476	1.3780	0.0025
13:16:39	291.91	167.8249	0.6356	1.3525	0.0028
13:26:40	288.46	164.3749	0.6225	1.3247	0.0023
13:36:40	285.62	161.5349	0.6118	1.3018	0.0027
13:46:40	282.3	158.2149	0.5992	1.2751	0.0024
13:56:40	279.36	155.2749	0.5881	1.2514	0.0025
14:06:40	276.28	152.1949	0.5764	1.2265	0.0027
14:16:41	272.98	148.8949	0.5639	1.1999	0.0025
14:26:41	269.86	145.7749	0.5521	1.1748	0.0026
14:36:41	266.69	142.6049	0.5401	1.1493	0.0023
14:46:41	263.89	139.8049	0.5295	1.1267	0.0025
14:56:41	260.76	136.6749	0.5176	1.1015	0.0022
15:06:41	258.01	133.9249	0.5072	1.0793	0.0024
15:16:42	255	130.9149	0.4958	1.0550	0.0026
15:26:42	251.78	127.6949	0.4836	1.0291	0.0021
15:36:42	249.2	125.1149	0.4739	1.0083	0.0025
15:46:42	246.12	122.0349	0.4622	0.9835	0.0023
15:56:42	243.31	119.2249	0.4515	0.9608	0.0024
16:06:42	240.37	116.2849	0.4404	0.9371	0.0021
16:16:43	237.76	113.6749	0.4305	0.9161	0.0022
16:26:43	235.04	110.9549	0.4202	0.8942	0.0020
16:36:44	232.58	108.4949	0.4109	0.8744	
<b>Data End</b>					

**A.15: Raw data for Hot air-drying Trial 2 (70°C, 1 m/s, 16 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	16 mm				
<b>Trial</b>	2				
<b>Date</b>	29-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:21:27	442.66	304.5173	1	2.2044	
09:31:27	438.81	300.6673	0.9874	2.1765	0.0047
09:41:28	432.35	294.2073	0.9661	2.1297	0.0049
09:51:28	425.63	287.4873	0.9441	2.0811	0.0050
10:01:29	418.7	280.5573	0.9213	2.0309	0.0044
10:11:29	412.63	274.4873	0.9014	1.9870	0.0041
10:21:29	406.96	268.8173	0.8828	1.9459	0.0040
10:31:30	401.43	263.2873	0.8646	1.9059	0.0038
10:41:30	396.17	258.0273	0.8473	1.8678	0.0035
10:51:30	391.39	253.2473	0.8316	1.8332	0.0036
11:01:31	386.39	248.2473	0.8152	1.7970	0.0033
11:11:31	381.81	243.6673	0.8002	1.7639	0.0034
11:21:31	377.14	238.9973	0.7848	1.7301	0.0031
11:31:31	372.79	234.6473	0.7706	1.6986	0.0030
11:41:31	368.7	230.5573	0.7571	1.6690	0.0029
11:51:32	364.69	226.5473	0.7440	1.6400	0.0029

12:01:32	360.67	222.5273	0.7308	1.6109	0.0027
12:11:32	356.97	218.8273	0.7186	1.5841	0.0027
12:21:32	353.26	215.1173	0.7064	1.5572	0.0028
12:31:32	349.39	211.2473	0.6937	1.5292	0.0027
12:41:33	345.69	207.5473	0.6816	1.5024	0.0025
12:51:33	342.2	204.0573	0.6701	1.4771	0.0025
13:01:33	338.77	200.6273	0.6588	1.4523	0.0024
13:11:34	335.39	197.2473	0.6477	1.4279	0.0024
13:21:34	332.1	193.9573	0.6369	1.4040	0.0025
13:31:34	328.62	190.4773	0.6255	1.3788	0.0023
13:41:34	325.49	187.3473	0.6152	1.3562	0.0024
13:51:35	322.22	184.0773	0.6045	1.3325	0.0023
14:01:35	319.03	180.8873	0.5940	1.3094	0.0023
14:11:35	315.81	177.6673	0.5834	1.2861	0.0021
14:21:36	312.84	174.6973	0.5737	1.2646	0.0021
14:31:36	309.92	171.7773	0.5641	1.2435	0.0023
14:41:36	306.72	168.5773	0.5536	1.2203	0.0021
14:51:37	303.79	165.6473	0.5440	1.1991	0.0022
15:01:37	300.77	162.6273	0.5340	1.1772	0.0021
15:11:37	297.91	159.7673	0.5247	1.1565	0.0020
15:21:37	295.08	156.9373	0.5154	1.1361	0.0020
15:31:38	292.33	154.1873	0.5063	1.1161	0.0020
15:41:38	289.51	151.3673	0.4971	1.0957	0.0023
15:51:38	286.36	148.2173	0.4867	1.0729	0.0019
16:01:38	283.68	145.5373	0.4779	1.0535	
<b>Data End</b>					

**A.16: Raw data for Hot air-drying Trial 3 (70°C, 1 m/s, 16 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	70°C				
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	16 mm				
<b>Trial</b>	3				
<b>Date</b>	30-10-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:10:49	409.25	279.0746	1	2.1438	
09:20:49	404.31	274.1346	0.9823	2.1059	0.0051
09:30:50	397.66	267.4846	0.9585	2.0548	0.0050
09:40:50	391.15	260.9746	0.9351	2.0048	0.0052
09:50:51	384.39	254.2146	0.9109	1.9529	0.0047
10:00:51	378.22	248.0446	0.8888	1.9055	0.0047
10:10:31	372.14	241.9646	0.8670	1.8588	0.0041
10:20:31	366.79	236.6146	0.8479	1.8177	0.0043
10:30:32	361.16	230.9846	0.8277	1.7744	0.0040
10:40:32	355.98	225.8046	0.8091	1.7346	0.0035
10:50:33	351.38	221.2046	0.7926	1.6993	0.0036
11:00:33	346.64	216.4646	0.7757	1.6629	0.0036
11:10:33	341.97	211.7946	0.7589	1.6270	0.0034
11:20:34	337.6	207.4246	0.7433	1.5934	0.0033
11:30:34	333.33	203.1546	0.7280	1.5606	0.0030
11:40:35	329.42	199.2446	0.7139	1.5306	0.0030
11:50:36	325.56	195.3846	0.7001	1.5009	0.0028

12:00:36	321.94	191.7646	0.6871	1.4731	0.0029
12:10:36	318.12	187.9446	0.6735	1.4438	0.0027
12:20:36	314.62	184.4446	0.6609	1.4169	0.0026
12:30:36	311.25	181.0746	0.6488	1.3910	0.0024
12:40:36	308.1	177.9246	0.6376	1.3668	0.0024
12:50:37	304.98	174.8046	0.6264	1.3428	0.0023
13:00:37	301.93	171.7546	0.6154	1.3194	0.0023
13:10:37	298.92	168.7446	0.6047	1.2963	0.0023
13:20:37	295.93	165.7546	0.5939	1.2733	0.0022
13:30:38	293.03	162.8546	0.5836	1.2510	0.0023
13:40:38	290.1	159.9246	0.5731	1.2285	0.0022
13:50:38	287.27	157.0946	0.5629	1.2068	0.0021
14:00:38	284.53	154.3546	0.5531	1.1857	0.0022
14:10:39	281.73	151.5546	0.5431	1.1642	0.0021
14:20:39	279	148.8246	0.5333	1.1433	0.0022
14:30:39	276.15	145.9746	0.5231	1.1214	0.0020
14:40:39	273.52	143.3446	0.5136	1.1012	0.0022
14:50:40	270.62	140.4446	0.5033	1.0789	0.0019
15:00:40	268.21	138.0346	0.4946	1.0604	0.0020
15:10:40	265.55	135.3746	0.4851	1.0399	0.0020
15:20:41	262.95	132.7746	0.4758	1.0200	0.0020
15:30:41	260.39	130.2146	0.4666	1.0003	0.0019
15:40:41	257.92	127.7446	0.4577	0.9813	0.0019
15:50:42	255.39	125.2146	0.4487	0.9619	0.0019
16:00:42	252.9	122.7246	0.4398	0.9428	0.0017
16:10:42	250.65	120.4746	0.4317	0.9255	
<b>Data End</b>					

**A.17: Raw data for Hot air-drying Trial 1 (50°C, 2 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	2 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	01-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:25:31	407.69	288.3079	1	2.4150	
09:35:31	399.02	279.6379	0.9699	2.3424	0.0082
09:45:32	389.26	269.8779	0.9361	2.2606	0.0090
09:55:32	378.49	259.1079	0.8987	2.1704	0.0066
10:05:32	370.64	251.2579	0.8715	2.1047	0.0080
10:15:33	361.06	241.6779	0.8383	2.0244	0.0077
10:25:33	351.9	232.5179	0.8065	1.9477	0.0065
10:35:34	344.19	224.8079	0.7797	1.8831	0.0062
10:45:38	336.75	217.3679	0.7539	1.8208	0.0061
10:55:35	329.46	210.0779	0.7287	1.7597	0.0055
11:05:35	322.89	203.5079	0.7059	1.7047	0.0055
11:15:36	316.33	196.9479	0.6831	1.6497	0.0052
11:25:36	310.1	190.7179	0.6615	1.5975	0.0048
11:35:36	304.32	184.9379	0.6415	1.5491	0.0040
11:45:37	299.59	180.2079	0.6251	1.5095	0.0051
11:55:37	293.54	174.1579	0.6041	1.4588	0.0038
12:05:38	288.98	169.5979	0.5883	1.4206	0.0040

12:15:38	284.24	164.8579	0.5718	1.3809	0.0042
12:25:38	279.17	159.7879	0.5542	1.3385	0.0036
12:35:38	274.87	155.4879	0.5393	1.3024	0.0032
12:45:39	271.02	151.6379	0.5260	1.2702	0.0037
12:55:39	266.56	147.1779	0.5105	1.2328	0.0033
13:05:39	262.65	143.2679	0.4969	1.2001	0.0030
13:15:39	259.07	139.6879	0.4845	1.1701	0.0032
13:25:39	255.3	135.9179	0.4714	1.1385	0.0030
13:35:39	251.74	132.3579	0.4591	1.1087	0.0026
13:45:39	248.59	129.2079	0.4482	1.0823	0.0033
13:55:39	244.65	125.2679	0.4345	1.0493	0.0024
14:05:39	241.76	122.3779	0.4245	1.0251	0.0027
14:15:40	238.54	119.1579	0.4133	0.9981	0.0029
14:25:40	235.12	115.7379	0.4014	0.9695	0.0030
14:35:41	231.55	112.1679	0.3891	0.9396	0.0029
14:45:41	228.14	108.7579	0.3772	0.9110	0.0021
14:55:41	225.6	106.2179	0.3684	0.8897	0.0019
15:05:42	223.35	103.9679	0.3606	0.8709	0.0034
15:15:42	219.3	99.9179	0.3466	0.8370	0.0019
15:25:42	217.09	97.7079	0.3389	0.8184	0.0026
15:35:42	213.96	94.5779	0.3280	0.7922	0.0013
15:45:43	212.46	93.0779	0.3228	0.7797	0.0027
15:55:44	209.29	89.9079	0.3118	0.7531	0.0022
16:05:44	206.67	87.2879	0.3028	0.7312	0.0010
16:15:45	205.44	86.0579	0.2985	0.7209	0.0027
16:25:45	202.17	82.7879	0.2872	0.6935	
<b>Data End</b>					

**A.18: Raw data for Hot air-drying Trial 2 (50°C, 2 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	2 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	05-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:27:36	395.96	283.1608	1	2.5103	
09:37:36	385.46	272.6608	0.9629	2.4172	0.0092
09:47:36	375.03	262.2308	0.9261	2.3248	0.0077
09:57:36	366.37	253.5708	0.8955	2.2480	0.0076
10:07:37	357.77	244.9708	0.8651	2.1717	0.0080
10:17:37	348.73	235.9308	0.8332	2.0916	0.0060
10:27:37	341.95	229.1508	0.8093	2.0315	0.0081
10:37:38	332.84	220.0408	0.7771	1.9507	0.0072
10:47:38	324.7	211.9008	0.7483	1.8786	0.0072
10:57:39	316.53	203.7308	0.7195	1.8061	0.0073
11:07:39	308.34	195.5408	0.6906	1.7335	0.0060
11:17:39	301.56	188.7608	0.6666	1.6734	0.0058
11:27:39	294.97	182.1708	0.6433	1.6150	0.0056
11:37:39	288.61	175.8108	0.6209	1.5586	0.0059
11:47:40	282	169.2008	0.5975	1.5000	0.0053
11:57:40	276.04	163.2408	0.5765	1.4472	0.0043
12:07:41	271.15	158.3508	0.5592	1.4038	0.0044
12:17:41	266.17	153.3708	0.5416	1.3597	0.0043

12:27:41	261.3	148.5008	0.5244	1.3165	0.0045
12:37:42	256.27	143.4708	0.5067	1.2719	0.0046
12:47:42	251.05	138.2508	0.4882	1.2256	0.0043
12:57:42	246.22	133.4208	0.4712	1.1828	0.0032
13:07:42	242.61	129.8108	0.4584	1.1508	0.0040
13:17:43	238.12	125.3208	0.4426	1.1110	0.0021
13:27:43	235.75	122.9508	0.4342	1.0900	0.0029
13:37:44	232.5	119.7008	0.4227	1.0612	0.0024
13:47:44	229.79	116.9908	0.4132	1.0372	0.0033
13:57:44	226.12	113.3208	0.4002	1.0046	0.0027
14:07:44	223.07	110.2708	0.3894	0.9776	0.0027
14:17:44	220.01	107.2108	0.3786	0.9505	0.0021
14:27:45	217.6	104.8008	0.3701	0.9291	0.0023
14:37:45	214.97	102.1708	0.3608	0.9058	0.0029
14:47:46	211.66	98.8608	0.3491	0.8764	0.0027
14:57:46	208.57	95.7708	0.3382	0.8490	0.0024
15:07:47	205.87	93.0708	0.3287	0.8251	0.0031
15:17:47	202.4	89.6008	0.3164	0.7943	0.0035
15:27:47	198.5	85.7008	0.3027	0.7598	0.0026
15:37:47	195.61	82.8108	0.2925	0.7341	0.0028
15:47:48	192.47	79.6708	0.2814	0.7063	0.0028
15:57:48	189.3	76.5008	0.2702	0.6782	0.0020
16:07:48	187.06	74.2608	0.2623	0.6583	0.0017
16:17:48	185.11	72.3108	0.2554	0.6411	0.0014
16:27:48	183.49	70.6908	0.2496	0.6267	0.0020
16:37:49	181.21	68.4108	0.2416	0.6065	0.0016
16:47:49	179.39	66.5908	0.2352	0.5903	0.0019
16:57:50	177.21	64.4108	0.2275	0.5710	
<b>Data End</b>					

**A.19: Raw data for Hot air-drying Trial 3 (50°C, 2 m/s, 8 mm)**

<b>Pre / Post Treatment</b>	No				
<b>Temperature</b>	50°C				
<b>Air velocity</b>	2 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	06-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:40:46	416.97	299.4199	1	2.5472	
09:50:46	408.68	291.1299	0.9723	2.4766	0.0093
10:00:31	397.74	280.1899	0.9358	2.3836	0.0090
10:10:31	387.17	269.6199	0.9005	2.2937	0.0085
10:20:31	377.13	259.5799	0.8669	2.2083	0.0082
10:30:32	367.46	249.9099	0.8346	2.1260	0.0078
10:40:31	358.27	240.7199	0.8040	2.0478	0.0071
10:50:32	349.87	232.3199	0.7759	1.9763	0.0071
11:00:33	341.53	223.9799	0.7480	1.9054	0.0061
11:10:33	334.31	216.7599	0.7239	1.8440	0.0070
11:20:33	326.12	208.5699	0.6966	1.7743	0.0060
11:30:34	319.01	201.4599	0.6728	1.7138	0.0059
11:40:34	312.07	194.5199	0.6497	1.6548	0.0052
11:50:34	305.94	188.3899	0.6292	1.6026	0.0054
12:00:35	299.59	182.0399	0.6080	1.5486	0.0052
12:10:35	293.5	175.9499	0.5876	1.4968	0.0046
12:20:36	288.04	170.4899	0.5694	1.4504	0.0051
12:30:36	282.08	164.5299	0.5495	1.3997	0.0049

12:40:36	276.29	158.7399	0.5302	1.3504	0.0044
12:50:36	271.13	153.5799	0.5129	1.3065	0.0045
13:01:04	265.84	148.2899	0.4953	1.2615	0.0046
13:10:30	260.49	142.9399	0.4774	1.2160	0.0037
13:20:30	256.17	138.6199	0.4630	1.1792	0.0040
13:30:30	251.43	133.8799	0.4471	1.1389	0.0039
13:40:31	246.83	129.2799	0.4318	1.0998	0.0036
13:50:31	242.63	125.0799	0.4177	1.0641	0.0036
14:00:31	238.43	120.8799	0.4037	1.0283	0.0036
14:10:32	234.25	116.6999	0.3898	0.9928	0.0036
14:20:32	230.02	112.4699	0.3756	0.9568	0.0025
14:30:32	227.1	109.5499	0.3659	0.9319	0.0035
14:40:32	222.93	105.3799	0.3519	0.8965	0.0033
14:50:33	219	101.4499	0.3388	0.8630	0.0023
15:00:33	216.28	98.7299	0.3297	0.8399	0.0031
15:10:33	212.69	95.1399	0.3177	0.8094	0.0030
15:20:33	209.17	91.6199	0.3060	0.7794	0.0025
15:30:34	206.24	88.6899	0.2962	0.7545	0.0026
15:40:34	203.19	85.6399	0.2860	0.7285	0.0028
15:50:35	199.93	82.3799	0.2751	0.7008	0.0023
16:00:35	197.28	79.7299	0.2663	0.6783	0.0019
16:10:36	195.08	77.5299	0.2589	0.6595	0.0030
16:20:36	191.6	74.0499	0.2473	0.6299	0.0019
16:30:37	189.31	71.7599	0.2397	0.6105	0.0023
16:40:37	186.59	69.0399	0.2306	0.5873	0.0021
16:50:38	184.11	66.5599	0.2223	0.5662	0.0018
17:00:38	181.97	64.4199	0.2151	0.5480	
<b>Data End</b>					

**A.20: Raw data for 2-minute Microwave pretreatment and 50°C Hot air-drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	22-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:42:00	405.2	293.2555	1	2.6196	0.0586
09:43:00	392.09	280.1455	0.9553	2.5025	0.0094
09:44:26	381.61	269.6655	0.9196	2.4089	0.0066
09:54:26	374.21	262.2655	0.8943	2.3428	0.0058
10:04:27	367.75	255.8055	0.8723	2.2851	0.0055
10:14:27	361.63	249.6855	0.8514	2.2304	0.0052
10:24:28	355.78	243.8355	0.8315	2.1782	0.0049
10:34:28	350.29	238.3455	0.8128	2.1291	0.0045
10:44:29	345.2	233.2555	0.7954	2.0837	0.0045
10:54:30	340.19	228.2455	0.7783	2.0389	0.0044
11:04:30	335.28	223.3355	0.7616	1.9951	0.0042
11:14:31	330.6	218.6555	0.7456	1.9532	0.0041
11:24:31	325.96	214.0155	0.7298	1.9118	0.0038
11:34:31	321.75	209.8055	0.7154	1.8742	0.0036
11:44:31	317.76	205.8155	0.7018	1.8385	0.0038
11:54:31	313.54	201.5955	0.6874	1.8009	0.0035
12:04:32	309.57	197.6255	0.6739	1.7654	0.0032
12:14:32	305.94	193.9955	0.6615	1.7330	0.0037
12:24:32	301.81	189.8655	0.6474	1.6961	0.0030

12:34:32	298.43	186.4855	0.6359	1.6659	0.0032
12:44:33	294.88	182.9355	0.6238	1.6342	0.0030
12:54:36	291.52	179.5755	0.6124	1.6041	0.0030
13:04:36	288.21	176.2655	0.6011	1.5746	0.0028
13:14:37	285.05	173.1055	0.5903	1.5464	0.0027
13:24:37	282.05	170.1055	0.5801	1.5196	0.0028
13:34:37	278.92	166.9755	0.5694	1.4916	0.0025
13:44:38	276.15	164.2055	0.5599	1.4668	0.0024
13:54:38	273.47	161.5255	0.5508	1.4429	0.0024
14:04:38	270.8	158.8555	0.5417	1.4191	0.0026
14:14:38	267.92	155.9755	0.5319	1.3933	0.0023
14:24:39	265.33	153.3855	0.5230	1.3702	0.0023
14:34:39	262.74	150.7955	0.5142	1.3471	0.0022
14:44:39	260.32	148.3755	0.5060	1.3254	0.0021
14:54:40	257.96	146.0155	0.4979	1.3044	0.0022
15:04:40	255.54	143.5955	0.4897	1.2827	0.0024
15:14:40	252.84	140.8955	0.4805	1.2586	0.0022
15:24:40	250.43	138.4855	0.4722	1.2371	0.0020
15:34:41	248.22	136.2755	0.4647	1.2173	0.0023
15:44:41	245.69	133.7455	0.4561	1.1947	0.0021
15:54:42	243.38	131.4355	0.4482	1.1741	0.0021
16:04:42	241.05	129.1055	0.4402	1.1533	0.0019
16:14:42	238.94	126.9955	0.4331	1.1344	0.0021
16:24:42	236.58	124.6355	0.4250	1.1134	0.0020
16:34:42	234.29	122.3455	0.4172	1.0929	0.0018
16:44:43	232.31	120.3655	0.4104	1.0752	0.0017
16:54:43	230.36	118.4155	0.4038	1.0578	0.0018
17:04:44	228.4	116.4555	0.3971	1.0403	
<b>Data End</b>					

