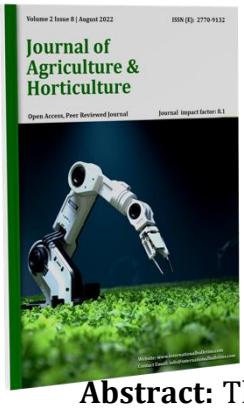

TECHNOLOGIES OF MELON DRYING

Iskandarov Zafar Samandarovich
Tashkent State Agrarian University, Professor
Shokirkhujayeva Umida Zakir kizi
Tashkent State Agrarian University, Independent Researcher
shokirxo'jayevaumida@gmail.ru
https://doi.org/10.5281/zenodo.15209000

Abstract: This article explores different technologies of melon drying, focusing on their efficiency, impact on nutritional value, and industrial applications. Various methods, including sun drying, convective drying, freeze-drying, and pneumo drying, are analyzed in terms of drying kinetics, energy consumption, and product quality. Experimental data highlight the advantages and disadvantages of each method, providing insights into the most suitable drying techniques for different conditions.

Keywords: Melon drying, drying technologies, food preservation, dehydration methods, drying efficiency

1. **Introduction.** Melon is a perishable fruit with high moisture content, making it susceptible to spoilage. Drying is a widely used method to extend shelf life while preserving essential nutrients. Several drying technologies have been developed, each offering unique benefits in terms of efficiency and quality retention. This paper discusses various drying techniques and evaluates their effectiveness in melon dehydration.

2. Types of Melon Drying Technologies

2.1 Sun Drying

Sun drying is a traditional method that relies on solar energy. It is cost-effective but highly dependent on weather conditions and has limitations in maintaining consistent quality.

2.2 Convective Drying

This method uses heated air to remove moisture from melon slices. It provides better control over drying parameters but may lead to nutrient loss due to high temperatures.

2.3 Freeze-Drying

Freeze-drying involves freezing the melon followed by sublimation of ice under vacuum conditions. This technique preserves the highest nutritional value and sensory properties but is expensive and energy-intensive.

2.4 Pneumo Drying

Pneumo drying utilizes high-speed airflows to dehydrate melon rapidly while maintaining its quality. It offers uniform drying and better retention of vitamins compared to conventional methods.

3. Results and Discussion. Experimental findings indicate that freeze-drying retains the most nutrients but is costly, while pneumo drying provides a balance between efficiency and quality retention. Sun drying remains a viable option for small-scale applications despite its limitations. Convective drying is suitable for industrial purposes due to its scalability.

4. Conclusion. Each melon drying technology has its advantages and drawbacks. The choice of method depends on cost, energy efficiency, and quality requirements. Future research should focus on optimizing these technologies for better sustainability and economic feasibility.

References:

1.“Issiqlik texnikasi” darslik, Z.S.Iskandarov Toshkent 2024.
2.“Qishloq xo’jaligi mahsulotlarini quritish texnalogiyasi” o’quv qo’llanma, Z.S. Iskandarov Toshkent 2024.
3.“Повышение эффективности солнечно-топливных сушильных установок для сельскохозяйственных продуктов” З.С. Искандаров Ташкент 2024.
4.“Новые инновационные технологии безотходной переработки дынь а условиях республики Узбекистан” З.С. Искандаров Ташкент 2024.
5.https://scholar.google.com/citations?hl=ru&user=JWs2pQkAAAAJ
6.https://www.scopus.com/authid/detail.uri?authorId=6507617340