

# Vacuum microwave drying characteristics and kinetic model of *Pleurotus abalone*

**Abstract:** In order to understand the change of moisture content in Abalone Mushroom in vacuum [microwave drying equipment](#), vacuum microwave drying experiments were carried out, and the effects of different vacuum (- 50, - 70, - 85 kPa), microwave power (250, 750, 1250 W) and loading amount (50, 100 and 150 g) on the vacuum microwave drying characteristics of abalone mushroom were obtained. The results showed that the vacuum microwave drying process of abalone mushroom conformed to Page equation (P This study provides a theoretical basis for the optimization and control of *Pleurotus abalone* in vacuum microwave drying process.

**Keywords:** *Pleurotus abalone*; vacuum microwave; drying characteristics; kinetic model.

*Pleurotus* is not only of high nutritional value and high pharmacological value, but also has broad prospects for deep processing. However, abalone mushroom has high moisture content, browning occurs on the surface of the mushroom after several days of storage at room temperature, autolysis of the fungus cover film occurs, and white flocculent mold grows and begins to rot, eventually losing edible value. This post-harvest ripening restricts the transportation and fresh sale of abalone mushroom. Therefore, we need to dry the *Pleurotus* mushroom to prolong its storage life. At present, the traditional drying methods of mushrooms are hot air drying and sun drying, but the drying time is long, resulting in dark color and nutritional loss of mushrooms. After rehydration, the mushroom body can not maintain the color and shape of the original mushroom body, affecting the edible sense organs. Therefore, the application of modern high-tech food drying technology to the dry production of *Pleurotus eryngii* is of great significance to improve the level of dry processing of *Pleurotus eryngii* and promote the production of *Pleurotus eryngii*.

[Microwave drying technology of \*Pleurotus\* eryngii](#) is a combination of vacuum drying and microwave drying technology, which has the advantages of high speed and efficiency. The change of material moisture content is significant for drying process and directly affects product quality. Limited to the modern drying technology, it is still a difficult problem to realize the on-line detection of moisture content in the drying process. Therefore, the study of moisture variation during the drying process will provide more theoretical basis for actual production.

At present, the vacuum microwave drying characteristics and dynamic models of strawberry slices, beet root, litchi, mushroom and potato chips have been studied. Under the condition of different vacuum, microwave power and loading capacity, the change law of water content with drying time and water loss rate with water content of *Pleurotus eryngii* was studied. The dynamic model of vacuum microwave drying of *Pleurotus eryngii* was established according to the data of drying characteristics, and the water content in the drying process of *Pleurotus eryngii* was detected online. The difficult problem is expected to provide a theoretical basis for the research and production control of vacuum microwave drying technology of *Pleurotus eryngii*.