**A.21: Raw data for 2-minute Microwave pretreatment and 50°C Hot air-drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	Treatment	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	26-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:42:00	416.84	302.0625	1	2.6317	0.0572
09:43:00	403.72	288.9425	0.9566	2.5174	0.0103
09:44:26	391.86	277.0825	0.9173	2.4141	0.0067
09:54:26	384.21	269.4325	0.8920	2.3474	0.0060
10:04:26	377.29	262.5125	0.8691	2.2871	0.0054
10:14:27	371.11	256.3325	0.8486	2.2333	0.0053
10:24:27	365.05	250.2725	0.8285	2.1805	0.0049
10:34:27	359.37	244.5925	0.8097	2.1310	0.0049
10:44:27	353.74	238.9625	0.7911	2.0820	0.0044
10:54:28	348.65	233.8725	0.7743	2.0376	0.0044
11:04:28	343.57	228.7925	0.7574	1.9934	0.0042
11:14:29	338.72	223.9425	0.7414	1.9511	0.0040
11:24:29	334.11	219.3325	0.7261	1.9109	0.0040
11:34:29	329.55	214.7725	0.7110	1.8712	0.0039
11:44:29	325.02	210.2425	0.6960	1.8317	0.0036
11:54:29	320.91	206.1325	0.6824	1.7959	0.0036
12:04:30	316.77	201.9925	0.6687	1.7599	0.0035
12:14:30	312.75	197.9725	0.6554	1.7248	0.0034
12:24:30	308.82	194.0425	0.6424	1.6906	0.0033

12:34:30	305.06	190.2825	0.6299	1.6578	0.0030
12:44:30	301.56	186.7825	0.6184	1.6273	0.0034
12:54:31	297.63	182.8525	0.6053	1.5931	0.0029
13:04:31	294.32	179.5425	0.5944	1.5643	0.0030
13:14:31	290.89	176.1125	0.5830	1.5344	0.0028
13:24:31	287.63	172.8525	0.5722	1.5060	0.0028
13:34:32	284.4	169.6225	0.5615	1.4778	0.0026
13:44:32	281.38	166.6025	0.5515	1.4515	0.0028
13:54:32	278.21	163.4325	0.5411	1.4239	0.0026
14:04:32	275.22	160.4425	0.5312	1.3979	0.0025
14:14:33	272.37	157.5925	0.5217	1.3730	0.0024
14:24:33	269.58	154.8025	0.5125	1.3487	0.0025
14:34:33	266.66	151.8825	0.5028	1.3233	0.0026
14:44:34	263.72	148.9425	0.4931	1.2977	0.0024
14:54:34	260.91	146.1325	0.4838	1.2732	0.0023
15:04:35	258.3	143.5225	0.4751	1.2504	0.0024
15:14:35	255.53	140.7525	0.4660	1.2263	0.0022
15:24:35	253	138.2225	0.4576	1.2043	0.0019
15:34:36	250.77	135.9925	0.4502	1.1848	0.0022
15:44:36	248.27	133.4925	0.4419	1.1631	0.0020
15:54:36	245.92	131.1425	0.4342	1.1426	0.0021
16:04:36	243.52	128.7425	0.4262	1.1217	0.0019
16:14:37	241.32	126.5425	0.4189	1.1025	0.0021
16:24:37	238.92	124.1425	0.4110	1.0816	0.0020
16:34:37	236.57	121.7925	0.4032	1.0611	0.0018
16:44:37	234.47	119.6925	0.3963	1.0428	0.0018
16:54:38	232.45	117.6725	0.3896	1.0252	0.0017
17:04:38	230.47	115.6925	0.3830	1.0080	
<b>Data End</b>					

**A.22: Raw data for 2-minute Microwave pretreatment and 50°C Hot air-drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	27-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:21:00	422.21	307.4816	1	2.6801	0.0577
09:22:00	408.96	294.2316	0.9569	2.5646	0.0094
09:23:25	398.14	283.4116	0.9217	2.4703	0.0064
09:33:26	390.78	276.0516	0.8978	2.4061	0.0058
09:43:26	384.17	269.4416	0.8763	2.3485	0.0056
09:53:26	377.69	262.9616	0.8552	2.2920	0.0054
10:03:27	371.55	256.8216	0.8352	2.2385	0.0050
10:13:27	365.86	251.1316	0.8167	2.1889	0.0049
10:23:28	360.21	245.4816	0.7984	2.1397	0.0048
10:33:28	354.68	239.9516	0.7804	2.0915	0.0046
10:43:29	349.43	234.7016	0.7633	2.0457	0.0043
10:53:29	344.54	229.8116	0.7474	2.0031	0.0044
11:03:29	339.51	224.7816	0.7310	1.9593	0.0041
11:13:29	334.84	220.1116	0.7159	1.9185	0.0040
11:23:29	330.21	215.4816	0.7008	1.8782	0.0038
11:33:30	325.81	211.0816	0.6865	1.8398	0.0038
11:43:30	321.49	206.7616	0.6724	1.8022	0.0037
11:53:30	317.3	202.5716	0.6588	1.7657	0.0036
12:03:31	313.14	198.4116	0.6453	1.7294	0.0034

12:13:31	309.19	194.4616	0.6324	1.6950	0.0033
12:23:32	305.39	190.6616	0.6201	1.6619	0.0032
12:33:32	301.69	186.9616	0.6080	1.6296	0.0032
12:43:32	298.04	183.3116	0.5962	1.5978	0.0032
12:53:32	294.36	179.6316	0.5842	1.5657	0.0031
13:03:33	290.82	176.0916	0.5727	1.5349	0.0031
13:13:33	287.27	172.5416	0.5611	1.5039	0.0028
13:23:33	284.11	169.3816	0.5509	1.4764	0.0028
13:33:34	280.89	166.1616	0.5404	1.4483	0.0028
13:43:34	277.66	162.9316	0.5299	1.4202	0.0028
13:53:34	274.48	159.7516	0.5195	1.3924	0.0026
14:03:35	271.49	156.7616	0.5098	1.3664	0.0027
14:13:35	268.37	153.6416	0.4997	1.3392	0.0028
14:23:35	265.14	150.4116	0.4892	1.3110	0.0024
14:33:35	262.4	147.6716	0.4803	1.2871	0.0024
14:43:35	259.66	144.9316	0.4714	1.2633	0.0026
14:53:36	256.7	141.9716	0.4617	1.2375	0.0024
15:03:36	253.99	139.2616	0.4529	1.2138	0.0022
15:13:36	251.42	136.6916	0.4446	1.1914	0.0022
15:23:36	248.84	134.1116	0.4362	1.1689	0.0022
15:33:37	246.33	131.6016	0.4280	1.1471	0.0023
15:43:37	243.73	129.0016	0.4195	1.1244	0.0023
15:53:37	241.14	126.4116	0.4111	1.1018	0.0022
16:03:37	238.58	123.8516	0.4028	1.0795	0.0022
16:13:38	236.02	121.2916	0.3945	1.0572	0.0020
16:23:38	233.68	118.9516	0.3869	1.0368	0.0018
16:33:38	231.63	116.9016	0.3802	1.0189	0.0017
16:43:38	229.68	114.9516	0.3738	1.0019	
<b>Data End</b>					

**A.23: Raw data for 1-minute Microwave pretreatment and 50°C Hot air-drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	1 minute		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	29-11-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:20:00	409.45	292.9354	1	2.5142	0.0606
09:21:21	402.39	285.8754	0.9759	2.4536	0.0063
09:31:21	395.09	278.5754	0.9510	2.3909	0.0062
09:41:21	387.81	271.2954	0.9261	2.3284	0.0058
09:51:22	381.05	264.5354	0.9031	2.2704	0.0056
10:01:22	374.54	258.0254	0.8808	2.2145	0.0053
10:11:22	368.38	251.8654	0.8598	2.1617	0.0050
10:21:23	362.54	246.0254	0.8399	2.1115	0.0048
10:31:23	357	240.4854	0.8210	2.0640	0.0048
10:41:24	351.46	234.9454	0.8020	2.0164	0.0045
10:51:25	346.25	229.7354	0.7843	1.9717	0.0041
11:01:25	341.46	224.9454	0.7679	1.9306	0.0042
11:11:25	336.52	220.0054	0.7510	1.8882	0.0040
11:21:26	331.81	215.2954	0.7350	1.8478	0.0038
11:31:26	327.34	210.8254	0.7197	1.8094	0.0038
11:41:26	322.89	206.3754	0.7045	1.7712	0.0038
11:51:27	318.48	201.9654	0.6895	1.7334	0.0035
12:01:27	314.43	197.9154	0.6756	1.6986	0.0034
12:11:27	310.49	193.9754	0.6622	1.6648	0.0034

12:21:28	306.51	189.9954	0.6486	1.6307	0.0032
12:31:28	302.8	186.2854	0.6359	1.5988	0.0030
12:41:29	299.27	182.7554	0.6239	1.5685	0.0032
12:51:29	295.5	178.9854	0.6110	1.5362	0.0027
13:01:29	292.33	175.8154	0.6002	1.5090	0.0030
13:11:30	288.88	172.3654	0.5884	1.4793	0.0028
13:21:30	285.6	169.0854	0.5772	1.4512	0.0029
13:31:31	282.26	165.7454	0.5658	1.4225	0.0026
13:41:31	279.28	162.7654	0.5556	1.3970	0.0025
13:51:32	276.35	159.8354	0.5456	1.3718	0.0027
14:01:32	273.21	156.6954	0.5349	1.3449	0.0023
14:11:33	270.56	154.0454	0.5259	1.3221	0.0024
14:21:33	267.78	151.2654	0.5164	1.2983	0.0023
14:31:34	265.09	148.5754	0.5072	1.2752	0.0024
14:41:34	262.26	145.7454	0.4975	1.2509	0.0022
14:51:34	259.75	143.2354	0.4890	1.2293	0.0024
15:01:35	256.97	140.4554	0.4795	1.2055	0.0021
15:11:35	254.52	138.0054	0.4711	1.1844	0.0022
15:21:35	251.91	135.3954	0.4622	1.1620	0.0021
15:31:36	249.41	132.8954	0.4537	1.1406	0.0021
15:41:36	246.97	130.4554	0.4453	1.1196	0.0022
15:51:36	244.44	127.9254	0.4367	1.0979	0.0020
16:01:36	242.09	125.5754	0.4287	1.0778	0.0019
16:11:37	239.89	123.3754	0.4212	1.0589	0.0025
16:21:37	237	120.4854	0.4113	1.0341	0.0018
16:31:37	234.9	118.3854	0.4041	1.0161	0.0018
16:41:38	232.8	116.2854	0.3970	0.9980	0.0020
16:51:38	230.51	113.9954	0.3891	0.9784	
<b>Data End</b>					

**A.24: Raw data for 1-minute Microwave pretreatment and 50°C Hot air-drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	1 minute		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	03-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:51:00	422.3	303.6910	1	2.5604	0.0607
08:52:32	415.1	296.4910	0.9763	2.4997	0.0060
09:02:32	408.03	289.4210	0.9530	2.4401	0.0059
09:12:32	401.01	282.4010	0.9299	2.3809	0.0056
09:22:32	394.34	275.7310	0.9079	2.3247	0.0057
09:32:33	387.58	268.9710	0.8857	2.2677	0.0053
09:42:33	381.28	262.6710	0.8649	2.2146	0.0052
09:52:33	375.16	256.5510	0.8448	2.1630	0.0049
10:02:33	369.31	250.7010	0.8255	2.1137	0.0048
10:12:33	363.58	244.9710	0.8066	2.0654	0.0046
10:22:33	358.13	239.5210	0.7887	2.0194	0.0045
10:32:33	352.83	234.2210	0.7712	1.9747	0.0041
10:42:34	348.01	229.4010	0.7554	1.9341	0.0043
10:52:34	342.89	224.2810	0.7385	1.8909	0.0040
11:02:34	338.09	219.4810	0.7227	1.8505	0.0040
11:12:34	333.4	214.7910	0.7073	1.8109	0.0039
11:22:34	328.72	210.1110	0.6919	1.7715	0.0035
11:32:34	324.51	205.9010	0.6780	1.7360	0.0036
11:42:34	320.26	201.6510	0.6640	1.7001	0.0035

11:52:35	316.08	197.4710	0.6502	1.6649	0.0033
12:02:35	312.19	193.5810	0.6374	1.6321	0.0031
12:12:35	308.54	189.9310	0.6254	1.6013	0.0033
12:22:35	304.58	185.9710	0.6124	1.5679	0.0030
12:32:35	300.98	182.3710	0.6005	1.5376	0.0029
12:42:36	297.53	178.9210	0.5892	1.5085	0.0028
12:52:36	294.18	175.5710	0.5781	1.4803	0.0028
13:02:36	290.91	172.3010	0.5674	1.4527	0.0029
13:12:37	287.46	168.8510	0.5560	1.4236	0.0028
13:22:37	284.13	165.5210	0.5450	1.3955	0.0028
13:32:37	280.86	162.2510	0.5343	1.3679	0.0029
13:42:38	277.41	158.8010	0.5229	1.3389	0.0025
13:52:38	274.48	155.8710	0.5133	1.3142	0.0025
14:02:38	271.46	152.8510	0.5033	1.2887	0.0025
14:12:38	268.46	149.8510	0.4934	1.2634	0.0023
14:22:38	265.79	147.1810	0.4846	1.2409	0.0025
14:32:38	262.81	144.2010	0.4748	1.2158	0.0022
14:42:39	260.25	141.6410	0.4664	1.1942	0.0022
14:52:39	257.59	138.9810	0.4576	1.1718	0.0025
15:02:39	254.62	136.0110	0.4479	1.1467	0.0020
15:12:39	252.27	133.6610	0.4401	1.1269	0.0019
15:22:39	250.04	131.4310	0.4328	1.1081	0.0019
15:32:39	247.83	129.2210	0.4255	1.0895	0.0018
15:42:39	245.64	127.0310	0.4183	1.0710	0.0019
15:52:39	243.41	124.8010	0.4109	1.0522	0.0017
16:02:39	241.43	122.8210	0.4044	1.0355	0.0017
16:12:39	239.4	120.7910	0.3977	1.0184	0.0017
16:22:40	237.42	118.8110	0.3912	1.0017	
<b>Data End</b>					

**A.25: Raw data for 1-minute Microwave pretreatment and 50°C Hot air-drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	1 minute		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	04-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:59:00	410.01	294.4251	1	2.5473	0.0601
09:00:30	403.06	287.4751	0.9764	2.4871	0.0061
09:10:31	395.99	280.4051	0.9524	2.4260	0.0061
09:20:31	388.97	273.3851	0.9285	2.3652	0.0058
09:30:32	382.32	266.7351	0.9060	2.3077	0.0058
09:40:31	375.58	259.9951	0.8831	2.2494	0.0054
09:50:31	369.3	253.7151	0.8617	2.1951	0.0053
10:00:31	363.2	247.6151	0.8410	2.1423	0.0050
10:10:32	357.38	241.7951	0.8212	2.0919	0.0049
10:20:31	351.67	236.0851	0.8019	2.0425	0.0047
10:30:31	346.23	230.6451	0.7834	1.9955	0.0046
10:40:31	340.94	225.3551	0.7654	1.9497	0.0042
10:50:32	336.14	220.5551	0.7491	1.9082	0.0044
11:00:32	331.04	215.4551	0.7318	1.8640	0.0041
11:10:33	326.27	210.6851	0.7156	1.8228	0.0041
11:20:33	321.57	205.9851	0.6996	1.7821	0.0040
11:30:33	316.96	201.3751	0.6840	1.7422	0.0036
11:40:33	312.76	197.1751	0.6697	1.7059	0.0037
11:50:34	308.52	192.9351	0.6553	1.6692	0.0036

12:00:34	304.35	188.7651	0.6411	1.6331	0.0034
12:10:35	300.47	184.8851	0.6280	1.5996	0.0031
12:20:35	296.85	181.2651	0.6157	1.5682	0.0034
12:30:35	292.9	177.3151	0.6022	1.5341	0.0031
12:40:36	289.32	173.7351	0.5901	1.5031	0.0030
12:50:36	285.89	170.3051	0.5784	1.4734	0.0029
13:00:36	282.56	166.9751	0.5671	1.4446	0.0028
13:10:36	279.3	163.7151	0.5561	1.4164	0.0030
13:20:36	275.86	160.2751	0.5444	1.3866	0.0025
13:30:36	272.94	157.3551	0.5344	1.3614	0.0026
13:40:36	269.92	154.3351	0.5242	1.3353	0.0026
13:50:37	266.94	151.3551	0.5141	1.3095	0.0023
14:00:37	264.28	148.6951	0.5050	1.2865	0.0026
14:10:37	261.31	145.7251	0.4949	1.2608	0.0022
14:20:37	258.77	143.1851	0.4863	1.2388	0.0024
14:30:37	255.97	140.3851	0.4768	1.2146	0.0019
14:40:36	253.77	138.1851	0.4693	1.1955	0.0024
14:50:37	251.03	135.4451	0.4600	1.1718	0.0022
15:00:37	248.52	132.9351	0.4515	1.1501	0.0020
15:10:38	246.24	130.6551	0.4438	1.1304	0.0021
15:20:38	243.8	128.2151	0.4355	1.1093	0.0019
15:30:38	241.57	125.9851	0.4279	1.0900	0.0020
15:40:39	239.22	123.6351	0.4199	1.0696	0.0020
15:50:37	236.96	121.3751	0.4122	1.0501	0.0016
16:00:38	235.1	119.5151	0.4059	1.0340	0.0020
16:10:38	232.83	117.2451	0.3982	1.0144	0.0018
16:20:40	230.76	115.1751	0.3912	0.9965	0.0019
16:30:40	228.54	112.9551	0.3836	0.9772	
Data End					

**A.26: Raw data for 2-minute Microwave pretreatment and 70°C Hot air-drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	70°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	06-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:33:00	405.2	289.9431	1	2.5156	0.0465
09:34:00	394.49	279.2331	0.9631	2.4227	0.0130
09:35:11	379.48	264.2231	0.9113	2.2925	0.0088
09:45:11	369.35	254.0931	0.8764	2.2046	0.0078
09:55:12	360.37	245.1131	0.8454	2.1267	0.0072
10:05:12	352.06	236.8031	0.8167	2.0546	0.0069
10:15:13	344.08	228.8231	0.7892	1.9853	0.0064
10:25:13	336.69	221.4331	0.7637	1.9212	0.0063
10:35:13	329.44	214.1831	0.7387	1.8583	0.0058
10:45:14	322.79	207.5331	0.7158	1.8006	0.0055
10:55:14	316.43	201.1731	0.6938	1.7454	0.0054
11:05:15	310.24	194.9831	0.6725	1.6917	0.0052
11:15:15	304.26	189.0031	0.6519	1.6398	0.0051
11:25:16	298.4	183.1431	0.6317	1.5890	0.0049
11:35:16	292.74	177.4831	0.6121	1.5399	0.0045
11:45:16	287.55	172.2931	0.5942	1.4949	0.0045
11:55:16	282.34	167.0831	0.5763	1.4497	0.0042
12:05:16	277.5	162.2431	0.5596	1.4077	0.0043
12:15:17	272.6	157.3431	0.5427	1.3652	0.0039

12:25:17	268.06	152.8031	0.5270	1.3258	0.0039
12:35:17	263.55	148.2931	0.5115	1.2866	0.0039
12:45:17	259.07	143.8131	0.4960	1.2478	0.0038
12:55:17	254.72	139.4631	0.4810	1.2100	0.0036
13:05:17	250.52	135.2631	0.4665	1.1736	0.0035
13:15:18	246.49	131.2331	0.4526	1.1386	0.0035
13:25:18	242.47	127.2131	0.4388	1.1037	0.0034
13:35:18	238.52	123.2631	0.4251	1.0695	0.0034
13:45:18	234.65	119.3931	0.4118	1.0359	0.0034
13:55:18	230.71	115.4531	0.3982	1.0017	0.0031
14:05:19	227.15	111.8931	0.3859	0.9708	0.0031
14:15:19	223.59	108.3331	0.3736	0.9399	0.0029
14:25:19	220.2	104.9431	0.3619	0.9105	0.0029
14:35:20	216.86	101.6031	0.3504	0.8815	0.0026
14:45:20	213.9	98.6431	0.3402	0.8559	0.0028
14:55:20	210.67	95.4131	0.3291	0.8278	0.0025
15:05:20	207.74	92.4831	0.3190	0.8024	0.0024
15:15:21	204.93	89.6731	0.3093	0.7780	0.0023
15:25:21	202.3	87.0431	0.3002	0.7552	0.0024
15:35:21	199.52	84.2631	0.2906	0.7311	0.0022
15:45:21	197.04	81.7831	0.2821	0.7096	0.0023
15:55:21	194.39	79.1331	0.2729	0.6866	0.0021
16:05:21	192.02	76.7631	0.2648	0.6660	0.0021
16:15:22	189.62	74.3631	0.2565	0.6452	0.0019
16:25:22	187.45	72.1931	0.2490	0.6264	0.0018
16:35:22	185.36	70.1031	0.2418	0.6082	0.0019
16:45:22	183.2	67.9431	0.2343	0.5895	0.0020
16:55:23	180.85	65.5931	0.2262	0.5691	
17:05:23					
<b>Data End</b>					

