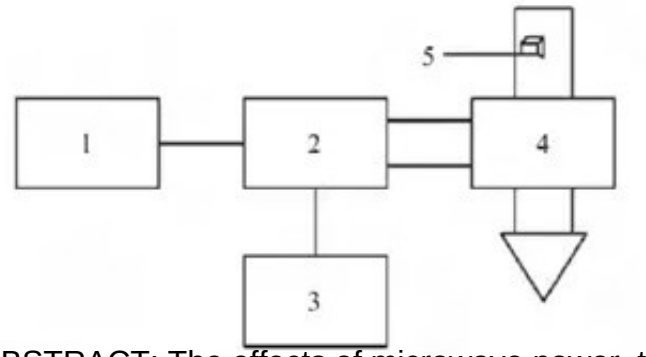
Study on Microwave Drying Technology of Porphyra



ABSTRACT: The effects of microwave power, thickness of porphyra, treatment time and initial moisture content of Porphyra after pretreatment on the extruded and dried Porphyra were studied and compared. The results showed that under the microwave conditions of 12 min microwave time, 5 mm stacking thickness and 300 W microwave power, the sensory score of laver was 93.2 points and the moisture content was 5.0%. Therefore, microwave drying equipment is very suitable for the production of laver.

Key words: microwave drying of laver; drying technology

Porphyra is the thallus of Brassica campestris and Porphyra cabbage. It can be made into traditional Chinese medicine. It has the functions of eliminating phlegm, softening phlegm, clearing heat and diuresis, tonifying kidney and nourishing heart. The general protein content of edible laver is 24%-28%, which is much higher than that of ordinary vegetables, and the essential amino acid content of human body is much higher. Porphyra protein consists of many neutral and acidic amino acids, such as alanine, aspartic acid, glutamic acid, glycine, proline and so on, which are not the characteristics of all terrestrial vegetable plants.

Pharmacological studies have shown that it can enhance cellular and humoral immune functions, slow heart rate, enhance myocardial contractility, anticoagulation, hypolipidemia, anti-cancer, anti-aging, anti-radiation, anti-leukocyte reduction, hypoglycemia, anti-liver injury and so on. Porphyra is an important cultured red algae along the coast of China. It is not only delicious but also nutritious. There are many kinds of algae in China, and there is a great prospect to develop valuable polysaccharides from them.

In order to maximize the nutritional value of laver, improve the drying efficiency of laver and avoid waste of resources, it is particularly important to study the drying methods of laver. At

present, the drying methods of laver include hot air drying, microwave drying and vacuum freeze-drying.

However, there are few reports on microwave drying technology for porphyra, so microwave drying technology was used to study the drying parameters of porphyra, and the effects of stacking thickness, microwave power and microwave time on water content of Porphyra were analyzed.

Through experimental observation and data analysis, the optimum combination of microwave drying process parameters for laver was determined, which provided a favorable scientific basis for the application of microwave drying technology in the field of agricultural products drying. Using wet laver as raw material, orthogonal test was used to obtain the extraction conditions for guaranteeing the quality of the product, which provided valuable reference for improving the processing technology of laver.