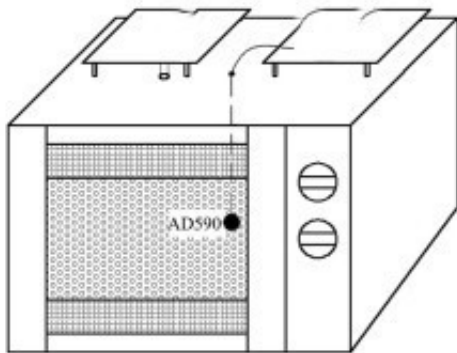


# Effect of Different Drying Methods on Quality of Pickled Vegetables

Abstract: the effects of freeze drying, spray drying, vacuum drying, [microwave drying equipment](#), hot air drying and extrusion on the physical, nutritional and antioxidant properties of pickled cabbage powder were studied.



Schematic diagram of microwave drying temperature control system

The results showed that the content of lactic acid and free amino acid in freeze-dried kimchi powder was the highest, 48.39% and 45.45% higher than that in hot air drying. The soluble dietary fiber content of kimchi powder extruded was the highest, 64.21 higher than that of hot air drying. Spray dried pickle powder has the best brewing performance, which is 32.39% higher than that of hot air dried pickle powder. Rapid drying and vacuum freeze-drying of kimchi powder have better fluidity, and its angle of repose is 25.51% smaller than that of hot air drying. 23.14%.

The volume density of vacuum freeze drying is the smallest, 31.17% lower than that of hot air drying. The bulk density of freeze-dried powder was the lowest, 42.31% lower than that of hot air drying. Freeze-drying has the highest hydration ability, and the oil absorption ability of squeezed pickle powder is the highest. It was 61.61% and 77.14% higher than that of hot air drying, and the effect of freeze drying on hydroxyl radical scavenging rate or lipid peroxidation inhibition rate was the smallest.

Key words: [pickle microwave drying](#); drying method; quality; antioxidant activity



Sauerkraut, known as oysters, is a vegetable product fermented from cabbage (or green vegetables). It has a long history of use in China. It not only retains the original vegetable

nutrients, but also rich in vitamin C and amino acids. Organic acid, dietary fiber and lactic acid produced by fermentation also endow pickles with unique flavor and maintain the normal physiological function of gastrointestinal tract.

In recent years, dry grinding has become a trend of fruit and vegetable processing and storage, and has a broad application prospect. First of all, pulverizing can not only increase the added value of products, but also reduce transportation costs. In addition, the size and shape of raw materials are not strictly required by kimchi powder, which will not pollute the environment and make full use of the food in raw materials. Fiber and nutrients are a feasible comprehensive utilization technology to make full use of raw materials.

In this experiment, several different drying methods were used to dry pickles. The physical properties, nutritional components and antioxidant properties of pickle powder prepared by different drying methods were compared and analyzed, which could provide reference for the processing of pickle powder.

The results showed that different drying methods had effects on the nutritional, physical and antioxidant abilities of pickles. Nutritional characteristics of kimchi: The content of soluble dietary fiber was the highest in kimchi powder, and the content of free amino acid and lactic acid was the highest in freeze-drying treatment. The physical characteristics of pickled vegetables: pickled vegetable pickle powder fast drying, spray drying and vacuum freeze-drying of pickled powder has good fluidity, vacuum freeze drying minimum bulk density, minimum bulk density, the highest water and capacity, and the highest oil absorption ability. Antioxidant properties of pickles: Freeze-drying had the least effect on alkali clearance rate and lipid peroxidation inhibition rate.

Generally speaking, in several drying methods, freeze drying, spray drying and extrusion can maintain the nutritional, physical and antioxidant properties of Brassica oleracea. Microwave vacuum drying can quickly dry materials under suitable temperature conditions, so as to better maintain the nutrient composition of materials. Kimchi powder has good physical and antioxidant properties, and is an ideal and ideal kimchi powder. Practical and popular drying methods.