**A.27: Raw data for 2-minute Microwave pretreatment and 70°C Hot air-drying (Trial 2)**

<b>Pre / Post Treatment</b>	<b>Pretreatment</b>	<b>Treatment</b>	<b>Microwave</b>		
<b>Temperature</b>	70°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	10-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:58:00	406.63	290.08	1	2.4889	0.0421
08:59:00	396.82	280.27	0.9662	2.4047	0.0107
09:00:42	384.4	267.85	0.9234	2.2982	0.0093
09:10:42	373.54	256.99	0.8859	2.2050	0.0084
09:20:43	363.7	247.15	0.8520	2.1205	0.0079
09:30:43	354.44	237.89	0.8201	2.0411	0.0073
09:40:43	345.92	229.37	0.7907	1.9680	0.0070
09:50:43	337.75	221.2	0.7625	1.8979	0.0063
10:00:44	330.45	213.9	0.7374	1.8353	0.0064
10:10:44	322.96	206.41	0.7116	1.7710	0.0058
10:20:44	316.18	199.63	0.6882	1.7128	0.0056
10:30:45	309.62	193.07	0.6656	1.6565	0.0052
10:40:45	303.55	187	0.6446	1.6045	0.0052
10:50:26	297.45	180.9	0.6236	1.5521	0.0049
11:00:26	291.69	175.14	0.6038	1.5027	0.0046
11:10:27	286.29	169.74	0.5851	1.4564	0.0047
11:20:27	280.83	164.28	0.5663	1.4095	0.0046
11:30:27	275.51	158.96	0.5480	1.3639	0.0044
11:40:27	270.37	153.82	0.5303	1.3198	0.0044

11:50:28	265.29	148.74	0.5128	1.2762	0.0042
12:00:28	260.35	143.8	0.4957	1.2338	0.0042
12:10:28	255.4	138.85	0.4787	1.1913	0.0042
12:20:29	250.47	133.92	0.4617	1.1490	0.0040
12:30:29	245.82	129.27	0.4456	1.1091	0.0037
12:40:29	241.48	124.93	0.4307	1.0719	0.0036
12:50:30	237.28	120.73	0.4162	1.0359	0.0037
13:00:30	233.01	116.46	0.4015	0.9992	0.0035
13:10:31	228.98	112.43	0.3876	0.9647	0.0033
13:20:31	225.19	108.64	0.3745	0.9321	0.0033
13:30:31	221.34	104.79	0.3612	0.8991	0.0031
13:40:32	217.72	101.17	0.3488	0.8680	0.0030
13:50:32	214.27	97.72	0.3369	0.8384	0.0029
04:00:32	210.88	94.33	0.3252	0.8094	0.0027
14:10:32	207.71	91.16	0.3143	0.7822	0.0027
14:20:32	204.55	88	0.3034	0.7550	0.0025
14:30:32	201.68	85.13	0.2935	0.7304	0.0025
14:40:32	198.73	82.18	0.2833	0.7051	0.0022
14:50:33	196.16	79.61	0.2744	0.6831	0.0023
15:00:33	193.46	76.91	0.2651	0.6599	0.0021
15:10:33	191.02	74.47	0.2567	0.6390	0.0021
15:20:34	188.58	72.03	0.2483	0.6180	0.0021
15:30:34	186.19	69.64	0.2401	0.5975	0.0021
15:40:34	183.77	67.22	0.2317	0.5767	0.0019
15:50:34	181.57	65.02	0.2241	0.5579	0.0018
16:00:35	179.46	62.91	0.2169	0.5398	0.0018
16:10:35	177.33	60.78	0.2095	0.5215	0.0018
16:20:35	175.2	58.65	0.2022	0.5032	
<b>Data End</b>					

**A.28: Raw data for 2-minute Microwave pretreatment and 70°C Hot air-drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	70°C	<b>Duration</b>	2 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	11-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:03:00	418.8	298.9125	1	2.4933	0.0438
09:04:00	408.3	288.4125	0.9649	2.4057	0.0098
09:05:21	396.55	276.6625	0.9256	2.3077	0.0080
09:15:21	386.99	267.1025	0.8936	2.2279	0.0075
09:25:21	377.96	258.0725	0.8634	2.1526	0.0068
09:35:21	369.83	249.9425	0.8362	2.0848	0.0065
09:45:21	361.99	242.1025	0.8099	2.0194	0.0061
09:55:22	354.66	234.7725	0.7854	1.9583	0.0059
10:05:22	347.59	227.7025	0.7618	1.8993	0.0056
10:15:23	340.83	220.9425	0.7392	1.8429	0.0051
10:25:23	334.68	214.7925	0.7186	1.7916	0.0051
10:35:24	328.52	208.6325	0.6980	1.7402	0.0049
10:45:24	322.67	202.7825	0.6784	1.6914	0.0048
10:55:24	316.87	196.9825	0.6590	1.6431	0.0049
11:05:25	311.01	191.1225	0.6394	1.5942	0.0045
11:15:25	305.6	185.7125	0.6213	1.5491	0.0042
11:25:26	300.53	180.6425	0.6043	1.5068	0.0042
11:35:26	295.48	175.5925	0.5874	1.4646	0.0041
11:45:26	290.6	170.7125	0.5711	1.4239	0.0042

11:55:27	285.54	165.6525	0.5542	1.3817	0.0036
12:05:28	281.21	161.3225	0.5397	1.3456	0.0040
12:15:28	276.46	156.5725	0.5238	1.3060	0.0036
12:25:28	272.14	152.2525	0.5094	1.2700	0.0035
12:35:28	267.9	148.0125	0.4952	1.2346	0.0035
12:45:29	263.71	143.8225	0.4812	1.1996	0.0034
12:55:29	259.62	139.7325	0.4675	1.1655	0.0034
13:05:29	255.59	135.7025	0.4540	1.1319	0.0034
13:15:30	251.52	131.6325	0.4404	1.0980	0.0030
13:25:30	247.92	128.0325	0.4283	1.0679	0.0031
13:35:30	244.25	124.3625	0.4160	1.0373	0.0031
13:45:30	240.59	120.7025	0.4038	1.0068	0.0028
13:55:31	237.28	117.3925	0.3927	0.9792	0.0028
14:05:31	233.93	114.0425	0.3815	0.9512	0.0025
14:15:32	230.9	111.0125	0.3714	0.9260	0.0026
14:25:32	227.82	107.9325	0.3611	0.9003	0.0025
14:35:32	224.87	104.9825	0.3512	0.8757	0.0024
14:45:33	221.94	102.0525	0.3414	0.8512	0.0023
14:55:33	219.23	99.3425	0.3323	0.8286	0.0024
15:05:33	216.38	96.4925	0.3228	0.8049	0.0022
15:15:33	213.76	93.8725	0.3140	0.7830	0.0021
15:25:33	211.21	91.3225	0.3055	0.7617	0.0022
15:35:34	208.63	88.7425	0.2969	0.7402	0.0020
15:45:34	206.2	86.3125	0.2888	0.7199	0.0020
15:55:34	203.81	83.9225	0.2808	0.7000	0.0020
16:05:36	201.43	81.5425	0.2728	0.6802	0.0019
16:15:36	199.15	79.2625	0.2652	0.6611	0.0019
16:25:36	196.87	76.9825	0.2575	0.6421	
<b>Data End</b>					

**A.29: Raw data for 3 min Blanching pretreatment and 50°C Hot air drying (Trial 1)**

<b>Pre / Post Treatment</b>	<b>Pretreatment</b>	<b>Treatment</b>	<b>Hot water blanching</b>		
<b>Temperature</b>	50°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	18-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:59:00	405	288.0634	1	2.4634	-0.0400
09:02:23	419.04	302.1034	1.0487	2.5835	0.0101
09:12:22	407.26	290.3234	1.0078	2.4827	0.0061
09:22:22	400.11	283.1734	0.9830	2.4216	0.0055
09:32:23	393.71	276.7734	0.9608	2.3669	0.0049
09:42:23	387.96	271.0234	0.9408	2.3177	0.0047
09:52:23	382.49	265.5534	0.9219	2.2709	0.0043
10:02:24	377.51	260.5734	0.9046	2.2283	0.0040
10:12:24	372.86	255.9234	0.8884	2.1886	0.0039
10:22:24	368.26	251.3234	0.8725	2.1492	0.0036
10:32:25	364.06	247.1234	0.8579	2.1133	0.0034
10:42:25	360.07	243.1334	0.8440	2.0792	0.0034
10:52:25	356.14	239.2034	0.8304	2.0456	0.0032
11:02:25	352.39	235.4534	0.8174	2.0135	0.0030
11:12:25	348.89	231.9534	0.8052	1.9836	0.0029
11:22:26	345.54	228.6034	0.7936	1.9549	0.0027
11:32:26	342.33	225.3934	0.7824	1.9275	0.0025
11:42:26	339.45	222.5134	0.7724	1.9029	0.0024
11:52:26	336.65	219.7134	0.7627	1.8789	0.0023

12:02:25	334	217.0634	0.7535	1.8562	0.0023
12:12:25	331.27	214.3334	0.7440	1.8329	0.0022
12:22:26	328.73	211.7934	0.7352	1.8112	0.0029
12:32:26	326.32	209.3834	0.7269	1.7906	0.0017
12:42:26	323.7	206.7634	0.7178	1.7682	0.0021
12:52:26	321.22	204.2834	0.7092	1.7470	0.0020
13:02:27	318.89	201.9534	0.7011	1.7270	0.0019
13:12:27	316.69	199.7534	0.6934	1.7082	0.0020
13:22:27	314.39	197.4534	0.6855	1.6886	0.0020
13:32:28	312.1	195.1634	0.6775	1.6690	0.0017
13:42:28	310.1	193.1634	0.6706	1.6519	0.0017
13:52:28	308.12	191.1834	0.6637	1.6349	0.0017
14:02:29	306.17	189.2334	0.6569	1.6183	0.0015
14:12:29	304.36	187.4234	0.6506	1.6028	0.0016
14:22:29	302.49	185.5534	0.6441	1.5868	0.0014
14:32:29	300.8	183.8634	0.6383	1.5723	0.0016
14:42:30	298.88	181.9434	0.6316	1.5559	0.0017
14:52:30	296.93	179.9934	0.6248	1.5392	0.0015
15:02:30	295.13	178.1934	0.6186	1.5238	0.0016
15:12:30	293.3	176.3634	0.6122	1.5082	0.0015
15:22:30	291.52	174.5834	0.6061	1.4930	0.0015
15:32:30	289.72	172.7834	0.5998	1.4776	0.0017
15:42:31	287.72	170.7834	0.5929	1.4605	0.0014
15:52:31	286.07	169.1334	0.5871	1.4464	0.0013
16:02:32	284.57	167.6334	0.5819	1.4335	0.0014
16:12:32	282.92	165.9834	0.5762	1.4194	0.0014
16:22:32	281.3	164.3634	0.5706	1.4056	0.0013
16:32:32	279.83	162.8934	0.5655	1.3930	
<b>Data End</b>					

**A.30: Raw data for 3 min Blanching pretreatment and 50°C Hot air drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	50°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	20-12-2024				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:57:00	400	287.7778	1	2.5644	- 0.0409
09:00:21	413.77	301.5478	1.0478	2.6871	0.0111
09:10:21	401.26	289.0378	1.0044	2.5756	0.0067
09:20:21	393.74	281.5178	0.9782	2.5086	0.0057
09:30:21	387.29	275.0678	0.9558	2.4511	0.0054
09:40:21	381.28	269.0578	0.9349	2.3975	0.0051
09:50:22	375.51	263.2878	0.9149	2.3461	0.0044
10:00:22	370.52	258.2978	0.8976	2.3017	0.0045
10:10:22	365.51	253.2878	0.8802	2.2570	0.0042
10:20:22	360.83	248.6078	0.8639	2.2153	0.0039
10:30:22	356.43	244.2078	0.8486	2.1761	0.0039
10:40:23	352.08	239.8578	0.8335	2.1373	0.0035
10:50:23	348.13	235.9078	0.8198	2.1021	0.0034
11:00:24	344.26	232.0378	0.8063	2.0677	0.0034
11:10:24	340.49	228.2678	0.7932	2.0341	0.0034
11:20:24	336.71	224.4878	0.7801	2.0004	0.0030
11:30:24	333.3	221.0778	0.7682	1.9700	0.0030
11:40:24	329.9	217.6778	0.7564	1.9397	0.0029
11:50:25	326.65	214.4278	0.7451	1.9107	0.0029

12:00:25	323.41	211.1878	0.7339	1.8819	0.0028
12:10:26	320.28	208.0578	0.7230	1.8540	0.0027
12:20:26	317.26	205.0378	0.7125	1.8271	0.0037
12:30:26	314.32	202.0978	0.7023	1.8009	0.0020
12:40:26	311.36	199.1378	0.6920	1.7745	0.0026
12:50:26	308.46	196.2378	0.6819	1.7487	0.0024
13:00:27	305.76	193.5378	0.6725	1.7246	0.0024
13:10:27	303.11	190.8878	0.6633	1.7010	0.0023
13:20:27	300.51	188.2878	0.6543	1.6778	0.0022
13:30:27	298.01	185.7878	0.6456	1.6555	0.0022
13:40:27	295.56	183.3378	0.6371	1.6337	0.0021
13:50:27	293.16	180.9378	0.6287	1.6123	0.0022
14:00:28	290.66	178.4378	0.6201	1.5900	0.0023
14:10:28	288.1	175.8778	0.6112	1.5672	0.0020
14:20:28	285.8	173.5778	0.6032	1.5467	0.0020
14:30:28	283.55	171.3278	0.5953	1.5267	0.0019
14:40:28	281.38	169.1578	0.5878	1.5073	0.0021
14:50:29	279.07	166.8478	0.5798	1.4868	0.0018
15:00:29	277.01	164.7878	0.5726	1.4684	0.0018
15:10:29	274.94	162.7178	0.5654	1.4500	0.0018
15:20:29	272.89	160.6678	0.5583	1.4317	0.0018
15:30:29	270.86	158.6378	0.5513	1.4136	0.0018
15:40:30	268.86	156.6378	0.5443	1.3958	0.0017
15:50:30	266.91	154.6878	0.5375	1.3784	0.0017
16:00:30	265.01	152.7878	0.5309	1.3615	0.0016
16:10:30	263.16	150.9378	0.5245	1.3450	0.0016
16:20:30	261.36	149.1378	0.5182	1.3290	0.0016
16:30:31	259.51	147.2878	0.5118	1.3125	
Data End					

**A.31: Raw data for 3 min Blanching pretreatment and 50°C Hot air drying (Trial 3)**

<b>Pre / Post Treatment</b>	<b>Pretreatment</b>	<b>Treatment</b>	<b>Hot water blanching</b>		
<b>Temperature</b>	50°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	07-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:27:00	396	280.4783	1.0000	2.4279	-0.0417
09:30:13	410.46	294.9383	1.0516	2.5531	0.0102
09:40:13	398.69	283.1683	1.0096	2.4512	0.0062
09:50:13	391.58	276.0583	0.9842	2.3897	0.0055
10:00:14	385.2	269.6783	0.9615	2.3344	0.0050
10:10:14	379.47	263.9483	0.9411	2.2848	0.0047
10:20:14	374.02	258.4983	0.9216	2.2377	0.0043
10:30:14	369.09	253.5683	0.9041	2.1950	0.0040
10:40:15	364.46	248.9383	0.8875	2.1549	0.0040
10:50:15	359.88	244.3583	0.8712	2.1153	0.0035
11:00:15	355.89	240.3683	0.8570	2.0807	0.0034
11:10:14	351.91	236.3883	0.8428	2.0463	0.0034
11:20:15	348	232.4783	0.8289	2.0124	0.0030
11:30:15	344.51	228.9883	0.8164	1.9822	0.0030
11:40:15	341.06	225.5383	0.8041	1.9523	0.0029
11:50:15	337.72	222.1983	0.7922	1.9234	0.0030
12:00:16	334.31	218.7883	0.7801	1.8939	0.0025
12:10:16	331.45	215.9283	0.7699	1.8692	0.0026
12:20:16	328.46	212.9383	0.7592	1.8433	0.0025
12:30:16	325.53	210.0083	0.7488	1.8179	0.0023

12:40:17	322.89	207.3683	0.7393	1.7951	0.0024
12:50:17	320.17	204.6483	0.7296	1.7715	0.0031
13:00:17	317.64	202.1183	0.7206	1.7496	0.0016
13:10:17	315.24	199.7183	0.7121	1.7288	0.0023
13:20:18	312.63	197.1083	0.7028	1.7062	0.0021
13:30:18	310.16	194.6383	0.6940	1.6849	0.0020
13:40:18	307.84	192.3183	0.6857	1.6648	0.0019
13:50:18	305.64	190.1183	0.6778	1.6457	0.0020
14:00:19	303.34	187.8183	0.6696	1.6258	0.0020
14:10:19	301.06	185.5383	0.6615	1.6061	0.0017
14:20:20	299.06	183.5383	0.6544	1.5888	0.0016
14:30:20	297.2	181.6783	0.6477	1.5727	0.0020
14:40:20	294.94	179.4183	0.6397	1.5531	0.0017
14:50:20	292.99	177.4683	0.6327	1.5362	0.0017
15:00:20	291.07	175.5483	0.6259	1.5196	0.0018
15:10:21	289.04	173.5183	0.6187	1.5020	0.0014
15:20:20	287.41	171.8883	0.6128	1.4879	0.0017
15:30:20	285.4	169.8783	0.6057	1.4705	0.0016
15:40:20	283.53	168.0083	0.5990	1.4543	0.0016
15:50:21	281.72	166.1983	0.5926	1.4387	0.0016
16:00:21	279.91	164.3883	0.5861	1.4230	0.0015
16:10:21	278.22	162.6983	0.5801	1.4084	0.0017
16:20:21	276.3	160.7783	0.5732	1.3918	0.0018
16:30:22	274.21	158.6883	0.5658	1.3737	0.0017
16:40:22	272.2	156.6783	0.5586	1.3563	0.0017
16:50:22	270.18	154.6583	0.5514	1.3388	0.0017
17:00:23	268.19	152.6683	0.5443	1.3216	
<b>Data End</b>					

**A.32: Raw data for 5 min Blanching pretreatment and 50°C Hot air drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	50°C	<b>Duration</b>	5 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	15-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:30:00	416	295.0065	1	2.4382	-0.0273
09:35:25	432.49	311.4965	1.0559	2.5745	0.0107
09:45:25	419.56	298.5665	1.0121	2.4676	0.0065
09:55:25	411.71	290.7165	0.9855	2.4027	0.0058
10:05:26	404.71	283.7165	0.9617	2.3449	0.0055
10:15:26	398.05	277.0565	0.9392	2.2898	0.0044
10:25:26	392.77	271.7765	0.9213	2.2462	0.0040
10:35:26	387.87	266.8765	0.9046	2.2057	0.0038
10:45:27	383.22	262.2265	0.8889	2.1673	0.0036
10:55:27	378.85	257.8565	0.8741	2.1312	0.0033
11:05:27	374.84	253.8465	0.8605	2.0980	0.0031
11:15:28	371.1	250.1065	0.8478	2.0671	0.0032
11:25:28	367.25	246.2565	0.8347	2.0353	0.0028
11:35:28	363.83	242.8365	0.8232	2.0070	0.0029
11:45:28	360.36	239.3665	0.8114	1.9783	0.0028
11:55:29	357.03	236.0365	0.8001	1.9508	0.0026
12:05:29	353.91	232.9165	0.7895	1.9250	0.0026
12:15:29	350.78	229.7865	0.7789	1.8992	0.0024
12:25:29	347.93	226.9365	0.7693	1.8756	0.0024

12:35:30	345	224.0065	0.7593	1.8514	0.0023
12:45:32	342.18	221.1865	0.7498	1.8281	0.0023
12:55:32	339.34	218.3465	0.7401	1.8046	0.0021
13:05:32	336.75	215.7565	0.7314	1.7832	0.0024
13:15:32	333.83	212.8365	0.7215	1.7591	0.0021
13:25:32	331.32	210.3265	0.7130	1.7383	0.0020
13:35:32	328.84	207.8465	0.7045	1.7178	0.0019
13:45:33	326.53	205.5365	0.6967	1.6987	0.0018
13:55:33	324.37	203.3765	0.6894	1.6809	0.0021
14:05:34	321.83	200.8365	0.6808	1.6599	0.0018
14:15:34	319.66	198.6665	0.6734	1.6420	0.0016
14:25:34	317.72	196.7265	0.6669	1.6259	0.0017
14:35:34	315.7	194.7065	0.6600	1.6092	0.0016
14:45:35	313.72	192.7265	0.6533	1.5929	0.0016
14:55:35	311.77	190.7765	0.6467	1.5768	0.0016
15:05:35	309.84	188.8465	0.6401	1.5608	0.0016
15:15:35	307.92	186.9265	0.6336	1.5449	0.0014
15:25:35	306.2	185.2065	0.6278	1.5307	0.0017
15:35:36	304.15	183.1565	0.6209	1.5138	0.0015
15:45:36	302.3	181.3065	0.6146	1.4985	0.0015
15:55:36	300.5	179.5065	0.6085	1.4836	0.0015
16:05:36	298.72	177.7265	0.6024	1.4689	0.0014
16:15:36	296.97	175.9765	0.5965	1.4544	0.0014
16:25:37	295.26	174.2665	0.5907	1.4403	0.0014
16:35:37	293.58	172.5865	0.5850	1.4264	0.0014
16:45:37	291.93	170.9365	0.5794	1.4128	0.0015
16:55:37	290.08	169.0865	0.5732	1.3975	0.0015
17:05:38	288.26	167.2665	0.5670	1.3824	
<b>Data End</b>					

