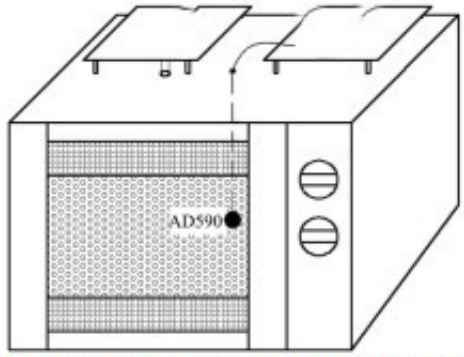
Effect of Different Drying Methods on the Quality of Jujube

Abstract: The effect of dry method on its quality was studied by using jujube as test material and natural air drying, hot air drying, vacuum low temperature drying and microwave drying equipment.

The results show that natural air drying takes a long time, large granular cells and hard products; the optimum temperature for hot air drying is 70 °C, the color is bright, the taste is hard, the cells are more, the total sugar content is higher; the vacuum low temperature drying vacuum is 0. .08 MPa, the best drying temperature is 50 °C, the product is crisp, with a porous network structure, good color, short drying time, less total flavonoid loss;

Vacuum microwave drying at a vacuum of 0.07 MPa, a temperature of 50 °C, and a microwave power of 3 kW, the product has good crispness, high crude fiber content, and a good honeycomb structure inside the structure. The product has a blackening phenomenon and the drying time is the shortest.



Schematic diagram of microwave drying temperature control system

Key words: red jujube microwave drying; drying method; quality

experiment material

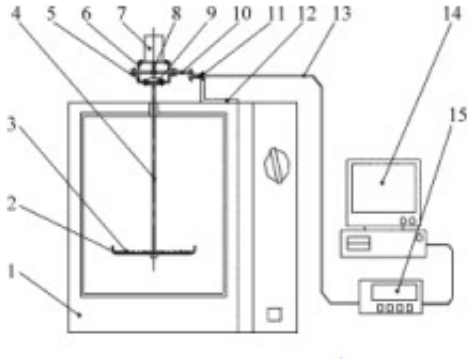
The jujube jujube red jujube was provided by the Fruit Research Institute of Shanxi Academy of Agricultural Sciences (National Jujube Germplasm Resources).

For the test agent: anhydrous ethanol (Beijing Chemical Plant), sodium nitrite (Beijing Chemical Plant), aluminum nitrate (Tianjin Yaohua Chemical Reagent Co., Ltd.), sodium hydroxide (Tianjin Fuyu Fine Chemical Co., Ltd.), Rutin standard
(Shanghai Yiji Biotechnology Co., Ltd.), Potassium Hydroxide (Tianjin Yaohua Chemical Reagent Co., Ltd.).

Test equipment: vacuum drying oven (Shanghai Experimental Instrument General Factory); vacuum microwave drying oven (Gansu Tianshui Huayuan Microwave Drying Co., Ltd.); D25LT color color difference meter (Hunterlab, USA); K3200B ultrasonic cleaner (Kunshan Ultrasonic Instrument Co., Ltd.); 721 UV-visible spectrophotometer (Shanghai Youke Instrument and Meter Co., Ltd.); Japan JSM-35 scanning electron microscope (Hitachi).

Jujube is a deciduous tree with strong nutrient and health functions. It can be eaten and used as

medicine. The primary processing of jujube is mainly dry, and the commonly used drying methods include natural drying and hot air drying. The experiment studies the effects of natural air drying, hot air drying, vacuum low temperature drying and vacuum microwave drying on the quality of jujube. Dry jujube provides a theoretical basis to improve the quality of jujube.



Natural air drying takes a long time, and there are many large granular cells. The product is hard and has no crispy feeling. The direct taste is poor. The optimum temperature for hot air drying is 70 °C, and the color is bright, but the product tastes hard, the cells are more solid, and the color is deep. The total sugar content is higher; the vacuum low temperature drying vacuum is 0.08 MPa, and the optimal drying temperature is 50 °C. The product is crispy and has a porous network structure, the total flavonoid content loss is small, and the drying time is short;

Vacuum microwave drying to determine the vacuum degree of 0.07MPa, temperature 50 °C, microwave power 3kW, product crispness, high crude fiber content, a good honeycomb structure inside the tissue, but the product has a black phenomenon, the color is not Ok, the drying time is the shortest. In actual production, it is possible to select a suitable drying method for drying according to the needs of the finished product.