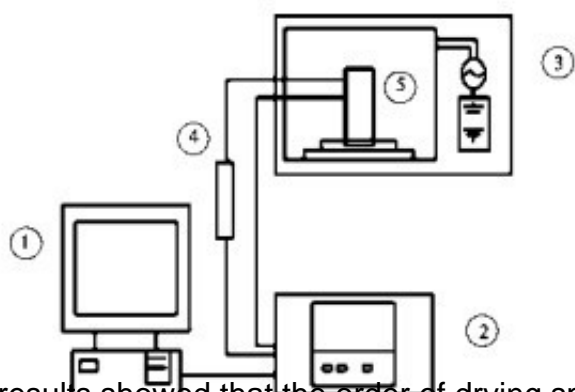


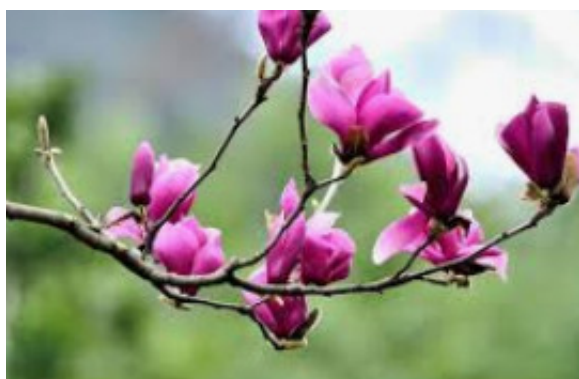
# Effects of drying methods on active ingredients and antioxidant activity of *Magnolia fragrans*

Abstract: Magnolia flower was treated by different drying methods, such as sun drying, shade drying, hot air drying and [microwave drying equipment](#), to explore its effects on flavonoids, polyphenols content and antioxidant activity of Magnolia flower.



The results showed that the order of drying speed was microwave drying > hot air drying > sun drying > shade drying. The content and antioxidant activity of flavonoids and polyphenols in the samples dried by shade drying, 900 W microwave drying and 50 C hot air drying were higher, and the degradation loss of polyphenols and flavones was the greatest and the antioxidant activity was the lowest in the sun drying. DPPH clearance rate was significantly correlated with flavonoid content ( $R^2 = 0.7300$ ) and polyphenol content ( $R^2 = 0.6675$ ), and total reducing power was significantly correlated with polyphenol content ( $R^2 = 0.8234$ ).

Key words: [microwave drying of Magnolia flower](#); drying method; flavonoids; polyphenols; antioxidant activity



Magnolia, also known as Magnolia and Magnolia, belongs to the deciduous shrub of Mulankom Lan. It is mainly distributed in Zhejiang, Anhui, Shanxi, Hunan, Hubei, Guizhou, Guangdong and other provinces. It is an important garden greening and traditional Chinese medicine and flavor material tree. It has over 2000 years of cultivation and medicinal history in China.

Literature reported that *Magnolia violacea* mainly contains terpenoids, flavonoids, lignans and many trace elements. It has many clinical applications in traditional Chinese medicine. It has anti-inflammatory, anti-allergic, anti-platelet, anti-microbial, hypotensive, local convergence and anesthesia pharmacological effects. It mainly treats wind-cold headache, nasal obstruction, rhinorrhea, turbid nose and other symptoms. Pharmacological experiments showed that the ethanol extract of magnolia flower bud had obvious vasodilation, antihypertensive effect and inhibition effect on platelet aggregation and thrombosis.

Most edible flowers harvest in a concentrated period, some of which are one-off harvest, difficult to store after harvest, usually need to be dried medicinal and processing. Traditional drying methods are natural drying and drying. In recent years, new technologies such as microwave drying, freeze drying and vacuum drying have been applied. The research on flowers mainly focused on the effects of drying methods on their color, aroma components, shape and nutritional components.

The effects of drying methods on active ingredients and antioxidant activities have recently attracted considerable attention. In this study, *Magnolia officinalis* was treated by different drying methods. The antioxidant indexes such as total reducing power, DPPH scavenging rate and hydroxyl radical scavenging rate, and the contents of flavonoids and polyphenols were determined. The effects of drying methods on the active ingredients and antioxidant activity of *Magnolia officinalis* were discussed, which provided a basis for the selection of drying methods of *Magnolia officinalis*.