**A.33: Raw data for 5 min Blanching pretreatment and 50°C Hot air drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	50°C	<b>Duration</b>	5 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	17-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:00:00	415	296.8703	1	2.5131	-0.0288
09:05:21	432.04	313.9103	1.0574	2.6573	0.0113
09:15:21	418.72	300.5903	1.0125	2.5446	0.0065
09:25:21	411	292.8703	0.9865	2.4792	0.0052
09:35:22	404.84	286.7103	0.9658	2.4271	0.0048
09:45:22	399.12	280.9903	0.9465	2.3787	0.0045
09:55:22	393.77	275.6403	0.9285	2.3334	0.0041
10:05:22	388.97	270.8403	0.9123	2.2927	0.0040
10:15:22	384.21	266.0803	0.8963	2.2524	0.0036
10:25:22	379.99	261.8603	0.8821	2.2167	0.0035
10:35:23	375.84	257.7103	0.8681	2.1816	0.0032
10:45:23	372.1	253.9703	0.8555	2.1499	0.0033
10:55:24	368.25	250.1203	0.8425	2.1173	0.0029
11:05:24	364.83	246.7003	0.8310	2.0884	0.0029
11:15:24	361.36	243.2303	0.8193	2.0590	0.0028
11:25:24	358.03	239.9003	0.8081	2.0308	0.0026
11:35:25	354.91	236.7803	0.7976	2.0044	0.0026
11:45:25	351.78	233.6503	0.7870	1.9779	0.0024
11:55:26	348.93	230.8003	0.7774	1.9538	0.0025
12:05:26	346	227.8703	0.7676	1.9290	0.0024

12:15:26	343.18	225.0503	0.7581	1.9051	0.0024
12:25:26	340.34	222.2103	0.7485	1.8811	0.0022
12:35:27	337.75	219.6203	0.7398	1.8591	0.0025
12:45:27	334.83	216.7003	0.7299	1.8344	0.0021
12:55:27	332.32	214.1903	0.7215	1.8132	0.0021
13:05:27	329.84	211.7103	0.7131	1.7922	0.0020
13:15:27	327.53	209.4003	0.7054	1.7726	0.0018
13:25:27	325.37	207.2403	0.6981	1.7543	0.0022
13:35:27	322.83	204.7003	0.6895	1.7328	0.0018
13:45:27	320.66	202.5303	0.6822	1.7145	0.0016
13:55:28	318.72	200.5903	0.6757	1.6981	0.0017
14:05:28	316.7	198.5703	0.6689	1.6810	0.0017
14:15:28	314.72	196.5903	0.6622	1.6642	0.0017
14:25:28	312.77	194.6403	0.6556	1.6477	0.0016
14:35:28	310.84	192.7103	0.6491	1.6313	0.0016
14:45:29	308.92	190.7903	0.6427	1.6151	0.0015
14:55:29	307.2	189.0703	0.6369	1.6005	0.0017
15:05:29	305.15	187.0203	0.6300	1.5832	0.0016
15:15:29	303.3	185.1703	0.6237	1.5675	0.0015
15:25:29	301.5	183.3703	0.6177	1.5523	0.0015
15:35:30	299.72	181.5903	0.6117	1.5372	0.0015
15:45:30	297.97	179.8403	0.6058	1.5224	0.0014
15:55:30	296.26	178.1303	0.6000	1.5079	0.0014
16:05:30	294.58	176.4503	0.5944	1.4937	0.0014
16:15:30	292.93	174.8003	0.5888	1.4797	0.0016
16:25:31	291.08	172.9503	0.5826	1.4641	0.0015
16:35:32	289.26	171.1303	0.5764	1.4487	
<b>Data End</b>					

**A.34: Raw data for 5 min Blanching pretreatment and 50°C Hot air drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	50°C	<b>Duration</b>	5 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	21-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:25:00	412	297.4900	1	2.5979	-0.0281
09:30:21	428.11	313.6000	1.0542	2.7386	0.0113
09:40:21	415.12	300.6100	1.0105	2.6252	0.0064
09:50:21	407.75	293.2400	0.9857	2.5608	0.0057
10:00:21	401.27	286.7600	0.9639	2.5042	0.0052
10:10:21	395.35	280.8400	0.9440	2.4525	0.0049
10:20:21	389.73	275.2200	0.9251	2.4035	0.0046
10:30:22	384.45	269.9400	0.9074	2.3573	0.0042
10:40:22	379.65	265.1400	0.8913	2.3154	0.0040
10:50:22	375.1	260.5900	0.8760	2.2757	0.0036
11:00:23	370.97	256.4600	0.8621	2.2396	0.0037
11:10:24	366.71	252.2000	0.8478	2.2024	0.0034
11:20:24	362.87	248.3600	0.8349	2.1689	0.0034
11:30:24	358.97	244.4600	0.8217	2.1348	0.0031
11:40:24	355.41	240.9000	0.8098	2.1037	0.0032
11:50:24	351.73	237.2200	0.7974	2.0716	0.0028
12:00:24	348.57	234.0600	0.7868	2.0440	0.0028
12:10:25	345.33	230.8200	0.7759	2.0157	0.0027
12:20:25	342.29	227.7800	0.7657	1.9892	0.0026

12:30:25	339.26	224.7500	0.7555	1.9627	0.0025
12:40:25	336.35	221.8400	0.7457	1.9373	0.0026
12:50:25	333.42	218.9100	0.7359	1.9117	0.0024
13:00:26	330.65	216.1400	0.7265	1.8875	0.0024
13:10:26	327.89	213.3800	0.7173	1.8634	0.0022
13:20:27	325.38	210.8700	0.7088	1.8415	0.0024
13:30:27	322.67	208.1600	0.6997	1.8178	0.0022
13:40:27	320.15	205.6400	0.6913	1.7958	0.0021
13:50:27	317.8	203.2900	0.6834	1.7753	0.0023
14:00:27	315.19	200.6800	0.6746	1.7525	0.0018
14:10:27	313.14	198.6300	0.6677	1.7346	0.0021
14:20:27	310.7	196.1900	0.6595	1.7133	0.0019
14:30:27	308.5	193.9900	0.6521	1.6941	0.0019
14:40:27	306.37	191.8600	0.6449	1.6755	0.0020
14:50:28	304.12	189.6100	0.6374	1.6558	0.0019
15:00:28	301.92	187.4100	0.6300	1.6366	0.0019
15:10:28	299.74	185.2300	0.6226	1.6176	0.0018
15:20:28	297.72	183.2100	0.6159	1.5999	0.0017
15:30:28	295.74	181.2300	0.6092	1.5827	0.0017
15:40:29	293.75	179.2400	0.6025	1.5653	0.0018
15:50:29	291.65	177.1400	0.5954	1.5469	0.0017
16:00:29	289.69	175.1800	0.5889	1.5298	0.0018
16:10:29	287.68	173.1700	0.5821	1.5123	0.0018
16:20:29	285.62	171.1100	0.5752	1.4943	0.0018
16:30:30	283.61	169.1000	0.5684	1.4767	0.0017
16:40:30	281.71	167.2000	0.5620	1.4601	0.0016
16:50:30	279.91	165.4000	0.5560	1.4444	0.0015
17:00:30	278.18	163.6700	0.5502	1.4293	
<b>Data End</b>					

**A.35: Raw data for 3 min Blanching pretreatment and 70°C Hot air drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	70°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	08-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:07:00	416	299.3645	1	2.5667	-0.0429
09:10:34	431.01	314.3745	1.0501	2.6954	0.0150
09:20:34	413.49	296.8545	0.9916	2.5451	0.0094
09:30:34	402.51	285.8745	0.9549	2.4510	0.0083
09:40:35	392.88	276.2445	0.9228	2.3684	0.0072
09:50:35	384.48	267.8445	0.8947	2.2964	0.0068
10:00:35	376.54	259.9045	0.8682	2.2283	0.0064
10:10:36	369.05	252.4145	0.8432	2.1641	0.0060
10:20:36	362.09	245.4545	0.8199	2.1045	0.0057
10:30:36	355.5	238.8645	0.7979	2.0480	0.0053
10:40:36	349.31	232.6745	0.7772	1.9949	0.0050
10:50:37	343.46	226.8245	0.7577	1.9447	0.0049
11:00:37	337.8	221.1645	0.7388	1.8962	0.0046
11:10:37	332.49	215.8545	0.7210	1.8507	0.0044
11:20:37	327.4	210.7645	0.7040	1.8070	0.0042
11:30:37	322.54	205.9045	0.6878	1.7654	0.0040
11:40:38	317.86	201.2245	0.6722	1.7252	0.0040
11:50:38	313.25	196.6145	0.6568	1.6857	0.0039
12:00:39	308.75	192.1145	0.6417	1.6471	0.0036
12:10:39	304.59	187.9545	0.6278	1.6115	0.0037

12:20:40	300.26	183.6245	0.6134	1.5743	0.0035
12:30:40	296.18	179.5445	0.5998	1.5394	0.0050
12:40:41	292.08	175.4445	0.5861	1.5042	0.0025
12:50:41	288.34	171.7045	0.5736	1.4721	0.0032
13:00:41	284.63	167.9945	0.5612	1.4403	0.0032
13:10:41	280.95	164.3145	0.5489	1.4088	0.0033
13:20:42	277.08	160.4445	0.5360	1.3756	0.0032
13:30:42	273.38	156.7445	0.5236	1.3439	0.0031
13:40:42	269.75	153.1145	0.5115	1.3128	0.0032
13:50:42	266.01	149.3745	0.4990	1.2807	0.0030
14:00:42	262.5	145.8645	0.4872	1.2506	0.0030
14:10:43	259.03	142.3945	0.4757	1.2209	0.0031
14:20:43	255.43	138.7945	0.4636	1.1900	0.0028
14:30:43	252.19	135.5545	0.4528	1.1622	0.0031
14:40:43	248.63	131.9945	0.4409	1.1317	0.0028
14:50:43	245.31	128.6745	0.4298	1.1032	0.0027
15:00:43	242.21	125.5745	0.4195	1.0766	0.0030
15:10:43	238.76	122.1245	0.4079	1.0471	0.0028
15:20:43	235.51	118.8745	0.3971	1.0192	0.0026
15:30:44	232.44	115.8045	0.3868	0.9929	0.0025
15:40:44	229.51	112.8745	0.3770	0.9678	0.0026
15:50:45	226.53	109.8945	0.3671	0.9422	0.0022
16:00:45	223.91	107.2745	0.3583	0.9197	0.0023
16:10:45	221.19	104.5545	0.3493	0.8964	0.0023
16:20:46	218.51	101.8745	0.3403	0.8734	0.0020
16:30:46	216.2	99.5645	0.3326	0.8536	0.0019
16:40:46	213.95	97.3145	0.3251	0.8343	
<b>Data End</b>					

**A.36: Raw data for 3 min Blanching pretreatment and 70°C Hot air drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	70°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	10-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:03:00	418	298.9452	1	2.5110	-0.0454
09:06:25	434.2	315.1452	1.0542	2.6471	0.0148
09:16:25	416.59	297.5352	0.9953	2.4991	0.0097
09:26:25	405.07	286.0152	0.9567	2.4024	0.0084
09:36:26	395.07	276.0152	0.9233	2.3184	0.0072
09:46:26	386.5	267.4452	0.8946	2.2464	0.0068
09:56:27	378.42	259.3652	0.8676	2.1785	0.0061
10:06:27	371.14	252.0852	0.8432	2.1174	0.0057
10:16:27	364.38	245.3252	0.8206	2.0606	0.0053
10:26:27	358.06	239.0052	0.7995	2.0075	0.0048
10:36:28	352.3	233.2452	0.7802	1.9591	0.0048
10:46:28	346.63	227.5752	0.7613	1.9115	0.0046
10:56:28	341.17	222.1152	0.7430	1.8657	0.0042
11:06:28	336.15	217.0952	0.7262	1.8235	0.0040
11:16:28	331.33	212.2752	0.7101	1.7830	0.0039
11:26:28	326.68	207.6252	0.6945	1.7439	0.0040
11:36:29	321.87	202.8152	0.6784	1.7035	0.0036
11:46:29	317.64	198.5852	0.6643	1.6680	0.0036
11:56:30	313.3	194.2452	0.6498	1.6316	0.0031

12:06:30	309.58	190.5252	0.6373	1.6003	0.0034
12:16:31	305.59	186.5352	0.6240	1.5668	0.0031
12:26:31	301.88	182.8252	0.6116	1.5356	0.0045
12:36:32	298.17	179.1152	0.5992	1.5045	0.0021
12:46:32	294.89	175.8352	0.5882	1.4769	0.0031
12:56:32	291.18	172.1252	0.5758	1.4458	0.0031
13:06:32	287.48	168.4252	0.5634	1.4147	0.0032
13:16:32	283.68	164.6252	0.5507	1.3828	0.0031
13:26:32	279.98	160.9252	0.5383	1.3517	0.0029
13:36:32	276.48	157.4252	0.5266	1.3223	0.0028
13:46:32	273.18	154.1252	0.5156	1.2946	0.0029
13:56:32	269.78	150.7252	0.5042	1.2660	0.0027
14:06:32	266.58	147.5252	0.4935	1.2391	0.0026
14:16:32	263.48	144.4252	0.4831	1.2131	0.0029
14:26:32	260.08	141.0252	0.4717	1.1845	0.0028
14:36:32	256.7	137.6452	0.4604	1.1562	0.0029
14:46:32	253.21	134.1552	0.4488	1.1268	0.0026
14:56:32	250.06	131.0052	0.4382	1.1004	0.0026
15:06:33	246.99	127.9352	0.4280	1.0746	0.0025
15:16:33	244.05	124.9952	0.4181	1.0499	0.0020
15:26:34	241.7	122.6452	0.4103	1.0302	0.0022
15:36:34	239.1	120.0452	0.4016	1.0083	0.0020
15:46:34	236.73	117.6752	0.3936	0.9884	0.0020
15:56:34	234.4	115.3452	0.3858	0.9688	0.0019
16:06:35	232.13	113.0752	0.3782	0.9498	0.0020
16:16:35	229.71	110.6552	0.3702	0.9294	0.0018
16:26:35	227.53	108.4752	0.3629	0.9111	0.0018
16:36:35	225.36	106.3052	0.3556	0.8929	
<b>Data End</b>					

**A.37: Raw data for 3 min Blanching pretreatment and 70°C Hot air drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Hot water blanching		
<b>Temperature</b>	70°C	<b>Duration</b>	3 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	14-01-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:25:00	418	298.3394	1	2.4932	-0.0514
09:28:34	436.45	316.7894	1.0618	2.6474	0.0147
09:38:34	418.82	299.1594	1.0027	2.5001	0.0096
09:48:34	407.35	287.6894	0.9643	2.4042	0.0085
09:58:35	397.15	277.4894	0.9301	2.3190	0.0072
10:08:35	388.57	268.9094	0.9014	2.2473	0.0068
10:18:35	380.47	260.8094	0.8742	2.1796	0.0063
10:28:35	372.97	253.3094	0.8491	2.1169	0.0058
10:38:35	365.97	246.3094	0.8256	2.0584	0.0054
10:48:35	359.45	239.7894	0.8037	2.0039	0.0048
10:58:36	353.65	233.9894	0.7843	1.9554	0.0048
11:08:36	347.95	228.2894	0.7652	1.9078	0.0046
11:18:36	342.45	222.7894	0.7468	1.8618	0.0044
11:28:36	337.15	217.4894	0.7290	1.8176	0.0042
11:38:36	332.12	212.4594	0.7121	1.7755	0.0041
11:48:37	327.27	207.6094	0.6959	1.7350	0.0039
11:58:37	322.55	202.8894	0.6801	1.6955	0.0040
12:08:37	317.73	198.0694	0.6639	1.6553	0.0036
12:18:37	313.48	193.8194	0.6497	1.6197	0.0036

12:28:37	309.13	189.4694	0.6351	1.5834	0.0035
12:38:37	304.9	185.2394	0.6209	1.5480	0.0033
12:48:38	300.91	181.2494	0.6075	1.5147	0.0044
12:58:38	297.19	177.5294	0.5951	1.4836	0.0024
13:08:39	293.48	173.8194	0.5826	1.4526	0.0028
13:18:39	290.18	170.5194	0.5716	1.4250	0.0031
13:28:40	286.46	166.7994	0.5591	1.3939	0.0031
13:38:40	282.76	163.0994	0.5467	1.3630	0.0032
13:48:40	278.95	159.2894	0.5339	1.3312	0.0031
13:58:40	275.23	155.5694	0.5215	1.3001	0.0029
14:08:40	271.71	152.0494	0.5097	1.2707	0.0028
14:18:41	268.39	148.7294	0.4985	1.2429	0.0028
14:28:41	264.98	145.3194	0.4871	1.2144	0.0027
14:38:41	261.78	142.1194	0.4764	1.1877	0.0026
14:48:41	258.67	139.0094	0.4659	1.1617	0.0028
14:58:41	255.28	135.6194	0.4546	1.1334	0.0028
15:08:42	251.92	132.2594	0.4433	1.1053	0.0026
15:18:42	248.77	129.1094	0.4328	1.0790	0.0026
15:28:42	245.71	126.0494	0.4225	1.0534	0.0025
15:38:42	242.76	123.0994	0.4126	1.0287	0.0020
15:48:42	240.4	120.7394	0.4047	1.0090	0.0022
15:58:43	237.8	118.1394	0.3960	0.9873	0.0020
16:08:43	235.43	115.7694	0.3880	0.9675	0.0019
16:18:43	233.1	113.4394	0.3802	0.9480	0.0019
16:28:43	230.83	111.1694	0.3726	0.9290	0.0020
16:38:44	228.41	108.7494	0.3645	0.9088	0.0018
16:48:44	226.23	106.5694	0.3572	0.8906	0.0019
16:58:44	223.95	104.2894	0.3496	0.8715	
<b>Data End</b>					

**A.38: Raw data for 20-minutes Ultrasonication pretreatment and 50°C Hot air drying**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Ultrasonication		
<b>Temperature</b>	50°C	<b>Duration</b>	20 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	07-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:10:00	399.09	285.1495	1	2.5026	0.0027
10:30:25	393.04	279.0995	0.9788	2.4495	0.0054
10:40:25	386.92	272.9795	0.9573	2.3958	0.0054
10:50:26	380.74	266.7995	0.9356	2.3416	0.0053
11:00:26	374.73	260.7895	0.9146	2.2888	0.0048
11:10:26	369.21	255.2695	0.8952	2.2404	0.0048
11:20:26	363.78	249.8395	0.8762	2.1927	0.0046
11:30:26	358.51	244.5695	0.8577	2.1465	0.0043
11:40:26	353.61	239.6695	0.8405	2.1035	0.0041
11:50:27	348.92	234.9795	0.8241	2.0623	0.0044
12:00:27	343.87	229.9295	0.8063	2.0180	0.0037
12:10:59	339.63	225.6895	0.7915	1.9808	0.0038
12:20:21	335.31	221.3695	0.7763	1.9429	0.0037
12:30:21	331.14	217.1995	0.7617	1.9063	0.0037
12:40:21	326.9	212.9595	0.7468	1.8690	0.0037
12:50:22	322.73	208.7895	0.7322	1.8324	0.0035

13:00:22	318.74	204.7995	0.7182	1.7974	0.0033
13:10:22	314.93	200.9895	0.7049	1.7640	0.0033
13:20:22	311.17	197.2295	0.6917	1.7310	0.0033
13:30:23	307.46	193.5195	0.6787	1.6984	0.0031
13:40:23	303.9	189.9595	0.6662	1.6672	0.0032
13:50:23	300.22	186.2795	0.6533	1.6349	0.0029
14:00:23	296.88	182.9395	0.6416	1.6056	0.0027
14:10:24	293.78	179.8395	0.6307	1.5784	0.0028
14:20:25	290.58	176.6395	0.6195	1.5503	0.0028
14:30:26	287.36	173.4195	0.6082	1.5220	0.0025
14:40:26	284.51	170.5695	0.5982	1.4970	0.0027
14:50:26	281.47	167.5295	0.5875	1.4703	0.0027
15:00:27	278.36	164.4195	0.5766	1.4430	0.0024
15:10:27	275.64	161.6995	0.5671	1.4192	0.0025
15:20:27	272.75	158.8095	0.5569	1.3938	0.0025
15:30:28	269.92	155.9795	0.5470	1.3690	0.0024
15:40:28	267.21	153.2695	0.5375	1.3452	0.0024
15:50:29	264.46	150.5195	0.5279	1.3210	0.0020
16:00:31	262.18	148.2395	0.5199	1.3010	0.0023
16:10:31	259.56	145.6195	0.5107	1.2780	0.0022
16:20:31	257.1	143.1595	0.5021	1.2564	0.0021
16:30:31	254.67	140.7295	0.4935	1.2351	0.0021
16:40:32	252.27	138.3295	0.4851	1.2141	0.0021
16:50:32	249.89	135.9495	0.4768	1.1932	0.0021
17:00:32	247.54	133.5995	0.4685	1.1725	
<b>Data End</b>					

