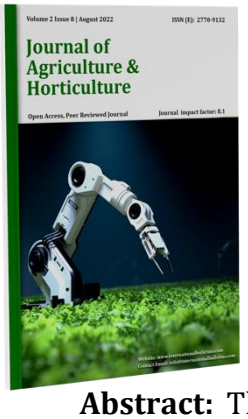

FIG DRYING TECHNOLOGY

Xursandov Akmal Ismatullo o'g'li
Yangiboyev Jamshid Do'stmamat o'g'li
Tashkent State Agrarian University
https://doi.org/10.5281/zenodo.15209041

Abstract: This article examines the efficiency of fig drying technologies. Natural and artificial drying methods are compared, and their effects on product quality are analyzed. Based on research results, optimal conditions for high-quality fig drying are recommended.

Keywords: Fig, drying technology, moisture, product quality, shelf life.

Introduction. Figs are among the most nutritionally valuable fruits, and various storage and processing methods are used to extend their shelf life. Drying technology allows the fruit to be preserved for a long time while maintaining its natural properties. This study aims to identify the most effective fig drying methods.

Materials and Methods. The following methods were used in the study:

- Natural drying – sun and shade drying methods were tested.
- Sun drying – the method of spreading figs directly under sunlight.
- Shade drying – drying the product in a ventilated place, protected from direct sunlight.

Drying Conditions

- Temperature: 25–35°C
- Humidity: 40–60%
- Drying duration: 7–15 days
- Environmental conditions: good ventilation is required.

Factors Affecting Product Quality

- Sunlight exposure may change the color of figs.
- Dust and microorganisms in the air affect product quality.
- During drying, the moisture content should be reduced to 18–22%.

Advantages and Disadvantages

- Advantages: no energy consumption, environmentally friendly, natural product preservation.
- Disadvantages: time-consuming, dependent on weather conditions, exposed to environmental influences.

Natural drying is one of the oldest and most effective methods of preserving figs, allowing the natural composition of the product to be maintained. However, hygienic requirements must be considered, and optimal conditions must be ensured.

- Artificial drying – convective (heat-based) and infrared drying methods were analyzed.
- Moisture content and product quality – dried figs were evaluated based on moisture content, taste, color, and texture.

Quality Criteria for Dried Figs

- Moisture content: The optimal moisture content of dried figs should be between 18–22%.

• Taste: The natural sweetness of the fig should be preserved, and sour or bitter flavors should not develop.

• Color: Depending on drying conditions, the color should range from light brown to dark brown; blackening and spots indicate poor quality.

• Texture: Dried figs should be elastic and slightly soft; excessively hardened products are considered substandard.

Results and Discussion. The study results indicate that:

• Sun drying preserves the natural properties of figs well but takes a long time (7–10 days) and is exposed to environmental factors.

• Infrared drying reduces moisture content faster and preserves quality better but has high energy consumption.

• Convective drying (at 60–70°C) provided the most optimal results: moisture content decreased to 15–18%, and taste and texture were well maintained.

Conclusion and recommendations. Convective drying is recommended as the most efficient method since it preserves the organoleptic properties of figs while ensuring quick and effective results. While sun drying is environmentally friendly in home conditions, it requires time and depends on external factors. Future research could focus on the nutritional composition of the product and the automation of technological processes.

References:

1.“Qishloq xo’jaligi mahsulotlarini quritish texnalogiyasi” o’quv qo’llanma, Z.S. Iskandarov Toshkent 2024.

2.“Повышение эффективности солнечно-топливных сушильных установок для сельскохозяйственных продуктов” З.С. Искандаров Ташкент 2024.

3.“Новые инновационные технологии безотходной переработки дынь а условиях республики Узбекистан” З.С. Искандаров Ташкент 2024.