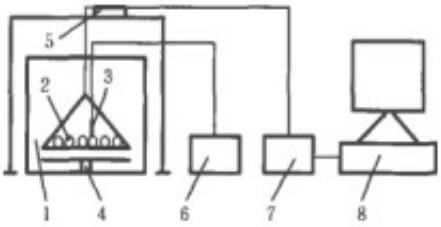
# Effect of Drying Methods on Antioxidant Activity of Flavonoids in Leaves of Minguecao

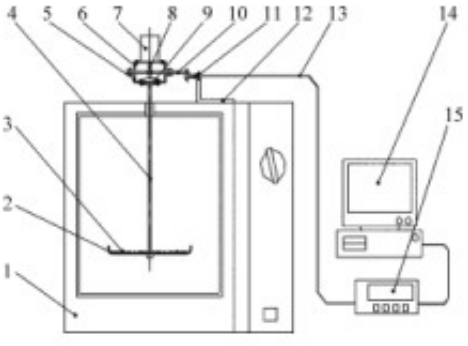
Abstract: The leaves of Minguecao were used as raw materials, and the leaves were subjected to natural drying, microwave drying equipment and vacuum freeze-drying. The extraction of flavonoids from Minguecao by solvent extraction was carried out with ethanol as extraction reagent. Compare the effects of three drying treatment methods on the antioxidant properties of the extract.




The results showed that the extraction rate of flavonoids reached 1.73% when 65% ethanol was extracted at a ratio of 1:25 at 80 °C. The flavonoids were extracted from the leaves of Minguecao with different drying methods. The compound concentration is improved, its reducing power and ability to scavenge DPPH free radicals and superoxide anions are gradually increased; the ability to scavenge DPPH free radicals at 2mg/mL, vacuum freeze-dried samples reach a maximum of 92%; concentration is 10mg/ In mL, the ability to remove superoxide anion was achieved, and the vacuum freeze-dried sample reached a maximum of 66%; at a concentration of 0.5 mg/mL, the vacuum freeze-dried sample reached a maximum of 0.970. Therefore, vacuum freeze-drying is a better way to maintain the antioxidant activity of flavonoids in leaves of Minguecao.

Key words: Minguecao microwave drying; drying treatment; flavonoids; oxidation resistance

Minguecao, also known as the golden pheasant, is a perennial evergreen plant, belonging to the genus Panax. The stems and leaves of Mingyue can be eaten. It is rich in active ingredients such as protein, amino acid, flavonoids, vitamins and trace elements. It has anti-aging, anti-thrombosis, anti-cancer, blood sugar lowering, blood pressure lowering, and enhanced immunity. The specific components of chalcone and coumarin have the most significant effects




on blood sugar lowering and blood pressure lowering.

Flavonoids and bio-flavonoids are widely found in nature and are secondary metabolites of plants. They are active constituents in many plants including bright moon grasses. They have good anti-cancer, anti-bacterial, anti-allergic, anti-diabetic, etc. Pharmacological action and the function of anti-oxidation to scavenge free radicals.

The drying treatment of the leaves of Minguecao mainly includes traditional drying methods such as natural drying, hot air drying, and modern drying techniques such as vacuum freeze drying. Drying can extend the shelf life of the blade, and can also reduce its mass and volume to reduce the cost of transportation and storage. However, the drying treatment has different effects on the flavonoids in the leaves and their antioxidant capacity.

The effects of different drying methods on the phenolic substances and antioxidant activities of sweet potato were compared. It was found that the microwave-dried sweet potato had the highest content of phenolic compounds and the strongest antioxidant activity; Qin Dandan and other studies studied natural drying, vacuum freeze-drying, oven drying, The effects of far-infrared drying and vacuum drying on total phenolic content, phenolic substances and antioxidant capacity in vitro were found. The total phenol and polyphenol content of figs were the highest and the antioxidant capacity was the strongest after vacuum drying treatment.

Zhou Ming et al. compared the effects of drying methods on the content of flavonoids, antioxidant capacity and volatile flavor components of hydrating erythrodamine. It was found that vacuum freeze-drying can maintain the original color and shape of hydrating red, and the total flavonoids and orange peel. The content of glycosides and other components is the highest, and the ability to scavenge OH radicals is the strongest. The microwave drying and hydrating red skins have the strongest ability to remove DPPH and ABTS+ free radicals, and the volatile flavor components obtained by different drying methods are also different.

In this paper, three different treatments of natural drying, hot air drying and vacuum freeze drying were carried out on the leaves of Minguecao, and the extraction process of total flavonoids in Minguecao was optimized by single factor, and the obtained flavonoid extracts were compared with three different drying methods. The effect of antioxidant activity.