**A.39: Raw data for 20-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Osmotic dehydration		
<b>Temperature</b>	50°C	<b>Duration</b>	20 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	14-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:20:00	419	302.3832	1	2.5930	0.0013
09:40:21	415.98	299.3632	0.9900	2.5671	0.0033
09:50:22	412.1	295.4832	0.9772	2.5338	0.0049
10:00:22	406.37	289.7532	0.9582	2.4847	0.0053
10:10:32	400.17	283.5532	0.9377	2.4315	0.0051
10:20:32	394.27	277.6532	0.9182	2.3809	0.0051
10:30:32	388.28	271.6632	0.8984	2.3295	0.0050
10:40:33	382.44	265.8232	0.8791	2.2795	0.0048
10:50:33	376.82	260.2032	0.8605	2.2313	0.0047
11:00:34	371.38	254.7632	0.8425	2.1846	0.0045
11:10:34	366.08	249.4632	0.8250	2.1392	0.0043
11:20:35	361.03	244.4132	0.8083	2.0959	0.0040
11:30:35	356.36	239.7432	0.7928	2.0558	0.0041
11:40:35	351.59	234.9732	0.7771	2.0149	0.0036
11:50:35	347.4	230.7832	0.7632	1.9790	0.0035
12:00:35	343.37	226.7532	0.7499	1.9444	0.0032
12:10:36	339.58	222.9632	0.7374	1.9119	0.0032
12:20:36	335.86	219.2432	0.7251	1.8800	0.0031
12:30:36	332.3	215.6832	0.7133	1.8495	0.0030

12:40:36	328.81	212.1932	0.7017	1.8196	0.0026
12:50:37	325.72	209.1032	0.6915	1.7931	0.0027
13:00:37	322.62	206.0032	0.6813	1.7665	0.0026
13:10:37	319.54	202.9232	0.6711	1.7401	0.0025
13:20:38	316.65	200.0332	0.6615	1.7153	0.0024
13:30:38	313.85	197.2332	0.6523	1.6913	0.0023
13:40:38	311.18	194.5632	0.6434	1.6684	0.0022
13:50:38	308.6	191.9832	0.6349	1.6463	0.0023
14:00:39	305.9	189.2832	0.6260	1.6231	0.0021
14:10:39	303.41	186.7932	0.6177	1.6018	0.0020
14:20:39	301.12	184.5032	0.6102	1.5821	0.0021
14:30:39	298.67	182.0532	0.6021	1.5611	0.0021
14:40:40	296.24	179.6232	0.5940	1.5403	0.0020
14:50:40	293.91	177.2932	0.5863	1.5203	0.0020
15:00:40	291.63	175.0132	0.5788	1.5008	0.0022
15:10:40	289.09	172.4732	0.5704	1.4790	0.0021
15:20:40	286.61	169.9932	0.5622	1.4577	0.0019
15:30:41	284.38	167.7632	0.5548	1.4386	0.0022
15:40:41	281.85	165.2332	0.5464	1.4169	0.0021
15:50:41	279.36	162.7432	0.5382	1.3955	0.0021
16:00:41	276.91	160.2932	0.5301	1.3745	0.0022
16:10:41	274.39	157.7732	0.5218	1.3529	0.0019
16:20:42	272.13	155.5132	0.5143	1.3335	0.0020
16:30:42	269.85	153.2332	0.5068	1.3140	0.0020
16:40:42	267.53	150.9132	0.4991	1.2941	0.0017
16:50:43	265.49	148.8732	0.4923	1.2766	0.0017
17:00:43	263.47	146.8532	0.4857	1.2593	0.0017
17:10:43	261.49	144.8732	0.4791	1.2423	
<b>Data End</b>					

**A.40: Raw data for 20-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Osmotic dehydration		
<b>Temperature</b>	50°C	<b>Duration</b>	20 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	18-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:05:00	426	304.6814	1	2.5114	0.0016
10:25:25	422.05	300.7314	0.9870	2.4789	0.0033
10:35:25	418.1	296.7814	0.9741	2.4463	0.0047
10:45:25	412.43	291.1114	0.9555	2.3996	0.0048
10:55:25	406.64	285.3214	0.9365	2.3518	0.0047
11:05:26	400.96	279.6414	0.9178	2.3050	0.0046
11:15:26	395.35	274.0314	0.8994	2.2588	0.0046
11:25:26	389.83	268.5114	0.8813	2.2133	0.0045
11:35:26	384.35	263.0314	0.8633	2.1681	0.0042
11:45:26	379.25	257.9314	0.8466	2.1261	0.0041
11:55:27	374.22	252.9014	0.8301	2.0846	0.0039
12:05:27	369.48	248.1614	0.8145	2.0455	0.0038
12:15:27	364.9	243.5814	0.7995	2.0078	0.0036
12:25:27	360.53	239.2114	0.7851	1.9718	0.0035
12:35:28	356.27	234.9514	0.7711	1.9366	0.0033
12:45:28	352.31	230.9914	0.7581	1.9040	0.0032
12:55:28	348.4	227.0814	0.7453	1.8718	0.0029
13:05:29	344.83	223.5114	0.7336	1.8424	0.0030
13:15:29	341.15	219.8314	0.7215	1.8120	0.0029
13:25:30	337.65	216.3314	0.7100	1.7832	0.0028

13:35:30	334.3	212.9814	0.6990	1.7556	0.0026
13:45:30	331.13	209.8114	0.6886	1.7294	0.0026
13:55:31	328	206.6814	0.6784	1.7036	0.0024
14:05:31	325.13	203.8114	0.6689	1.6800	0.0026
14:15:32	321.97	200.6514	0.6586	1.6539	0.0021
14:25:32	319.37	198.0514	0.6500	1.6325	0.0025
14:35:32	316.39	195.0714	0.6402	1.6079	0.0021
14:45:32	313.85	192.5314	0.6319	1.5870	0.0021
14:55:33	311.27	189.9514	0.6234	1.5657	0.0022
15:05:33	308.59	187.2714	0.6146	1.5436	0.0020
15:15:33	306.19	184.8714	0.6068	1.5239	0.0020
15:25:34	303.77	182.4514	0.5988	1.5039	0.0019
15:35:34	301.43	180.1114	0.5911	1.4846	0.0020
15:45:34	299.06	177.7414	0.5834	1.4651	0.0017
15:55:34	296.98	175.6614	0.5765	1.4479	0.0018
16:05:35	294.79	173.4714	0.5694	1.4299	0.0017
16:15:35	292.75	171.4314	0.5627	1.4131	0.0021
16:25:35	290.22	168.9014	0.5544	1.3922	0.0021
16:35:36	287.73	166.4114	0.5462	1.3717	0.0020
16:45:36	285.28	163.9614	0.5381	1.3515	0.0021
16:55:36	282.76	161.4414	0.5299	1.3307	0.0019
17:05:37	280.5	159.1814	0.5225	1.3121	0.0019
17:15:37	278.22	156.9014	0.5150	1.2933	0.0019
17:25:37	275.9	154.5814	0.5074	1.2742	0.0017
17:35:38	273.86	152.5414	0.5007	1.2574	0.0017
17:45:38	271.84	150.5214	0.4940	1.2407	0.0016
17:55:38	269.86	148.5414	0.4875	1.2244	
<b>Data end</b>					

**A.41: Raw data for 20-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 3)**

<b>Pre / Post Treatment</b>	<b>Pretreatment</b>	<b>Treatment</b>	<b>Osmotic dehydration</b>		
<b>Temperature</b>	50°C	<b>Duration</b>	20 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	26-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:05:00	405	292.3736	1.0000	2.5960	0.0014
09:25:25	401.86	289.2336	0.9893	2.5681	0.0038
09:35:25	397.57	284.9436	0.9746	2.5300	0.0054
09:45:26	391.44	278.8136	0.9536	2.4756	0.0059
09:55:26	384.82	272.1936	0.9310	2.4168	0.0057
10:05:26	378.45	265.8236	0.9092	2.3602	0.0055
10:15:26	372.25	259.6236	0.8880	2.3052	0.0052
10:25:26	366.4	253.7736	0.8680	2.2532	0.0048
10:35:26	361.05	248.4236	0.8497	2.2057	0.0043
10:45:26	356.18	243.5536	0.8330	2.1625	0.0044
10:55:26	351.28	238.6536	0.8163	2.1190	0.0044
11:05:26	346.3	233.6736	0.7992	2.0748	0.0043
11:15:26	341.48	228.8536	0.7827	2.0320	0.0043
11:25:26	336.67	224.0436	0.7663	1.9893	0.0042
11:35:26	331.99	219.3636	0.7503	1.9477	0.0040
11:45:26	327.44	214.8136	0.7347	1.9073	0.0039
11:55:26	323.06	210.4336	0.7197	1.8684	0.0037
12:05:26	318.91	206.2836	0.7055	1.8316	0.0035
12:15:26	314.96	202.3336	0.6920	1.7965	0.0033

12:25:26	311.21	198.5836	0.6792	1.7632	0.0033
12:35:27	307.54	194.9136	0.6667	1.7306	0.0026
12:45:27	304.6	191.9736	0.6566	1.7045	0.0029
12:55:28	301.37	188.7436	0.6456	1.6758	0.0027
13:05:28	298.36	185.7336	0.6353	1.6491	0.0025
13:15:29	295.59	182.9636	0.6258	1.6245	0.0026
13:25:29	292.7	180.0736	0.6159	1.5989	0.0026
13:35:29	289.77	177.1436	0.6059	1.5728	0.0024
13:45:29	287.09	174.4636	0.5967	1.5490	0.0022
13:55:30	284.66	172.0336	0.5884	1.5275	0.0023
14:05:30	282.11	169.4836	0.5797	1.5048	0.0022
14:15:31	279.58	166.9536	0.5710	1.4824	0.0022
14:25:31	277.1	164.4736	0.5625	1.4603	0.0020
14:35:32	274.85	162.2236	0.5549	1.4404	0.0022
14:45:32	272.42	159.7936	0.5465	1.4188	0.0020
14:55:32	270.15	157.5236	0.5388	1.3986	0.0020
15:05:32	267.9	155.2736	0.5311	1.3787	0.0020
15:15:32	265.7	153.0736	0.5236	1.3591	0.0019
15:25:32	263.55	150.9236	0.5162	1.3400	0.0019
15:35:32	261.45	148.8236	0.5090	1.3214	0.0014
15:45:32	259.91	147.2836	0.5038	1.3077	0.0016
15:55:33	258.06	145.4336	0.4974	1.2913	0.0016
16:05:33	256.26	143.6336	0.4913	1.2753	0.0016
16:15:33	254.48	141.8536	0.4852	1.2595	0.0015
16:25:34	252.77	140.1436	0.4793	1.2443	0.0015
16:35:34	251.12	138.4936	0.4737	1.2297	0.0014
16:45:34	249.54	136.9136	0.4683	1.2156	0.0014
16:55:35	248.01	135.3836	0.4631	1.2021	
<b>Data End</b>					

**A.42: Raw data for 40-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 1)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Osmotic dehydration		
<b>Temperature</b>	50°C	<b>Duration</b>	40 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	19-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:20:00	430	308.0056	1.0000	2.5248	0.0009
10:00:28	425.81	303.8156	0.9864	2.4904	0.0034
10:10:28	421.61	299.6156	0.9728	2.4560	0.0046
10:20:28	415.98	293.9856	0.9545	2.4098	0.0049
10:30:28	410.03	288.0356	0.9352	2.3611	0.0047
10:40:29	404.32	282.3256	0.9166	2.3143	0.0045
10:50:29	398.83	276.8356	0.8988	2.2692	0.0043
11:00:29	393.57	271.5756	0.8817	2.2261	0.0042
11:10:29	388.5	266.5056	0.8653	2.1846	0.0041
11:20:30	383.52	261.5256	0.8491	2.1438	0.0040
11:30:30	378.67	256.6756	0.8333	2.1040	0.0036
11:40:30	374.27	252.2756	0.8191	2.0679	0.0033
11:50:30	370.19	248.1956	0.8058	2.0345	0.0032
12:00:30	366.26	244.2656	0.7931	2.0023	0.0032
12:10:30	362.38	240.3856	0.7805	1.9705	0.0030
12:20:31	358.66	236.6656	0.7684	1.9400	0.0030
12:30:31	355.05	233.0556	0.7567	1.9104	0.0027
12:40:32	351.74	229.7456	0.7459	1.8832	0.0026
12:50:32	348.61	226.6156	0.7358	1.8576	0.0025

13:00:32	345.57	223.5756	0.7259	1.8327	0.0022
13:10:32	342.89	220.8956	0.7172	1.8107	0.0024
13:20:32	340.02	218.0256	0.7079	1.7872	0.0023
13:30:33	337.25	215.2556	0.6989	1.7645	0.0022
13:40:33	334.61	212.6156	0.6903	1.7428	0.0021
13:50:33	332.06	210.0656	0.6820	1.7219	0.0019
14:00:34	329.7	207.7056	0.6744	1.7026	0.0020
14:10:34	327.3	205.3056	0.6666	1.6829	0.0019
14:20:34	324.98	202.9856	0.6590	1.6639	0.0019
14:30:35	322.71	200.7156	0.6517	1.6453	0.0018
14:40:36	320.5	198.5056	0.6445	1.6272	0.0017
14:50:37	318.45	196.4556	0.6378	1.6104	0.0019
15:00:38	316.15	194.1556	0.6304	1.5915	0.0017
15:10:39	314.05	192.0556	0.6235	1.5743	0.0016
15:20:40	312.04	190.0456	0.6170	1.5578	0.0017
15:30:41	310.02	188.0256	0.6105	1.5413	0.0016
15:40:42	308.01	186.0156	0.6039	1.5248	0.0014
15:50:43	306.31	184.3156	0.5984	1.5109	0.0016
16:00:43	304.35	182.3556	0.5921	1.4948	0.0015
16:10:43	302.57	180.5756	0.5863	1.4802	0.0017
16:20:43	300.55	178.5556	0.5797	1.4636	0.0012
16:30:44	299.07	177.0756	0.5749	1.4515	0.0012
16:40:44	297.62	175.6256	0.5702	1.4396	0.0012
16:50:44	296.19	174.1956	0.5656	1.4279	0.0012
17:00:45	294.78	172.7856	0.5610	1.4163	0.0011
17:10:45	293.39	171.3956	0.5565	1.4049	0.0011
17:20:46	292.09	170.0956	0.5522	1.3943	0.0012
17:30:46	290.67	168.6756	0.5476	1.3827	
<b>Data end</b>					

**A.42: Raw data for 40-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 2)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Osmotic dehydration		
<b>Temperature</b>	50°C	<b>Duration</b>	40 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	21-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:10:00	423	303.9150	1.0000	2.5521	0.0009
09:50:25	418.72	299.6350	0.9859	2.5161	0.0038
10:00:26	414.14	295.0550	0.9708	2.4777	0.0052
10:10:26	408	288.9150	0.9506	2.4261	0.0052
10:20:26	401.81	282.7250	0.9303	2.3741	0.0054
10:30:32	395.41	276.3250	0.9092	2.3204	0.0053
10:40:33	389.09	270.0050	0.8884	2.2673	0.0048
10:50:33	383.36	264.2750	0.8696	2.2192	0.0047
11:00:34	377.76	258.6750	0.8511	2.1722	0.0043
11:10:34	372.6	253.5150	0.8342	2.1289	0.0040
11:20:34	367.79	248.7050	0.8183	2.0885	0.0040
11:30:34	362.98	243.8950	0.8025	2.0481	0.0035
11:40:34	358.82	239.7350	0.7888	2.0131	0.0037
11:50:35	354.4	235.3150	0.7743	1.9760	0.0032
12:00:35	350.56	231.4750	0.7616	1.9438	0.0030
12:10:36	346.96	227.8750	0.7498	1.9135	0.0032
12:20:36	343.19	224.1050	0.7374	1.8819	0.0028
12:30:36	339.88	220.7950	0.7265	1.8541	0.0027
12:40:37	336.63	217.5450	0.7158	1.8268	0.0027
12:50:37	333.43	214.3450	0.7053	1.7999	0.0026

13:00:37	330.28	211.1950	0.6949	1.7735	0.0025
13:10:38	327.33	208.2450	0.6852	1.7487	0.0024
13:20:38	324.53	205.4450	0.6760	1.7252	0.0023
13:30:36	321.83	202.7450	0.6671	1.7025	0.0021
13:40:36	319.29	200.2050	0.6588	1.6812	0.0022
13:50:36	316.72	197.6350	0.6503	1.6596	0.0022
14:00:36	314.13	195.0450	0.6418	1.6379	0.0020
14:10:37	311.69	192.6050	0.6337	1.6174	0.0021
14:20:37	309.2	190.1150	0.6256	1.5965	0.0020
14:30:37	306.82	187.7350	0.6177	1.5765	0.0020
14:40:37	304.4	185.3150	0.6098	1.5562	0.0018
14:50:37	302.2	183.1150	0.6025	1.5377	0.0020
15:00:38	299.85	180.7650	0.5948	1.5179	0.0018
15:10:38	297.72	178.6350	0.5878	1.5001	0.0016
15:20:39	295.76	176.6750	0.5813	1.4836	0.0018
15:30:39	293.63	174.5450	0.5743	1.4657	0.0018
15:40:39	291.52	172.4350	0.5674	1.4480	0.0017
15:50:40	289.44	170.3550	0.5605	1.4305	0.0017
16:00:40	287.39	168.3050	0.5538	1.4133	0.0017
16:10:40	285.41	166.3250	0.5473	1.3967	0.0016
16:20:40	283.46	164.3750	0.5409	1.3803	0.0017
16:30:41	281.41	162.3250	0.5341	1.3631	0.0016
16:40:41	279.46	160.3750	0.5277	1.3467	0.0016
16:50:41	277.56	158.4750	0.5214	1.3308	0.0015
17:00:41	275.76	156.6750	0.5155	1.3157	0.0015
17:10:42	274.01	154.9250	0.5098	1.3010	0.0014
17:20:42	272.31	153.2250	0.5042	1.2867	
<b>Data End</b>					

**A.43: Raw data for 40-minutes Osmotic pretreatment and 50°C Hot air drying (Trial 3)**

<b>Pre / Post Treatment</b>	Pretreatment	<b>Treatment</b>	Osmotic dehydration		
<b>Temperature</b>	50°C	<b>Duration</b>	40 minutes		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	25-02-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:15:00	390	280.8895	1.0000	2.5744	0.0011
09:55:20	385.27	276.1595	0.9832	2.5310	0.0042
10:05:20	380.69	271.5795	0.9669	2.4890	0.0056
10:15:21	374.55	265.4395	0.9450	2.4328	0.0057
10:25:21	368.36	259.2495	0.9230	2.3760	0.0059
10:35:21	361.96	252.8495	0.9002	2.3174	0.0058
10:45:22	355.64	246.5295	0.8777	2.2594	0.0053
10:55:22	349.91	240.7995	0.8573	2.2069	0.0051
11:05:22	344.31	235.1995	0.8373	2.1556	0.0047
11:15:22	339.15	230.0395	0.8190	2.1083	0.0044
11:25:22	334.34	225.2295	0.8018	2.0642	0.0044
11:35:23	329.53	220.4195	0.7847	2.0202	0.0038
11:45:23	325.37	216.2595	0.7699	1.9820	0.0041
11:55:23	320.95	211.8395	0.7542	1.9415	0.0035
12:05:23	317.11	207.9995	0.7405	1.9063	0.0033
12:15:24	313.51	204.3995	0.7277	1.8733	0.0035
12:25:24	309.74	200.6295	0.7143	1.8388	0.0030
12:35:25	306.43	197.3195	0.7025	1.8084	0.0030
12:45:25	303.18	194.0695	0.6909	1.7787	0.0029

12:55:25	299.98	190.8695	0.6795	1.7493	0.0029
13:05:25	296.83	187.7195	0.6683	1.7205	0.0027
13:15:25	293.88	184.7695	0.6578	1.6934	0.0026
13:25:26	291.08	181.9695	0.6478	1.6678	0.0025
13:35:26	288.38	179.2695	0.6382	1.6430	0.0023
13:45:26	285.84	176.7295	0.6292	1.6197	0.0024
13:55:27	283.27	174.1595	0.6200	1.5962	0.0024
14:05:27	280.68	171.5695	0.6108	1.5724	0.0022
14:15:27	278.24	169.1295	0.6021	1.5501	0.0023
14:25:28	275.75	166.6395	0.5933	1.5273	0.0022
14:35:28	273.37	164.2595	0.5848	1.5054	0.0022
14:45:28	270.95	161.8395	0.5762	1.4833	0.0020
14:55:29	268.75	159.6395	0.5683	1.4631	0.0022
15:05:29	266.4	157.2895	0.5600	1.4416	0.0020
15:15:29	264.27	155.1595	0.5524	1.4220	0.0018
15:25:30	262.31	153.1995	0.5454	1.4041	0.0020
15:35:30	260.18	151.0695	0.5378	1.3846	0.0019
15:45:30	258.07	148.9595	0.5303	1.3652	0.0019
15:55:31	255.99	146.8795	0.5229	1.3462	0.0019
16:05:31	253.94	144.8295	0.5156	1.3274	0.0018
16:15:31	251.96	142.8495	0.5086	1.3092	0.0018
16:25:31	250.01	140.8995	0.5016	1.2913	0.0019
16:35:32	247.96	138.8495	0.4943	1.2726	0.0018
16:45:32	246.01	136.8995	0.4874	1.2547	0.0017
16:55:32	244.11	134.9995	0.4806	1.2373	0.0016
17:05:32	242.31	133.1995	0.4742	1.2208	0.0016
17:15:33	240.56	131.4495	0.4680	1.2047	0.0016
17:25:33	238.86	129.7495	0.4619	1.1892	
<b>Data End</b>					

