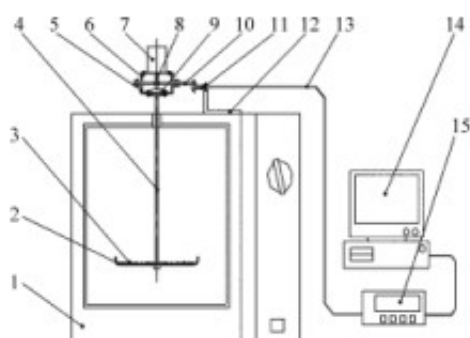
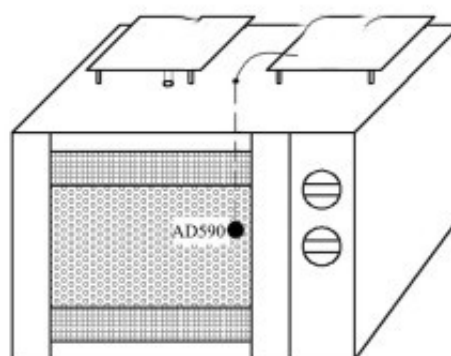


Effect of microwave drying on the content of sulforaphane in different parts of broccoli



ABSTRACT: Broccoli was used as raw material to determine sulfur content of radish in three different parts of broccoli flower, stem and leaf by high performance liquid chromatography (HPLC). Radish in the samples dehydrated by [microwave drying equipment](#) (wave power 900W, time 10min) and electric blast drying equipment (1000 drying temperature is 90 C, time is 2h) were compared and analyzed. The effects of microwave drying on the content of sulforaphane in broccoli were studied.

The results showed that the content of sulfur radish in different parts of broccoli dried by microwave was (152.50 ± 0.27), (82.75 ± 1.28) and (23.72 ± 0.18 mg/kg, respectively. The content of sulfur radish in broccoli stems was about twice and seven times of that in broccoli leaves dried by electrothermal blast, and the content of sulfur radish in different parts of broccoli was the same. It is the highest in stems, 56.32 ± 1.37mg/kg, and (85.04 ± 1.13) mg/kg and (53.26 ± 0.78)



Schematic diagram of microwave drying temperature control system

mg/kg respectively in flowers and leaves.

Microwave drying and electric blast drying, broccoli leaf sulfur content surging greater, the stem and flower is not affected much, the leaves should be used electric blast drying stems and flowers can be used either wave thousand drying, or can also be used electric blast thousand drying keywords: wave thousand drying; broccoli; different parts; sulfur content of radish, contrast points The difference of sulforaphane content in broccoli samples obtained by microwave thousand drying (wave power 900W, time 10min) and electrothermal blast thousand drying (thousand drying temperature 90, time 2h) was analyzed. The effect of microwave thousand drying on sulforaphane content in broccoli was studied.

The results showed that the content of sulfur in different parts of [broccoli dried by microwave](#) was (152.50 ± 0.27), (82.75 ± 1.28) and (23.72 ± 0.18 mg/kg, respectively. The content of sulfur in broccoli stems was about twice as much as that in flowers and leaves, and that in different parts of broccoli dried by electric blast was about 7 times as much as that in flowers and leaves. It was also the highest in stems, 56.32 ± 1.37 mg/kg, and (85.04 ± 1.13) mg/kg and (53.26 ± 0.78) mg/kg respectively in flowers and leaves. Comparing microwave drying with electric blast drying, the content of sulfur in broccoli leaves is more varying, and the effect on the stems and flowers is not great. Electric blast drying can be used to dry the stems and flowers of broccoli leaves either by wave drying or by electric blast drying.

Brassica oleracea var. *italica*, also known as cauliflower, is a cruciferous cabbage. Sulforaphane is one of the most important isosulfates which can be hydrolyzed by endogenous hydrolysis. It has a strong anti-cancer effect. It can prevent breast cancer, rectal cancer, stomach and so on. It also has antimicrobial, antioxidant and immune functions. As the strongest anti-cancer substance found in the cruciferous vegetables, sulforaphane is found in broccoli, so it is often used. Eating broccoli can prevent cancer and prevent cardiovascular, cerebrovascular and digestive diseases. In addition, sulforaphane extracted from plants has many advantages, such as time-saving, hygienic, prescription-making, energy-saving and less nutrient loss. It has been widely studied and used in food industry in recent years.

Broccoli breathes vigorously after harvest, and the phenomena of 2-3 flower wilting occur, green precursor, mildew and so on at room temperature, which make broccoli's coupon components decrease and antioxidant capacity decrease. Recently, microwave storage has not been reported. The analytical methods of sulforaphane in radish include HPLC, GC, GC, and GC. It has been proved that 5 methods have been used to destroy other orchids containing sulforaphane by overheating. The effect of different drying media on sulfur content of broccoli radish was analyzed in order to provide reference for the comprehensive utilization of broccoli rich in sulfur.