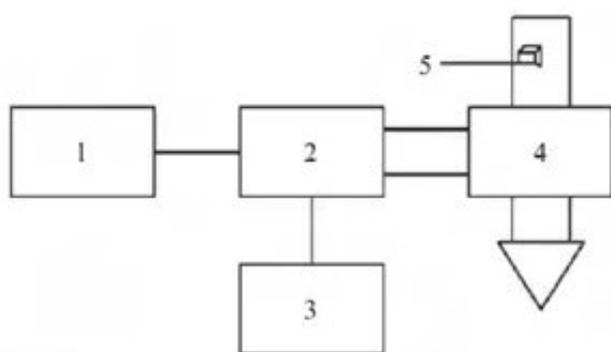


Effect of Drying Method on Volatile Flavor Components of *Agaricus blazei* Murrill

ABSTRACT: The volatile flavor components of fresh *Agaricus blazei* Murrill, hot air constant temperature drying, [microwave drying equipment](#) and vacuum freeze drying were detected and analyzed by headspace solid phase microextraction (HS-SPME) combined with gas chromatography-mass spectrometry (GC-MS).

The results showed that 20, 50, 43 and 22 volatile flavor components were detected in fresh *Agaricus blazei* Murrill, hot air constant temperature drying, microwave drying and vacuum freeze drying, respectively.



Alcohol, aldehyde, ketone, phenol and ether were newly formed by hot air constant temperature drying, which had certain effect on the improvement and flavor enhancement of *Agaricus blazei* Murrill. More aldehydes were produced by microwave drying, which made the dried *Agaricus blazei* Murrill have special cinnamon aroma and bitter almond-like aroma. Vacuum freeze-drying treatment of *Agaricus blazei* Murrill and fresh *Agaricus* Murrill had close overall flavor components, indicating that vacuum drying could improve the flavor of *Agaricus blazei* Murrill. Freeze-drying method can keep the original flavor of *Agaricus blazei* Murrill better.

Key words: [Agaricus blazei Murrill microwave drying](#); drying method; flavor components; gas chromatography-mass spectrometry



Agaricus blazei Murrill, also known as Brazilian mushroom and small mushroom, is a medicinal and edible fungus originating in the United States and Brazil, which is called "God's mushroom" locally. *Agaricus blazei* Murrill has a strong almond aroma, rich in polysaccharides, proteins, vitamins and trace elements, and has many health functions that other food resources can not

replace.

Fresh *Agaricus blazei* Murrill is liable to rot and deteriorate because of its strong respiration and high moisture content, so it must be preserved. Dry *Agaricus blazei* Murrill products are easy to store and transport, and have a long shelf life. Relevant studies have shown that drying method is an important factor affecting the quality of dried food, especially the flavor of the products. The types and contents of volatile flavor components are important indicators affecting the quality of dried food.

In recent years, the extraction of Polysaccharides from *Agaricus blazei* Murrill, liquid fermentation, functional components and medicinal mechanism have been mainly studied at home and abroad, and the influence of volatile flavor components and comprehensive quality of *Agaricus blazei* Murrill has been less studied. During the drying process of *Agaricus blazei* Murrill, due to the evaporation of water and the interaction between molecules, volatile flavor components are prone to change or lose, and new substances are also produced.

The flavor components of fresh *Agaricus blazei* Murrill and its dried products were analyzed, which not only provided theoretical basis for the selection of drying technology of *Agaricus blazei* Murrill, but also provided reference for the determination of drying methods of other edible fungi.

In this study, headspace solid-phase microextraction (HSSPME) combined with gas chromatography-mass spectrometry (GC-MS) was used to qualitatively analyze volatile flavor components in hot air constant temperature drying, microwave drying, vacuum freeze-drying and fresh *Agaricus blazei* Murrill. The effects of three drying methods on volatile flavor components of *Agaricus blazei* Murrill were compared in order to provide theoretical basis for the selection of drying methods of *Agaricus blazei* Murrill and other edible fungi.