**A.44: Raw data for 50°C Hot air drying (6 hours) and microwave posttreatment (Trial 1)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (6 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	04-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:30:25	415.18	296.9499	1	2.5116	0.0052
09:40:25	409.02	290.7899	0.9793	2.4595	0.0062
09:50:26	401.7	283.4699	0.9546	2.3976	0.0065
10:00:26	394.03	275.7999	0.9288	2.3327	0.0061
10:10:26	386.78	268.5499	0.9044	2.2714	0.0059
10:20:27	379.78	261.5499	0.8808	2.2122	0.0056
10:30:27	373.14	254.9099	0.8584	2.1560	0.0054
10:40:28	366.81	248.5799	0.8371	2.1025	0.0053
10:50:28	360.6	242.3699	0.8162	2.0500	0.0048
11:00:28	354.9	236.6699	0.7970	2.0018	0.0048
11:10:29	349.27	231.0399	0.7780	1.9542	0.0045
11:20:29	343.99	225.7599	0.7603	1.9095	0.0043
11:30:29	338.92	220.6899	0.7432	1.8666	0.0040
11:40:30	334.15	215.9199	0.7271	1.8263	0.0041
11:50:30	329.31	211.0799	0.7108	1.7853	0.0038
12:00:30	324.8	206.5699	0.6956	1.7472	0.0037
12:10:30	320.45	202.2199	0.6810	1.7104	0.0034
12:20:30	316.38	198.1499	0.6673	1.6760	0.0034
12:30:31	312.36	194.1299	0.6537	1.6420	0.0033
12:40:31	308.5	190.2699	0.6407	1.6093	0.0034

12:50:32	304.45	186.2199	0.6271	1.5751	0.0030
13:00:32	300.93	182.6999	0.6153	1.5453	0.0029
13:10:32	297.56	179.3299	0.6039	1.5168	0.0029
13:20:32	294.17	175.9399	0.5925	1.4881	0.0027
13:30:33	290.92	172.6899	0.5815	1.4606	0.0027
13:40:33	287.76	169.5299	0.5709	1.4339	0.0025
13:50:34	284.84	166.6099	0.5611	1.4092	0.0024
14:00:34	281.95	163.7199	0.5513	1.3848	0.0024
14:10:34	279.11	160.8799	0.5418	1.3607	0.0024
14:20:35	276.24	158.0099	0.5321	1.3365	0.0022
14:30:35	273.68	155.4499	0.5235	1.3148	0.0020
14:40:35	271.31	153.0799	0.5155	1.2948	0.0022
14:50:36	268.71	150.4799	0.5068	1.2728	0.0020
15:00:36	266.38	148.1499	0.4989	1.2531	0.0019
15:10:36	264.13	145.8999	0.4913	1.2340	0.0018
15:20:37	261.98	143.7499	0.4841	1.2158	0.0017
15:30:37	259.93	141.6999	0.4772	1.1985	0.0502
15:32:00	254	135.7699	0.4572	1.1484	0.0930
15:33:00	243	124.7699	0.4202	1.0553	0.1015
15:34:00	231	112.7699	0.3798	0.9538	0.1015
15:35:00	219	100.7699	0.3393	0.8523	0.0930
15:36:00	208	89.7699	0.3023	0.7593	0.1100
15:37:00	195	76.7699	0.2585	0.6493	0.0930
15:38:00	184	65.7699	0.2215	0.5563	0.0761
15:39:00	175	56.7699	0.1912	0.4802	0.0677
15:40:00	167	48.7699	0.1642	0.4125	0.0423
15:41:00	162	43.7699	0.1474	0.3702	0.0254
15:42:00	159	40.7699	0.1373	0.3448	0.0169
15:43:00	157	38.7699	0.1306	0.3279	
<b>Data End</b>					

**A.45: Raw data for 50°C Hot air drying (6 hours) and microwave posttreatment (Trial 2)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (6 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	05-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
08:55:25	411.2	295.9956	1	2.5693	0.0036
09:05:25	407	291.7956	0.9858	2.5329	0.0054
09:15:25	400.76	285.5556	0.9647	2.4787	0.0057
09:25:25	394.14	278.9356	0.9424	2.4212	0.0060
09:35:26	387.21	272.0056	0.9190	2.3611	0.0059
09:45:26	380.46	265.2556	0.8961	2.3025	0.0057
09:55:26	373.95	258.7456	0.8742	2.2460	0.0055
10:05:26	367.63	252.4256	0.8528	2.1911	0.0052
10:15:26	361.68	246.4756	0.8327	2.1395	0.0051
10:25:27	355.82	240.6156	0.8129	2.0886	0.0046
10:35:27	350.55	235.3456	0.7951	2.0429	0.0048
10:45:27	344.98	229.7756	0.7763	1.9945	0.0046
10:55:27	339.63	224.4256	0.7582	1.9481	0.0042
11:05:27	334.8	219.5956	0.7419	1.9061	0.0042
11:15:28	329.98	214.7756	0.7256	1.8643	0.0042
11:25:28	325.12	209.9156	0.7092	1.8221	0.0041
11:35:29	320.4	205.1956	0.6932	1.7811	0.0037
11:45:29	316.17	200.9656	0.6789	1.7444	0.0037
11:55:29	311.95	196.7456	0.6647	1.7078	0.0035
12:05:29	307.88	192.6756	0.6509	1.6725	0.0034

12:15:29	303.97	188.7656	0.6377	1.6385	0.0034
12:25:29	300.06	184.8556	0.6245	1.6046	0.0032
12:35:29	296.38	181.1756	0.6121	1.5726	0.0031
12:45:29	292.78	177.5756	0.5999	1.5414	0.0030
12:55:29	289.33	174.1256	0.5883	1.5114	0.0033
13:05:30	285.57	170.3656	0.5756	1.4788	0.0027
13:15:30	282.49	167.2856	0.5652	1.4521	0.0030
13:25:30	278.98	163.7756	0.5533	1.4216	0.0026
13:35:30	275.97	160.7656	0.5431	1.3955	0.0028
13:45:31	272.74	157.5356	0.5322	1.3674	0.0025
13:55:31	269.91	154.7056	0.5227	1.3429	0.0025
14:05:31	267	151.7956	0.5128	1.3176	0.0024
14:15:31	264.26	149.0556	0.5036	1.2938	0.0023
14:25:31	261.58	146.3756	0.4945	1.2706	0.0024
14:35:32	258.79	143.5856	0.4851	1.2464	0.0024
14:45:32	256.03	140.8256	0.4758	1.2224	0.0022
14:55:32	253.49	138.2856	0.4672	1.2003	0.0303
14:57:00	250	134.7956	0.4554	1.1701	0.0955
14:58:00	239	123.7956	0.4182	1.0746	0.1128
14:59:00	226	110.7956	0.3743	0.9617	0.1042
15:00:00	214	98.7956	0.3338	0.8576	0.1042
15:01:00	202	86.7956	0.2932	0.7534	0.1128
15:02:00	189	73.7956	0.2493	0.6406	0.1042
15:03:00	177	61.7956	0.2088	0.5364	0.1042
15:04:00	165	49.7956	0.1682	0.4322	0.0955
15:05:00	154	38.7956	0.1311	0.3368	0.0608
15:06:00	147	31.7956	0.1074	0.2760	0.0434
15:07:00	142	26.7956	0.0905	0.2326	0.0174
15:08:00	140	24.7956	0.0838	0.2152	
<b>Data End</b>					

**A.46: Raw data for 50°C Hot air drying (6 hours) and microwave posttreatment (Trial 3)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (6 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	07-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:15:21	415.75	297.5142	1	2.5163	0.0039
10:25:21	411.18	292.9442	0.9846	2.4776	0.0053
10:35:21	404.86	286.6242	0.9634	2.4242	0.0054
10:45:21	398.42	280.1842	0.9418	2.3697	0.0056
10:55:22	391.8	273.5642	0.9195	2.3137	0.0053
11:05:22	385.54	267.3042	0.8985	2.2608	0.0053
11:15:22	379.24	261.0042	0.8773	2.2075	0.0050
11:25:22	373.38	255.1442	0.8576	2.1579	0.0052
11:35:22	367.23	248.9942	0.8369	2.1059	0.0045
11:45:23	361.89	243.6542	0.8190	2.0607	0.0048
11:55:23	356.16	237.9242	0.7997	2.0123	0.0044
12:05:23	351	232.7642	0.7824	1.9686	0.0043
12:15:24	345.96	227.7242	0.7654	1.9260	0.0043
12:25:24	340.84	222.6042	0.7482	1.8827	0.0040
12:35:24	336.06	217.8242	0.7321	1.8423	0.0039
12:45:24	331.5	213.2642	0.7168	1.8037	0.0038
12:55:25	327.01	208.7742	0.7017	1.7657	0.0037
13:05:25	322.62	204.3842	0.6870	1.7286	0.0034
13:15:25	318.65	200.4142	0.6736	1.6950	0.0036

13:25:26	314.39	196.1542	0.6593	1.6590	0.0033
13:35:26	310.54	192.3042	0.6464	1.6264	0.0032
13:45:26	306.79	188.5542	0.6338	1.5947	0.0031
13:55:27	303.13	184.8942	0.6215	1.5638	0.0031
14:05:27	299.43	181.1942	0.6090	1.5325	0.0030
14:15:27	295.88	177.6442	0.5971	1.5025	0.0029
14:25:27	292.4	174.1642	0.5854	1.4730	0.0027
14:35:27	289.16	170.9242	0.5745	1.4456	0.0028
14:45:27	285.87	167.6342	0.5634	1.4178	0.0027
14:55:27	282.72	164.4842	0.5529	1.3912	0.0026
15:05:27	279.63	161.3942	0.5425	1.3650	0.0025
15:15:27	276.69	158.4542	0.5326	1.3402	0.0025
15:25:28	273.76	155.5242	0.5227	1.3154	0.0026
15:35:28	270.71	152.4742	0.5125	1.2896	0.0022
15:45:28	268.13	149.8942	0.5038	1.2678	0.0024
15:55:28	265.32	147.0842	0.4944	1.2440	0.0024
16:05:28	262.46	144.2242	0.4848	1.2198	0.0022
16:15:28	259.82	141.5842	0.4759	1.1975	0.0408
16:17:00	255	136.7642	0.4597	1.1567	0.0846
16:18:00	245	126.7642	0.4261	1.0721	0.1015
16:19:00	233	114.7642	0.3857	0.9706	0.1099
16:20:00	220	101.7642	0.3420	0.8607	0.1184
16:21:00	206	87.7642	0.2950	0.7423	0.1184
16:22:00	192	73.7642	0.2479	0.6239	0.1015
16:23:00	180	61.7642	0.2076	0.5224	0.1099
16:24:00	167	48.7642	0.1639	0.4124	0.0761
16:25:00	158	39.7642	0.1337	0.3363	0.0507
16:26:00	152	33.7642	0.1135	0.2856	0.0338
16:27:00	148	29.7642	0.1000	0.2517	0.0169
16:28:00	146	27.7642	0.0933	0.2348	
<b>Data End</b>					

**A.47: Raw data for 50°C Hot air drying (4 hours) and microwave posttreatment (Trial 1)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (4 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	12-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
09:35:20	406.69	294.2999	1	2.6186	0.0047
09:45:20	401.4	289.0099	0.9820	2.5715	0.0059
09:55:20	394.72	282.3299	0.9593	2.5121	0.0063
10:05:21	387.61	275.2199	0.9352	2.4488	0.0062
10:15:21	380.67	268.2799	0.9116	2.3870	0.0059
10:25:21	374.07	261.6799	0.8892	2.3283	0.0057
10:35:22	367.63	255.2399	0.8673	2.2710	0.0054
10:45:22	361.61	249.2199	0.8468	2.2175	0.0051
10:55:22	355.87	243.4799	0.8273	2.1664	0.0047
11:05:23	350.59	238.1999	0.8094	2.1194	0.0049
11:15:23	345.13	232.7399	0.7908	2.0708	0.0049
11:25:23	339.67	227.2799	0.7723	2.0222	0.0040
11:35:23	335.23	222.8399	0.7572	1.9827	0.0042
11:45:24	330.48	218.0899	0.7410	1.9405	0.0043
11:55:24	325.7	213.3099	0.7248	1.8979	0.0039
12:05:24	321.33	208.9399	0.7100	1.8591	0.0037

12:15:24	317.16	204.7699	0.6958	1.8220	0.0040
12:25:24	312.71	200.3199	0.6807	1.7824	0.0036
12:35:24	308.65	196.2599	0.6669	1.7462	0.0036
12:45:25	304.62	192.2299	0.6532	1.7104	0.0031
12:55:25	301.09	188.6999	0.6412	1.6790	0.0036
13:05:26	297.05	184.6599	0.6275	1.6430	0.0032
13:15:26	293.48	181.0899	0.6153	1.6113	0.0031
13:25:26	289.97	177.5799	0.6034	1.5800	0.0031
13:35:27	286.5	174.1099	0.5916	1.5492	0.0311
13:37:00	283	170.6099	0.5797	1.5180	0.0979
13:38:00	272	159.6099	0.5423	1.4201	0.0801
13:39:00	263	150.6099	0.5118	1.3401	0.1246
13:40:00	249	136.6099	0.4642	1.2155	0.1246
13:41:00	235	122.6099	0.4166	1.0909	0.1246
13:42:00	221	108.6099	0.3690	0.9664	0.1335
13:43:00	206	93.6099	0.3181	0.8329	0.1068
13:44:00	194	81.6099	0.2773	0.7261	0.1246
13:45:00	180	67.6099	0.2297	0.6016	0.1068
13:46:00	168	55.6099	0.1890	0.4948	0.1157
13:47:00	155	42.6099	0.1448	0.3791	0.0801
13:48:00	146	33.6099	0.1142	0.2990	0.0623
13:49:00	139	26.6099	0.0904	0.2368	0.0267
13:50:00	136	23.6099	0.0802	0.2101	0.0267
13:51:00	133	20.6099	0.0700	0.1834	
<b>Data End</b>					

**A.48: Raw data for 50°C Hot air drying (4 hours) and microwave posttreatment (Trial 2)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (4 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	14-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
12:00:21	440.35	315.9809	1.0000	2.5407	0.0046
12:10:21	434.69	310.3209	0.9821	2.4952	0.0060
12:20:21	427.17	302.8009	0.9583	2.4347	0.0064
12:30:22	419.24	294.8709	0.9332	2.3709	0.0065
12:40:22	411.14	286.7709	0.9076	2.3058	0.0060
12:50:23	403.62	279.2509	0.8838	2.2453	0.0061
13:00:23	396.06	271.6909	0.8598	2.1846	0.0057
13:10:24	388.92	264.5509	0.8372	2.1271	0.0054
13:20:24	382.16	257.7909	0.8158	2.0728	0.0053
13:30:24	375.53	251.1609	0.7949	2.0195	0.0051
13:40:25	369.19	244.8209	0.7748	1.9685	0.0048
13:50:25	363.27	238.9009	0.7561	1.9209	0.0047
14:00:25	357.39	233.0209	0.7375	1.8736	0.0045
14:10:25	351.75	227.3809	0.7196	1.8283	0.0044
14:20:25	346.32	221.9509	0.7024	1.7846	0.0042
14:30:25	341.12	216.7509	0.6860	1.7428	0.0039

14:40:25	336.22	211.8509	0.6705	1.7034	0.0039
14:50:25	331.42	207.0509	0.6553	1.6648	0.0039
15:00:25	326.61	202.2409	0.6400	1.6261	0.0038
15:10:26	321.94	197.5709	0.6253	1.5886	0.0035
15:20:26	317.58	193.2109	0.6115	1.5535	0.0033
15:30:26	313.48	189.1109	0.5985	1.5206	0.0031
15:40:26	309.58	185.2109	0.5861	1.4892	0.0031
15:50:26	305.78	181.4109	0.5741	1.4586	0.0029
16:00:27	302.13	177.7609	0.5626	1.4293	0.0252
16:02:00	299	174.6309	0.5527	1.4041	0.0884
16:03:00	288	163.6309	0.5179	1.3157	0.0804
16:04:00	278	153.6309	0.4862	1.2353	0.1045
16:05:00	265	140.6309	0.4451	1.1308	0.1206
16:06:00	250	125.6309	0.3976	1.0101	0.1126
16:07:00	236	111.6309	0.3533	0.8976	0.1206
16:08:00	221	96.6309	0.3058	0.7770	0.1126
16:09:00	207	82.6309	0.2615	0.6644	0.1045
16:10:00	194	69.6309	0.2204	0.5599	0.1045
16:11:00	181	56.6309	0.1792	0.4553	0.1045
16:12:00	168	43.6309	0.1381	0.3508	0.0884
16:13:00	157	32.6309	0.1033	0.2624	0.0643
16:14:00	149	24.6309	0.0780	0.1980	0.0402
16:15:00	144	19.6309	0.0621	0.1578	0.0241
16:16:00	141	16.6309	0.0526	0.1337	
<b>Data End</b>					

**A.49: Raw data for 50°C Hot air drying (4 hours) and microwave posttreatment (Trial 3)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (4 hrs)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	18-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:50:24	405.31	291.8011	1.0000	2.5707	0.0046
11:00:24	400.08	286.5711	0.9821	2.5247	0.0057
11:10:24	393.6	280.0911	0.9599	2.4676	0.0054
11:20:24	387.49	273.9811	0.9389	2.4137	0.0058
11:30:24	380.95	267.4411	0.9165	2.3561	0.0053
11:40:25	374.95	261.4411	0.8960	2.3033	0.0056
11:50:25	368.61	255.1011	0.8742	2.2474	0.0054
12:00:26	362.43	248.9211	0.8531	2.1930	0.0050
12:10:26	356.73	243.2211	0.8335	2.1427	0.0048
12:20:26	351.25	237.7411	0.8147	2.0945	0.0048
12:30:26	345.78	232.2711	0.7960	2.0463	0.0047
12:40:26	340.49	226.9811	0.7779	1.9997	0.0042
12:50:26	335.77	222.2611	0.7617	1.9581	0.0039
13:00:26	331.32	217.8111	0.7464	1.9189	0.0040
13:10:27	326.74	213.2311	0.7307	1.8785	0.0039
13:20:27	322.34	208.8311	0.7157	1.8398	0.0039

13:30:27	317.89	204.3811	0.7004	1.8006	0.0032
13:40:27	314.3	200.7911	0.6881	1.7689	0.0037
13:50:28	310.15	196.6411	0.6739	1.7324	0.0031
14:00:28	306.58	193.0711	0.6617	1.7009	0.0031
14:10:29	303.1	189.5911	0.6497	1.6703	0.0031
14:20:29	299.58	186.0711	0.6377	1.6393	0.0030
14:30:29	296.18	182.6711	0.6260	1.6093	0.0028
14:40:29	292.98	179.4711	0.6150	1.5811	0.0025
14:50:30	290.18	176.6711	0.6055	1.5565	0.0192
14:52:00	288	174.4911	0.5980	1.5372	0.0617
14:53:00	281	167.4911	0.5740	1.4756	0.1145
14:54:00	268	154.4911	0.5294	1.3610	0.1233
14:55:00	254	140.4911	0.4815	1.2377	0.1233
14:56:00	240	126.4911	0.4335	1.1144	0.1233
14:57:00	226	112.4911	0.3855	0.9910	0.1233
14:58:00	212	98.4911	0.3375	0.8677	0.1233
14:59:00	198	84.4911	0.2896	0.7444	0.1145
15:00:00	185	71.4911	0.2450	0.6298	0.1057
15:01:00	173	59.4911	0.2039	0.5241	0.0793
15:02:00	164	50.4911	0.1730	0.4448	0.0617
15:03:00	157	43.4911	0.1490	0.3832	0.0352
15:04:00	153	39.4911	0.1353	0.3479	0.0440
15:05:00	148	34.4911	0.1182	0.3039	0.0352
15:06:00	144	30.4911	0.1045	0.2686	
<b>Data End</b>					

**A.50: Raw data for 50°C Hot air drying (1 hour) and microwave posttreatment (Trial 1)**

Pre / Post Treatment	Posttreatment	Treatment	Microwave		
Temperature	50°C	Duration	HAD (1 hr)		
Air velocity	1 m/s				
Slice thickness	8 mm				
Trial	1				
Date	19-03-2025				
Time	Mass (m)	Mass of water	Moisture Ratio	Moisture content	Drying rate
h:min:s	g			Dry basis	dX/dT
11:25:21	441.52	317.0489	1.0000	2.5472	0.0039
11:35:21	436.62	312.1489	0.9845	2.5078	0.0054
11:45:21	429.9	305.4289	0.9633	2.4538	0.0057
11:55:21	422.81	298.3389	0.9410	2.3969	0.0057
12:05:22	415.77	291.2989	0.9188	2.3403	0.0057
12:15:22	408.65	284.1789	0.8963	2.2831	0.0055
12:25:22	401.79	277.3189	0.8747	2.2280	0.0224
12:27:00	399	274.5289	0.8659	2.2056	0.0803
12:28:00	389	264.5289	0.8343	2.1252	0.0482
12:29:00	383	258.5289	0.8154	2.0770	0.1044
12:30:00	370	245.5289	0.7744	1.9726	0.0803
12:31:00	360	235.5289	0.7429	1.8922	0.0964
12:32:00	348	223.5289	0.7050	1.7958	0.1205
12:33:00	333	208.5289	0.6577	1.6753	0.0964
12:34:00	321	196.5289	0.6199	1.5789	0.1044
12:35:00	308	183.5289	0.5789	1.4745	0.1044
12:36:00	295	170.5289	0.5379	1.3700	0.1125
12:37:00	281	156.5289	0.4937	1.2576	0.1205
12:38:00	266	141.5289	0.4464	1.1370	0.0884
12:39:00	255	130.5289	0.4117	1.0487	0.1125
12:40:00	241	116.5289	0.3675	0.9362	0.1125
12:41:00	227	102.5289	0.3234	0.8237	0.0964
12:42:00	215	90.5289	0.2855	0.7273	0.1205
12:43:00	200	75.5289	0.2382	0.6068	0.0884
12:44:00	189	64.5289	0.2035	0.5184	0.1044
12:45:00	176	51.5289	0.1625	0.4140	0.0884
12:46:00	165	40.5289	0.1278	0.3256	0.0884
12:47:00	154	29.5289	0.0931	0.2372	0.0643
12:48:00	146	21.5289	0.0679	0.1730	0.0241
12:49:00	143	18.5289	0.0584	0.1489	0.0241
12:50:00	140	15.5289	0.0490	0.1248	
Data End					

