

INTRODUCTION OF DRYING AND PACKAGING TECHNOLOGY IN BALINGKA VILLAGE, AGAM DISTRICT, WEST SUMATRA PROVINCE

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ABSTRACT

Background: the activity was carried out with the aim of introducing and training the people of NagariBalingka regarding the role of drying and packaging technology for local food in the Nagari to become products that have more value and can support the economy of the people there. **Methods:** Drying and packaging techniques were introduced through verbal explanations while being practiced directly by the agricultural technology faculty team, Andalas University. **Conclusion:** the information presented can be an alternative/solution for local food processing in Balingka Village into more valuable products such as chili powder and carrot chips. This can be a new breakthrough for community groups there to further explore processed products with drying techniques as innovative and superior products from their village.

Keywords :drying, packaging, technology, introducing

INTRODUCTION

Balingka is a village that produces a lot of agricultural products such as tomatoes, chilies, carrots, strawberries, and others. Usually the farmers here sell their crops directly to the market directly. However, when the selling price is low, the farmers will experience losses so they choose to accumulate their crops rather than selling at a low price. Therefore, an alternative is needed to overcome this problem, one of which is processing the harvest (drying) until it is packaged, so that it is feasible to be marketed with a higher selling price.

Food drying is an ancient method of preserving food. Drying is a natural process that removes moisture, including water and oil, from food. The water content of food is usually very high where various bacteria, yeasts and fungi can grow and the food will spoil (Bowornprasittikun et al., 2019). Processed products that have been dried can be directly packaged or continued to the next stage. Packaging can inhibit the growth of aerobic bacteria (Nofreeana et al., 2017), which can extend the shelf life of a product.

METHODOLOGY

This activity was held in August 2021 and February 2022 in NagariBalingka, Agam Regency, West Sumatra Province. This community service begun with a discussion between the head of the balingka village

nd the Andalas University team. Furthermore, the activity continued with the introduction of drying technology to packaging which was carried out orally and in direct practice using a food dehydrator and a vacuum selaer by a team from the faculty of agricultural technology, Andalas University and the Balingka village community group. In addition, a group discussion forum was also held with experts regarding the application of drying technology in processing agricultural products, especially those related to local food in the Balingka village.

RESULTS AND DISCUSSION

Community service activities started from conversations and discussions between the head of the Balingka village and the Andalas university team which was also attended by several community groups there as shown in Figure 1.



Fig 1. Forum Group Discussion Between The Andalas University Team and The Balingka Village Community.

The Andalas University team explained orally to the Balingka village community group about the application of drying and packaging technology to local food there. The drying technique introduced is drying using a food dehydrator. The use of a food dehydrator can help the community to dry various local commodities such as fruits, vegetables and meat which functions as preservation and extends shelf life (Adonis and Khan, 2004). This drying technique is very important to be applied in the Balingka village because the average community is a farmer. This is very helpful for community groups/farmers there when food prices fall / fall, resulting in losses. Of course, with community service regarding the introduction of drying technology, it is hoped that this village community group will be able to process their harvests into products that have a higher value than raw produce.

In this community service activity, an introduction to packaging techniques was also carried out as a continuation of the drying process as shown in Figure 2.



Fig 2. Introduction of packaging techniques using a vacuum sealer

Packaging is the most important stage in the processing of a product. Packaging is essential to surround, enhance and protect food from processing and manufacture, through handling and storage, to the final consumer and final disposal site (Robertson, 2006 ;Siracusa, 2016). Almost all products, both food and non-food have packaging. Currently around 70% of packaging is used for food and beverages, but other sectors such as health care, beauty products, chemicals, clothing, electrical and electronic equipment, all require packaging to ensure packaging remains in acceptable condition from producer to consumer (Emblem , 2012).

The packaging techniques introduced in this activity are ordinary packaging and vacuum packaging. Packaging usually uses a hand sealer and vacuum packaging uses a vacuum sealer. Ordinary packaging using a hand sealer is the most widely used packaging technique because it is more applicable and inexpensive. However, vacuum packaging has many advantages over ordinary packaging. Vacuum packaging can inhibit the growth of some organisms such as aerobic bacteria and others (Nofreeana et al., 2017). The introduction of packaging techniques began with verbal explanations and direct practice by the Andalas university team which was then also practiced by theBalingka Village community group.

In this activity, carrots and chilies were dried, where the chili was processed into chili powder. Vacuum packaging can extend the shelf life of a product. According to research conducted by Othman et al. (2021), vacuum packaging can increase the shelf life of agricultural products such as fresh bananas up to 28 days. Furthermore, carrots and chili powder are vacuum packed using a vacuum sealer as shown in Figure 3.



Fig 3. Vacuum packaged drying products

CONCLUSION

The introduction of drying and packaging techniques is needed by the nagaribalingka community group to overcome the problem when the selling price of the harvest drops, so that they can process their own harvest into products that have more selling value, and can even be used as superior products for nagaribalingka, agamdistrict , West Sumatra Province.

REFERENCES

- Adonis, M. and MTE Khan. 2004. Combined convective and infrared drying model for food applications. IEEE Africa . 7thAfricon Conference in Africa (IEEE Cat. No.04CH37590), vol. 2 pp. 1049-1052.
- Bowornprasittikun , M., Thongchai , T., Supapong , N., Anawach , S., and Sumate , N. 2019. Introduction to food dehydrator with temperature control.The 2019 international electrical engineering congress (iEECON2019).
- Emblem, A. 2012.Packaging and society.*Packaging Technologies* , 3–9. doi:10.1533/9780857095701.1.3
- Nofreeana, A., Aloysius, M., danIka, M.D. 2017. Pengaruhpengemasanvakumterhadapperubahanmikrobiologi, aktifitas air dan pH padaikanpariasap. *JurnalTeknologiPangan*Vol 8 (1): 66-73.
- Othman, S. H., Abdullah, N. A., Nordin, N., Abdul Karim Shah, N. N., Mohd Nor, M. Z., and MdYunos, K. F. 2021. Shelf life extension of Saba banana: Effect of preparation, vacuum packaging, and storage temperature. *Food Packaging and Shelf Life*, 28, 100667. doi:10.1016/j.fpsl.2021.100667
- Robertson, G.L. 2006.Food packaging principles and practice, second ed. CRC Press Taylor & Francis Group, Boca Rattan, FL (Chapter 1, pp. 1-7(a); Chapter 6(b)).
- Siracusa , V. 2016. Packaging Materials in the Food Industry.*Antimicrobial Food Packaging* , 95–106. doi:10.1016/b978-0-12-800723-5.00007-3