**A.51: Raw data for 50°C Hot air drying (1 hour) and microwave posttreatment (Trial 2)**

<b>Pre / Post Treatment</b>	<b>Posttreatment</b>	<b>Treatment</b>	<b>Microwave</b>		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (1 hr)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	24-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
11:00:26	407.68	293.7357	1.0000	2.5779	0.0040
11:10:26	403.09	289.1457	0.9844	2.5376	0.0058
11:20:26	396.51	282.5657	0.9620	2.4799	0.0059
11:30:27	389.76	275.8157	0.9390	2.4206	0.0055
11:40:27	383.51	269.5657	0.9177	2.3658	0.0054
11:50:27	377.37	263.4257	0.8968	2.3119	0.0049
12:00:27	371.82	257.8757	0.8779	2.2632	0.0160
12:02:00	370	256.0557	0.8717	2.2472	0.0614
12:03:00	363	249.0557	0.8479	2.1858	0.0965
12:04:00	352	238.0557	0.8104	2.0892	0.0965
12:05:00	341	227.0557	0.7730	1.9927	0.1229
12:06:00	327	213.0557	0.7253	1.8698	0.1229
12:07:00	313	199.0557	0.6777	1.7470	0.1141
12:08:00	300	186.0557	0.6334	1.6329	0.1404
12:09:00	284	170.0557	0.5789	1.4924	0.1492
12:10:00	267	153.0557	0.5211	1.3433	0.0878
12:11:00	257	143.0557	0.4870	1.2555	0.1141
12:12:00	244	130.0557	0.4428	1.1414	0.1229
12:13:00	230	116.0557	0.3951	1.0185	0.1229
12:14:00	216	102.0557	0.3474	0.8957	0.1141
12:15:00	203	89.0557	0.3032	0.7816	0.1229
12:16:00	189	75.0557	0.2555	0.6587	0.0878
12:17:00	179	65.0557	0.2215	0.5709	0.0790
12:18:00	170	56.0557	0.1908	0.4920	0.0614
12:19:00	163	49.0557	0.1670	0.4305	0.0527
12:20:00	157	43.0557	0.1466	0.3779	0.0351
12:21:00	153	39.0557	0.1330	0.3428	
<b>Data End</b>					

**A.52: Raw data for 50°C Hot air drying (1 hour) and microwave posttreatment (Trial 3)**

<b>Pre / Post Treatment</b>	<b>Posttreatment</b>	<b>Treatment</b>	<b>Microwave</b>		
<b>Temperature</b>	50°C	<b>Duration</b>	HAD (1 hr)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	24-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
12:45:10	449.73	319.1235	1.0000	2.4434	0.0046
12:55:11	443.78	313.1735	0.9814	2.3978	0.0062
13:05:11	435.71	305.1035	0.9561	2.3361	0.0066
13:15:11	427.03	296.4235	0.9289	2.2696	0.0061
13:25:12	419.08	288.4735	0.9040	2.2087	0.0061
13:35:12	411.06	280.4535	0.8788	2.1473	0.0056
13:45:12	403.73	273.1235	0.8559	2.0912	0.0209
13:47:00	401	270.3935	0.8473	2.0703	0.0459
13:48:00	395	264.3935	0.8285	2.0244	0.0689
13:49:00	386	255.3935	0.8003	1.9554	0.0842
13:50:00	375	244.3935	0.7658	1.8712	0.1148
13:51:00	360	229.3935	0.7188	1.7564	0.0919
13:52:00	348	217.3935	0.6812	1.6645	0.0995
13:53:00	335	204.3935	0.6405	1.5650	0.1072
13:54:00	321	190.3935	0.5966	1.4578	0.1072
13:55:00	307	176.3935	0.5527	1.3506	0.1225
13:56:00	291	160.3935	0.5026	1.2281	0.0153
13:57:00	289	158.3935	0.4963	1.2128	0.1684
13:58:00	267	136.3935	0.4274	1.0443	0.1072
13:59:00	253	122.3935	0.3835	0.9371	0.1072
14:00:00	239	108.3935	0.3397	0.8299	0.0995
14:01:00	226	95.3935	0.2989	0.7304	0.0995
14:02:00	213	82.3935	0.2582	0.6309	0.0919
14:03:00	201	70.3935	0.2206	0.5390	0.0919
14:04:00	189	58.3935	0.1830	0.4471	0.0919
14:05:00	177	46.3935	0.1454	0.3552	0.0766
14:06:00	167	36.3935	0.1140	0.2786	0.0383
14:07:00	162	31.3935	0.0984	0.2404	0.0383
14:08:00	157	26.3935	0.0827	0.2021	0.0383
14:09:00	152	21.3935	0.0670	0.1638	
<b>Data End</b>					

**A.53: Raw data for 70°C Hot air drying (1 hour) and microwave posttreatment (Trial 1)**

<b>Pre / Post Treatment</b>	<b>Posttreatment</b>	<b>Treatment</b>	<b>Microwave</b>		
<b>Temperature</b>	70°C	<b>Duration</b>	HAD (1 hr)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	1				
<b>Date</b>	26-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:20:25	413.62	297.4152	1.0000	2.5594	0.0054
10:30:25	407.38	291.1752	0.9790	2.5057	0.0082
10:40:26	397.9	281.6952	0.9471	2.4241	0.0079
10:50:26	388.7	272.4952	0.9162	2.3450	0.0075
11:00:26	379.96	263.7552	0.8868	2.2697	0.0069
11:10:26	371.96	255.7552	0.8599	2.2009	0.0063
11:20:27	364.63	248.4252	0.8353	2.1378	0.0484
11:22:00	359	242.7952	0.8164	2.0894	0.0861
11:23:00	349	232.7952	0.7827	2.0033	0.0774
11:24:00	340	223.7952	0.7525	1.9259	0.1119
11:25:00	327	210.7952	0.7088	1.8140	0.1205
11:26:00	313	196.7952	0.6617	1.6935	0.1205
11:27:00	299	182.7952	0.6146	1.5730	0.1463
11:28:00	282	165.7952	0.5575	1.4268	0.0947
11:29:00	271	154.7952	0.5205	1.3321	0.1291
11:30:00	256	139.7952	0.4700	1.2030	0.1205
11:31:00	242	125.7952	0.4230	1.0825	0.1205
11:32:00	228	111.7952	0.3759	0.9621	0.1119
11:33:00	215	98.7952	0.3322	0.8502	0.1377
11:34:00	199	82.7952	0.2784	0.7125	0.1033
11:35:00	187	70.7952	0.2380	0.6092	0.1119
11:36:00	174	57.7952	0.1943	0.4974	0.1033
11:37:00	162	45.7952	0.1540	0.3941	0.0688
11:38:00	154	37.7952	0.1271	0.2402	0.0516
11:39:00	148	31.7952	0.1069	0.1036	
<b>Data End</b>					

**A.54: Raw data for 70°C Hot air drying (1 hour) and microwave posttreatment (Trial 2)**

<b>Pre / Post Treatment</b>	Posttreatment	<b>Treatment</b>	Microwave		
<b>Temperature</b>	70°C	<b>Duration</b>	HAD (1 hr)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	2				
<b>Date</b>	28-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
10:50:28	413.03	296.6415	1.0000	2.5487	0.0043
11:00:29	408.02	291.6315	0.9831	2.5057	0.0087
11:10:29	397.84	281.4515	0.9488	2.4182	0.0094
11:20:29	386.95	270.5615	0.9121	2.3246	0.0088
11:30:30	376.76	260.3715	0.8777	2.2371	0.0083
11:40:30	367.05	250.6615	0.8450	2.1537	0.0079
11:50:31	357.88	241.4915	0.8141	2.0749	0.0333
11:52:00	354	237.6115	0.8010	2.0415	0.1031
11:53:00	342	225.6115	0.7606	1.9384	0.0687
11:54:00	334	217.6115	0.7336	1.8697	0.1031
11:55:00	322	205.6115	0.6931	1.7666	0.1117
11:56:00	309	192.6115	0.6493	1.6549	0.1203
11:57:00	295	178.6115	0.6021	1.5346	0.1289
11:58:00	280	163.6115	0.5515	1.4057	0.1031
11:59:00	268	151.6115	0.5111	1.3026	0.1203
12:00:00	254	137.6115	0.4639	1.1823	0.1203
12:01:00	240	123.6115	0.4167	1.0621	0.1117
12:02:00	227	110.6115	0.3729	0.9504	0.1031
12:03:00	215	98.6115	0.3324	0.8473	0.1289
12:04:00	200	83.6115	0.2819	0.7184	0.1031
12:05:00	188	71.6115	0.2414	0.6153	0.1117
12:06:00	175	58.6115	0.1976	0.5036	0.0859
12:07:00	165	48.6115	0.1639	0.4177	0.0859
12:08:00	155	38.6115	0.1302	0.3317	0.0516
12:09:00	149	32.6115	0.1099	0.2002	0.0516
12:10:00	143	26.6115	0.0897	0.1086	
<b>Data End</b>					

**A.55: Raw data for 70°C Hot air drying (1 hour) and microwave posttreatment (Trial 3)**

<b>Pre / Post Treatment</b>	<b>Posttreatment</b>	<b>Treatment</b>	<b>Microwave</b>		
<b>Temperature</b>	70°C	<b>Duration</b>	HAD (1 hr)		
<b>Air velocity</b>	1 m/s				
<b>Slice thickness</b>	8 mm				
<b>Trial</b>	3				
<b>Date</b>	28-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>h:min:s</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
12:40:20	420.01	302.0297	1.0000	2.5600	0.0059
12:50:20	413.02	295.0397	0.9769	2.5008	0.0094
13:00:21	401.98	283.9997	0.9403	2.4072	0.0092
13:10:21	391.09	273.1097	0.9042	2.3149	0.0089
13:20:22	380.6	262.6197	0.8695	2.2260	0.0083
13:30:22	370.82	252.8397	0.8371	2.1431	0.0076
13:40:22	361.8	243.8197	0.8073	2.0666	0.0576
13:42:00	355	237.0197	0.7848	2.0090	0.0424
13:43:00	350	232.0197	0.7682	1.9666	0.0763
13:44:00	341	223.0197	0.7384	1.8903	0.1356
13:45:00	325	207.0197	0.6854	1.7547	0.0932
13:46:00	314	196.0197	0.6490	1.6615	0.1017
13:47:00	302	184.0197	0.6093	1.5597	0.1187
13:48:00	288	170.0197	0.5629	1.4411	0.1102
13:49:00	275	157.0197	0.5199	1.3309	0.1271
13:50:00	260	142.0197	0.4702	1.2038	0.1441
13:51:00	243	125.0197	0.4139	1.0597	0.0763
13:52:00	234	116.0197	0.3841	0.9834	0.1102
13:53:00	221	103.0197	0.3411	0.8732	0.1102
13:54:00	208	90.0197	0.2980	0.7630	0.1102
13:55:00	195	77.0197	0.2550	0.6528	0.1102
13:56:00	182	64.0197	0.2120	0.5426	0.0763
13:57:00	173	55.0197	0.1822	0.4663	0.0678
13:58:00	165	47.0197	0.1557	0.3685	0.0424
13:59:00	160	42.0197	0.1391	0.2362	0.0424
14:00:00	155	37.0197	0.1226	0.1138	
<b>Data End</b>					

**A.56: Raw data for Skin trial (Trial 1)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skin				
<b>Trial</b>	1				
<b>Date</b>	12-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	593.1	419.9148	1.0000	2.4247	0.0004
10	592.4	419.2148	0.9983	2.4206	0.0004
20	591.7	418.5148	0.9967	2.4166	0.0003
30	591.2	418.0148	0.9955	2.4137	0.0004
40	590.5	417.3148	0.9938	2.4096	0.0003
50	589.9	416.7148	0.9924	2.4062	0.0004
60	589.2	416.0148	0.9907	2.4021	0.0005
70	588.4	415.2148	0.9888	2.3975	0.0006
80	587.4	414.2148	0.9864	2.3917	0.0006
90	586.4	413.2148	0.9840	2.3860	0.0005
100	585.6	412.4148	0.9821	2.3814	0.0006
110	584.6	411.4148	0.9798	2.3756	0.0006
120	583.5	410.3148	0.9771	2.3692	0.0006
130	582.4	409.2148	0.9745	2.3629	0.0006
140	581.3	408.1148	0.9719	2.3565	0.0007
150	580.1	406.9148	0.9690	2.3496	0.0008
160	578.8	405.6148	0.9659	2.3421	0.0008
170	577.5	404.3148	0.9628	2.3346	0.0008
180	576.2	403.0148	0.9598	2.3271	0.0008

190	574.8	401.6148	0.9564	2.3190	0.0008
200	573.4	400.2148	0.9531	2.3109	0.0009
210	571.9	398.7148	0.9495	2.3022	0.0008
220	570.5	397.3148	0.9462	2.2942	0.0009
230	568.9	395.7148	0.9424	2.2849	0.0009
240	567.4	394.2148	0.9388	2.2763	0.0009
250	565.9	392.7148	0.9352	2.2676	0.0009
260	564.4	391.2148	0.9317	2.2589	0.0009
270	562.8	389.6148	0.9278	2.2497	0.0009
280	561.3	388.1148	0.9243	2.2410	0.0009
290	559.8	386.6148	0.9207	2.2324	0.0009
300	558.3	385.1148	0.9171	2.2237	0.0009
310	556.8	383.6148	0.9136	2.2151	0.0009
320	555.3	382.1148	0.9100	2.2064	0.0009
330	553.8	380.6148	0.9064	2.1977	0.0009
340	552.2	379.0148	0.9026	2.1885	0.0009
350	550.7	377.5148	0.8990	2.1798	0.0009
360	549.2	376.0148	0.8955	2.1712	0.0008
370	547.8	374.6148	0.8921	2.1631	0.0009
380	546.3	373.1148	0.8885	2.1544	0.0008
390	544.9	371.7148	0.8852	2.1463	0.0008
400	543.5	370.3148	0.8819	2.1383	0.0009
410	542	368.8148	0.8783	2.1296	0.0009
420	540.5	367.3148	0.8747	2.1209	0.0009
430	539	365.8148	0.8712	2.1123	0.0008
440	537.6	364.4148	0.8678	2.1042	0.0008
450	536.2	363.0148	0.8645	2.0961	
<b>Data End</b>					

**A.57: Raw data for Skin trial (Trial 2)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skin				
<b>Trial</b>	2				
<b>Date</b>	18-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	732	523.5497	1.0000	2.5116	0.0002
10	731.5	523.0497	0.9990	2.5092	0.0007
20	730	521.5497	0.9962	2.5020	0.0010
30	728	519.5497	0.9924	2.4924	0.0011
40	725.7	517.2497	0.9880	2.4814	0.0012
50	723.2	514.7497	0.9832	2.4694	0.0013
60	720.4	511.9497	0.9778	2.4560	0.0014
70	717.5	509.0497	0.9723	2.4421	0.0014
80	714.5	506.0497	0.9666	2.4277	0.0016
90	711.2	502.7497	0.9603	2.4118	0.0014
100	708.2	499.7497	0.9545	2.3975	0.0016
110	704.9	496.4497	0.9482	2.3816	0.0016
120	701.6	493.1497	0.9419	2.3658	0.0017
130	698	489.5497	0.9351	2.3485	0.0014
140	695	486.5497	0.9293	2.3341	0.0016
150	691.6	483.1497	0.9228	2.3178	0.0016
160	688.2	479.7497	0.9163	2.3015	0.0016
170	684.8	476.3497	0.9098	2.2852	0.0016
180	681.5	473.0497	0.9035	2.2694	0.0016

190	678.2	469.7497	0.8972	2.2535	0.0015
200	675	466.5497	0.8911	2.2382	0.0015
210	671.8	463.3497	0.8850	2.2228	0.0015
220	668.6	460.1497	0.8789	2.2075	0.0015
230	665.5	457.0497	0.8730	2.1926	0.0015
240	662.4	453.9497	0.8671	2.1777	0.0014
250	659.4	450.9497	0.8613	2.1633	0.0014
260	656.4	447.9497	0.8556	2.1490	0.0014
270	653.5	445.0497	0.8501	2.1350	0.0014
280	650.6	442.1497	0.8445	2.1211	0.0014
290	647.7	439.2497	0.8390	2.1072	0.0014
300	644.8	436.3497	0.8334	2.0933	0.0013
310	642	433.5497	0.8281	2.0799	0.0013
320	639.2	430.7497	0.8227	2.0664	0.0013
330	636.4	427.9497	0.8174	2.0530	0.0013
340	633.7	425.2497	0.8122	2.0401	0.0013
350	631	422.5497	0.8071	2.0271	0.0013
360	628.3	419.8497	0.8019	2.0141	0.0012
370	625.7	417.2497	0.7970	2.0017	0.0012
380	623.1	414.6497	0.7920	1.9892	0.0012
390	620.5	412.0497	0.7870	1.9767	0.0012
400	617.9	409.4497	0.7821	1.9643	0.0012
410	615.4	406.9497	0.7773	1.9523	0.0012
420	612.9	404.4497	0.7725	1.9403	0.0012
430	610.4	401.9497	0.7677	1.9283	0.0012
440	608	399.5497	0.7632	1.9168	0.0012
450	605.6	397.1497	0.7586	1.9052	
<b>Data End</b>					

**A.58: Raw data for Skin trial (Trial 3)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skin				
<b>Trial</b>	3				
<b>Date</b>	24-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	721.5	512.2461	1.0000	2.4480	0.0004
10	720.6	511.3461	0.9982	2.4437	0.0009
20	718.7	509.4461	0.9945	2.4346	0.0011
30	716.5	507.2461	0.9902	2.4241	0.0011
40	714.2	504.9461	0.9857	2.4131	0.0011
50	711.8	502.5461	0.9811	2.4016	0.0013
60	709.1	499.8461	0.9758	2.3887	0.0012
70	706.6	497.3461	0.9709	2.3768	0.0013
80	703.8	494.5461	0.9654	2.3634	0.0015
90	700.7	491.4461	0.9594	2.3486	0.0014
100	697.7	488.4461	0.9535	2.3342	0.0013
110	695	485.7461	0.9483	2.3213	0.0015
120	691.9	482.6461	0.9422	2.3065	0.0014
130	688.9	479.6461	0.9364	2.2922	0.0015
140	685.8	476.5461	0.9303	2.2774	0.0014
150	682.8	473.5461	0.9245	2.2630	0.0014
160	679.9	470.6461	0.9188	2.2492	0.0014
170	676.9	467.6461	0.9129	2.2348	0.0015
180	673.8	464.5461	0.9069	2.2200	0.0014
190	670.8	461.5461	0.9010	2.2057	0.0014

200	667.8	458.5461	0.8952	2.1913	0.0014
210	664.9	455.6461	0.8895	2.1775	0.0015
220	661.8	452.5461	0.8835	2.1627	0.0015
230	658.7	449.4461	0.8774	2.1478	0.0014
240	655.7	446.4461	0.8715	2.1335	0.0014
250	652.7	443.4461	0.8657	2.1192	0.0014
260	649.8	440.5461	0.8600	2.1053	0.0014
270	646.9	437.6461	0.8544	2.0915	0.0014
280	644	434.7461	0.8487	2.0776	0.0014
290	641.1	431.8461	0.8430	2.0637	0.0014
300	638.2	428.9461	0.8374	2.0499	0.0013
310	635.4	426.1461	0.8319	2.0365	0.0013
320	632.6	423.3461	0.8265	2.0231	0.0014
330	629.7	420.4461	0.8208	2.0093	0.0013
340	626.9	417.6461	0.8153	1.9959	0.0013
350	624.1	414.8461	0.8099	1.9825	0.0013
360	621.3	412.0461	0.8044	1.9691	0.0013
370	618.6	409.3461	0.7991	1.9562	0.0013
380	615.9	406.6461	0.7938	1.9433	0.0012
390	613.3	404.0461	0.7888	1.9309	0.0012
400	610.7	401.4461	0.7837	1.9185	0.0012
410	608.1	398.8461	0.7786	1.9060	0.0012
420	605.6	396.3461	0.7737	1.8941	0.0012
430	603.1	393.8461	0.7689	1.8821	0.0012
440	600.6	391.3461	0.7640	1.8702	0.0011
450	598.2	388.9461	0.7593	1.8587	
<b>Data End</b>					

**A.59: Raw data for Skin trial (Trial 4)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skin				
<b>Trial</b>	4				
<b>Date</b>	26-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	702.8	503.1720	1.0000	2.5205	0.0005
10	701.9	502.2720	0.9982	2.5160	0.0012
20	699.5	499.8720	0.9934	2.5040	0.0013
30	697	497.3720	0.9885	2.4915	0.0013
40	694.5	494.8720	0.9835	2.4790	0.0012
50	692.1	492.4720	0.9787	2.4669	0.0011
60	689.9	490.2720	0.9744	2.4559	0.0011
70	687.7	488.0720	0.9700	2.4449	0.0011
80	685.5	485.8720	0.9656	2.4339	0.0011
90	683.3	483.6720	0.9612	2.4229	0.0011
100	681.1	481.4720	0.9569	2.4118	0.0013
110	678.6	478.9720	0.9519	2.3993	0.0013
120	676	476.3720	0.9467	2.3863	0.0013
130	673.4	473.7720	0.9416	2.3733	0.0014
140	670.7	471.0720	0.9362	2.3597	0.0014
150	667.9	468.2720	0.9306	2.3457	0.0014
160	665.1	465.4720	0.9251	2.3317	0.0014
170	662.4	462.7720	0.9197	2.3182	0.0014
180	659.7	460.0720	0.9143	2.3046	0.0014

190	657	457.3720	0.9090	2.2911	0.0014
200	654.3	454.6720	0.9036	2.2776	0.0014
210	651.6	451.9720	0.8982	2.2641	0.0013
220	649	449.3720	0.8931	2.2510	0.0013
230	646.4	446.7720	0.8879	2.2380	0.0013
240	643.8	444.1720	0.8827	2.2250	0.0013
250	641.2	441.5720	0.8776	2.2120	0.0013
260	638.6	438.9720	0.8724	2.1989	0.0013
270	636.1	436.4720	0.8674	2.1864	0.0013
280	633.6	433.9720	0.8625	2.1739	0.0013
290	631.1	431.4720	0.8575	2.1614	0.0013
300	628.6	428.9720	0.8525	2.1489	0.0013
310	626.1	426.4720	0.8476	2.1363	0.0012
320	623.7	424.0720	0.8428	2.1243	0.0012
330	621.3	421.6720	0.8380	2.1123	0.0012
340	618.9	419.2720	0.8333	2.1003	0.0012
350	616.6	416.9720	0.8287	2.0887	0.0012
360	614.3	414.6720	0.8241	2.0772	0.0012
370	612	412.3720	0.8195	2.0657	0.0012
380	609.7	410.0720	0.8150	2.0542	0.0011
390	607.5	407.8720	0.8106	2.0432	0.0011
400	605.3	405.6720	0.8062	2.0321	0.0011
410	603.1	403.4720	0.8019	2.0211	0.0011
420	601	401.3720	0.7977	2.0106	0.0010
430	599	399.3720	0.7937	2.0006	0.0010
440	597	397.3720	0.7897	1.9906	0.0010
450	595	395.3720	0.7858	1.9805	
<b>Data End</b>					

**A.60: Raw data for Skin trial (Trial 5)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skin				
<b>Trial</b>	5				
<b>Date</b>	28-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	604.6	432.6423	1.0000	2.5160	0.0006
10	603.6	431.6423	0.9977	2.5102	0.0007
20	602.4	430.4423	0.9949	2.5032	0.0008
30	601	429.0423	0.9917	2.4950	0.0008
40	599.7	427.7423	0.9887	2.4875	0.0012
50	597.7	425.7423	0.9841	2.4759	0.0010
60	596	424.0423	0.9801	2.4660	0.0012
70	594	422.0423	0.9755	2.4543	0.0013
80	591.8	419.8423	0.9704	2.4415	0.0013
90	589.5	417.5423	0.9651	2.4282	0.0013
100	587.2	415.2423	0.9598	2.4148	0.0013
110	584.9	412.9423	0.9545	2.4014	0.0014
120	582.5	410.5423	0.9489	2.3875	0.0013
130	580.2	408.2423	0.9436	2.3741	0.0015
140	577.7	405.7423	0.9378	2.3595	0.0016
150	575	403.0423	0.9316	2.3438	0.0015
160	572.4	400.4423	0.9256	2.3287	0.0014
170	570	398.0423	0.9200	2.3148	0.0015
180	567.4	395.4423	0.9140	2.2996	0.0015
190	564.8	392.8423	0.9080	2.2845	0.0015

200	562.2	390.2423	0.9020	2.2694	0.0016
210	559.5	387.5423	0.8958	2.2537	0.0017
220	556.6	384.6423	0.8891	2.2368	0.0015
230	554.1	382.1423	0.8833	2.2223	0.0015
240	551.5	379.5423	0.8773	2.2072	0.0015
250	548.9	376.9423	0.8713	2.1921	0.0015
260	546.4	374.4423	0.8655	2.1775	0.0015
270	543.9	371.9423	0.8597	2.1630	0.0015
280	541.4	369.4423	0.8539	2.1484	0.0015
290	538.9	366.9423	0.8481	2.1339	0.0014
300	536.5	364.5423	0.8426	2.1200	0.0014
310	534.1	362.1423	0.8370	2.1060	0.0014
320	531.7	359.7423	0.8315	2.0920	0.0014
330	529.3	357.3423	0.8260	2.0781	0.0014
340	526.9	354.9423	0.8204	2.0641	0.0013
350	524.6	352.6423	0.8151	2.0508	0.0013
360	522.3	350.3423	0.8098	2.0374	0.0013
370	520	348.0423	0.8045	2.0240	0.0013
380	517.7	345.7423	0.7991	2.0106	0.0013
390	515.4	343.4423	0.7938	1.9972	0.0013
400	513.2	341.2423	0.7887	1.9845	0.0013
410	511	339.0423	0.7837	1.9717	0.0013
420	508.8	336.8423	0.7786	1.9589	0.0013
430	506.6	334.6423	0.7735	1.9461	0.0013
440	504.4	332.4423	0.7684	1.9333	0.0012
450	502.3	330.3423	0.7635	1.9211	
<b>Data End</b>					

**A.61: Raw data for Skinless trial (Trial 1)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skinless				
<b>Trial</b>	1				
<b>Date</b>	12-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	510.8	364.8571	1.0000	2.5000	0.0014
10	508.7	362.7571	0.9942	2.4856	0.0014
20	506.7	360.7571	0.9888	2.4719	0.0020
30	503.8	357.8571	0.9808	2.4520	0.0019
40	501.1	355.1571	0.9734	2.4335	0.0021
50	498	352.0571	0.9649	2.4123	0.0020
60	495.1	349.1571	0.9570	2.3924	0.0021
70	492	346.0571	0.9485	2.3712	0.0021
80	489	343.0571	0.9403	2.3506	0.0021
90	486	340.0571	0.9320	2.3301	0.0020
100	483.1	337.1571	0.9241	2.3102	0.0021
110	480.1	334.1571	0.9159	2.2896	0.0021
120	477.1	331.1571	0.9076	2.2691	0.0020
130	474.2	328.2571	0.8997	2.2492	0.0019
140	471.4	325.4571	0.8920	2.2300	0.0021
150	468.4	322.4571	0.8838	2.2095	0.0019
160	465.6	319.6571	0.8761	2.1903	0.0019
170	462.8	316.8571	0.8684	2.1711	0.0019
180	460	314.0571	0.8608	2.1519	0.0019

190	457.2	311.2571	0.8531	2.1327	0.0019
200	454.5	308.5571	0.8457	2.1142	0.0019
210	451.7	305.7571	0.8380	2.0950	0.0019
220	449	303.0571	0.8306	2.0765	0.0017
230	446.5	300.5571	0.8238	2.0594	0.0019
240	443.8	297.8571	0.8164	2.0409	0.0017
250	441.3	295.3571	0.8095	2.0238	0.0019
260	438.6	292.6571	0.8021	2.0053	0.0017
270	436.1	290.1571	0.7953	1.9882	0.0018
280	433.5	287.5571	0.7881	1.9703	0.0017
290	431	285.0571	0.7813	1.9532	0.0017
300	428.5	282.5571	0.7744	1.9361	0.0017
310	426	280.0571	0.7676	1.9190	0.0018
320	423.4	277.4571	0.7605	1.9011	0.0016
330	421.1	275.1571	0.7542	1.8854	0.0016
340	418.8	272.8571	0.7478	1.8696	0.0016
350	416.4	270.4571	0.7413	1.8532	0.0015
360	414.2	268.2571	0.7352	1.8381	0.0016
370	411.9	265.9571	0.7289	1.8223	0.0015
380	409.7	263.7571	0.7229	1.8073	0.0015
390	407.5	261.5571	0.7169	1.7922	0.0014
400	405.4	259.4571	0.7111	1.7778	0.0014
410	403.3	257.3571	0.7054	1.7634	0.0014
420	401.2	255.2571	0.6996	1.7490	0.0014
430	399.1	253.1571	0.6939	1.7346	0.0014
440	397.1	251.1571	0.6884	1.7209	0.0014
450	395.1	249.1571	0.6829	1.7072	
<b>Data End</b>					

**A.62: Raw data for Skinless trial (Trial 2)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skinless				
<b>Trial</b>	2				
<b>Date</b>	18-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	632	454.8680	1.0000	2.5680	0.0004
10	631.3	454.1680	0.9985	2.5640	0.0014
20	628.9	451.7680	0.9932	2.5505	0.0019
30	625.6	448.4680	0.9859	2.5318	0.0019
40	622.2	445.0680	0.9785	2.5126	0.0019
50	618.9	441.7680	0.9712	2.4940	0.0020
60	615.4	438.2680	0.9635	2.4742	0.0021
70	611.7	434.5680	0.9554	2.4534	0.0022
80	607.8	430.6680	0.9468	2.4313	0.0022
90	603.9	426.7680	0.9382	2.4093	0.0021
100	600.1	422.9680	0.9299	2.3879	0.0021
110	596.3	419.1680	0.9215	2.3664	0.0021
120	592.5	415.3680	0.9132	2.3450	0.0024
130	588.2	411.0680	0.9037	2.3207	0.0020
140	584.6	407.4680	0.8958	2.3004	0.0022
150	580.7	403.5680	0.8872	2.2783	0.0022
160	576.8	399.6680	0.8786	2.2563	0.0021
170	573	395.8680	0.8703	2.2349	0.0021
180	569.2	392.0680	0.8619	2.2134	0.0021

190	565.4	388.2680	0.8536	2.1920	0.0021
200	561.7	384.5680	0.8454	2.1711	0.0021
210	558	380.8680	0.8373	2.1502	0.0021
220	554.3	377.1680	0.8292	2.1293	0.0021
230	550.6	373.4680	0.8210	2.1084	0.0020
240	547	369.8680	0.8131	2.0881	0.0020
250	543.4	366.2680	0.8052	2.0678	0.0020
260	539.8	362.6680	0.7973	2.0474	0.0020
270	536.3	359.1680	0.7896	2.0277	0.0020
280	532.8	355.6680	0.7819	2.0079	0.0020
290	529.3	352.1680	0.7742	1.9882	0.0020
300	525.8	348.6680	0.7665	1.9684	0.0019
310	522.4	345.2680	0.7591	1.9492	0.0019
320	519	341.8680	0.7516	1.9300	0.0019
330	515.6	338.4680	0.7441	1.9108	0.0019
340	512.3	335.1680	0.7368	1.8922	0.0019
350	509	331.8680	0.7296	1.8736	0.0019
360	505.7	328.5680	0.7223	1.8549	0.0018
370	502.5	325.3680	0.7153	1.8369	0.0019
380	499.2	322.0680	0.7080	1.8182	0.0019
390	495.9	318.7680	0.7008	1.7996	0.0018
400	492.7	315.5680	0.6938	1.7815	0.0018
410	489.5	312.3680	0.6867	1.7635	0.0018
420	486.4	309.2680	0.6799	1.7460	0.0018
430	483.3	306.1680	0.6731	1.7285	0.0017
440	480.3	303.1680	0.6665	1.7115	0.0017
450	477.3	300.1680	0.6599	1.6946	
<b>Data End</b>					

**A.63: Raw data for Skinless trial (Trial 3)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skinless				
<b>Trial</b>	3				
<b>Date</b>	24-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	704.8	506.6052	1.0000	2.5561	0.0005
10	703.8	505.6052	0.9980	2.5511	0.0011
20	701.7	503.5052	0.9939	2.5405	0.0013
30	699.1	500.9052	0.9887	2.5273	0.0016
40	695.9	497.7052	0.9824	2.5112	0.0016
50	692.8	494.6052	0.9763	2.4956	0.0019
60	689.1	490.9052	0.9690	2.4769	0.0018
70	685.6	487.4052	0.9621	2.4592	0.0019
80	681.8	483.6052	0.9546	2.4401	0.0020
90	677.9	479.7052	0.9469	2.4204	0.0018
100	674.3	476.1052	0.9398	2.4022	0.0020
110	670.3	472.1052	0.9319	2.3820	0.0020
120	666.4	468.2052	0.9242	2.3623	0.0020
130	662.4	464.2052	0.9163	2.3422	0.0021
140	658.3	460.1052	0.9082	2.3215	0.0020
150	654.4	456.2052	0.9005	2.3018	0.0018
160	650.8	452.6052	0.8934	2.2836	0.0019
170	647	448.8052	0.8859	2.2645	0.0018
180	643.5	445.3052	0.8790	2.2468	0.0018

190	639.9	441.7052	0.8719	2.2286	0.0016
200	636.8	438.6052	0.8658	2.2130	0.0018
210	633.2	435.0052	0.8587	2.1948	0.0018
220	629.6	431.4052	0.8516	2.1767	0.0018
230	626	427.8052	0.8445	2.1585	0.0018
240	622.4	424.2052	0.8373	2.1403	0.0018
250	618.9	420.7052	0.8304	2.1227	0.0018
260	615.4	417.2052	0.8235	2.1050	0.0018
270	611.9	413.7052	0.8166	2.0874	0.0018
280	608.4	410.2052	0.8097	2.0697	0.0017
290	605	406.8052	0.8030	2.0526	0.0017
300	601.6	403.4052	0.7963	2.0354	0.0017
310	598.2	400.0052	0.7896	2.0182	0.0017
320	594.8	396.6052	0.7829	2.0011	0.0017
330	591.4	393.2052	0.7762	1.9839	0.0017
340	588.1	389.9052	0.7696	1.9673	0.0017
350	584.8	386.6052	0.7631	1.9506	0.0017
360	581.5	383.3052	0.7566	1.9340	0.0017
370	578.2	380.0052	0.7501	1.9173	0.0016
380	575	376.8052	0.7438	1.9012	0.0016
390	571.8	373.6052	0.7375	1.8850	0.0016
400	568.6	370.4052	0.7312	1.8689	0.0016
410	565.4	367.2052	0.7248	1.8527	0.0016
420	562.3	364.1052	0.7187	1.8371	0.0016
430	559.1	360.9052	0.7124	1.8210	0.0016
440	556	357.8052	0.7063	1.8053	0.0016
450	552.9	354.7052	0.7002	1.7897	
<b>Data End</b>					

**A.64: Raw data for Skinless trial (Trial 4)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skinless				
<b>Trial</b>	4				
<b>Date</b>	26-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	833.5	599.4106	1.0000	2.5606	0.0009
10	831.5	597.4106	0.9967	2.5521	0.0012
20	828.7	594.6106	0.9920	2.5401	0.0014
30	825.4	591.3106	0.9865	2.5260	0.0015
40	821.8	587.7106	0.9805	2.5106	0.0017
50	817.9	583.8106	0.9740	2.4940	0.0015
60	814.4	580.3106	0.9681	2.4790	0.0016
70	810.6	576.5106	0.9618	2.4628	0.0016
80	806.8	572.7106	0.9555	2.4465	0.0017
90	802.9	568.8106	0.9489	2.4299	0.0015
100	799.4	565.3106	0.9431	2.4149	0.0015
110	795.8	561.7106	0.9371	2.3996	0.0015
120	792.4	558.3106	0.9314	2.3850	0.0014
130	789.1	555.0106	0.9259	2.3709	0.0015
140	785.7	551.6106	0.9203	2.3564	0.0015
150	782.2	548.1106	0.9144	2.3415	0.0015
160	778.7	544.6106	0.9086	2.3265	0.0013
170	775.6	541.5106	0.9034	2.3133	0.0013
180	772.5	538.4106	0.8982	2.3000	0.0014
190	769.3	535.2106	0.8929	2.2864	0.0013

200	766.2	532.1106	0.8877	2.2731	0.0014
210	762.9	528.8106	0.8822	2.2590	0.0015
220	759.3	525.2106	0.8762	2.2436	0.0013
230	756.2	522.1106	0.8710	2.2304	0.0013
240	753.1	519.0106	0.8659	2.2171	0.0013
250	750	515.9106	0.8607	2.2039	0.0013
260	746.9	512.8106	0.8555	2.1907	0.0013
270	743.8	509.7106	0.8504	2.1774	0.0013
280	740.7	506.6106	0.8452	2.1642	0.0013
290	737.7	503.6106	0.8402	2.1514	0.0013
300	734.7	500.6106	0.8352	2.1385	0.0013
310	731.7	497.6106	0.8302	2.1257	0.0012
320	728.8	494.7106	0.8253	2.1133	0.0012
330	725.9	491.8106	0.8205	2.1010	0.0012
340	723	488.9106	0.8157	2.0886	0.0012
350	720.1	486.0106	0.8108	2.0762	0.0012
360	717.3	483.2106	0.8061	2.0642	0.0012
370	714.5	480.4106	0.8015	2.0523	0.0012
380	711.7	477.6106	0.7968	2.0403	0.0012
390	708.9	474.8106	0.7921	2.0283	0.0012
400	706.2	472.1106	0.7876	2.0168	0.0012
410	703.5	469.4106	0.7831	2.0053	0.0012
420	700.8	466.7106	0.7786	1.9937	0.0011
430	698.2	464.1106	0.7743	1.9826	0.0011
440	695.6	461.5106	0.7699	1.9715	0.0011
450	693	458.9106	0.7656	1.9604	
<b>Data End</b>					

**A.65: Raw data for Skinless trial (Trial 5)**

<b>Temperature</b>	105°C	<b>Duration</b>	450 minutes		
<b>Type</b>	Skinless				
<b>Trial</b>	5				
<b>Date</b>	28-03-2025				
<b>Time</b>	<b>Mass (m)</b>	<b>Mass of water</b>	<b>Moisture Ratio</b>	<b>Moisture content</b>	<b>Drying rate</b>
<b>Minutes</b>	<b>g</b>			<b>Dry basis</b>	<b>dX/dT</b>
0	680.4	490.7184	1.0000	2.5871	0.0011
10	678.4	488.7184	0.9959	2.5765	0.0015
20	675.6	485.9184	0.9902	2.5618	0.0017
30	672.3	482.6184	0.9835	2.5444	0.0019
40	668.7	479.0184	0.9762	2.5254	0.0021
50	664.8	475.1184	0.9682	2.5048	0.0018
60	661.3	471.6184	0.9611	2.4864	0.0020
70	657.5	467.8184	0.9533	2.4663	0.0020
80	653.7	464.0184	0.9456	2.4463	0.0021
90	649.8	460.1184	0.9376	2.4257	0.0018
100	646.3	456.6184	0.9305	2.4073	0.0019
110	642.7	453.0184	0.9232	2.3883	0.0018
120	639.3	449.6184	0.9162	2.3704	0.0017
130	636	446.3184	0.9095	2.3530	0.0018
140	632.6	442.9184	0.9026	2.3351	0.0018
150	629.1	439.4184	0.8955	2.3166	0.0018
160	625.6	435.9184	0.8883	2.2982	0.0016
170	622.5	432.8184	0.8820	2.2818	0.0016
180	619.4	429.7184	0.8757	2.2655	0.0017
190	616.2	426.5184	0.8692	2.2486	0.0016

200	613.1	423.4184	0.8629	2.2323	0.0017
210	609.8	420.1184	0.8561	2.2149	0.0019
220	606.2	416.5184	0.8488	2.1959	0.0016
230	603.1	413.4184	0.8425	2.1795	0.0016
240	600	410.3184	0.8362	2.1632	0.0016
250	596.9	407.2184	0.8298	2.1469	0.0016
260	593.8	404.1184	0.8235	2.1305	0.0016
270	590.7	401.0184	0.8172	2.1142	0.0016
280	587.6	397.9184	0.8109	2.0978	0.0016
290	584.6	394.9184	0.8048	2.0820	0.0016
300	581.6	391.9184	0.7987	2.0662	0.0016
310	578.6	388.9184	0.7925	2.0504	0.0015
320	575.7	386.0184	0.7866	2.0351	0.0015
330	572.8	383.1184	0.7807	2.0198	0.0015
340	569.9	380.2184	0.7748	2.0045	0.0015
350	567	377.3184	0.7689	1.9892	0.0015
360	564.2	374.5184	0.7632	1.9745	0.0015
370	561.4	371.7184	0.7575	1.9597	0.0015
380	558.6	368.9184	0.7518	1.9449	0.0015
390	555.8	366.1184	0.7461	1.9302	0.0014
400	553.1	363.4184	0.7406	1.9159	0.0014
410	550.4	360.7184	0.7351	1.9017	0.0014
420	547.7	358.0184	0.7296	1.8875	0.0014
430	545.1	355.4184	0.7243	1.8738	0.0014
440	542.5	352.8184	0.7190	1.8601	0.0014
450	539.9	350.2184	0.7137	1.8463	
<b>Data End</b>					