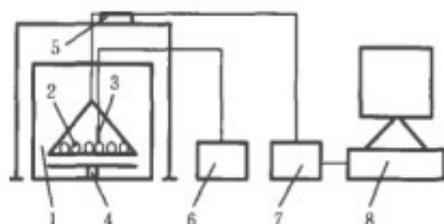


# Effects of drying methods on the extraction amount and antioxidant activity of phenols from Macadamia green peel

In this study, fresh Macadamia green peel was used as control group to study the effects of hot air drying at 60 °C, [microwave drying equipment](#) and vacuum freeze drying on total phenols and flavonoids extraction and antioxidant activity of Macadamia green peel.



The results showed that compared with the control group, different drying treatments had effects on the total phenol, total flavonoids and antioxidant activity of Macadamia green peel. Vacuum freeze-drying treatment had the least effect on them. The total phenol and total flavonoids were 935.61 and 995.75 mg/hg, respectively. The half scavenging rates of DPPH radical and ABTS radical IC<sub>50</sub> were 6.83 and 63.84 mg/L, respectively, and the total antioxidant capacity was about 6.83 and 63.84 mg/L. It was 1.74 times as much as Trolox, and there were significant differences in total phenols, total flavonoids and antioxidant activity of Macadamia green peel after different drying treatments (p

The results of correlation analysis showed that the antioxidant activity after different drying treatments was significantly correlated with the total phenol and total flavonoids (p

Key words: drying method; Macadamia green peel; phenolic substances; antioxidant; [microwave drying of nuts](#)



Macadamia nuts, native to Australia, also known as Hawaiian and Queensland nuts, belong to the genus *Macadamia* of Longan family.

Macadamia nut was introduced into China in the 1960s and has been widely planted in the mountainous areas of southern China. The annual planting area is about 6-104 hm<sup>2</sup> and the annual output is about 9,000 tons. Its fruit is mainly used for processing open Macadamia nut shell. Green peel is a by-product of its processing and its utilization rate is very low. Except for a small amount of compost, most of Macadamia nuts are randomly stacked and local water sources will be caused by corruption. And soil pollution.

Drying treatment can inhibit respiration, prevent spoilage and deterioration, and is conducive to the preservation of substances. Chen Weiqi and others studied the effects of natural shade-drying, hot air drying and vacuum freeze-drying on phenolic substances and antioxidant activity of young apple fruit. Xu Yafei and others studied the effects of different drying methods on moisture content, color difference, total phenols, total flavonoids and anthraquinones in walnut green peel. Justyna and others studied the effects of freeze-drying, microwave drying and vacuum drying on the color and phenolic substance group of pear. Study on formation and antioxidant activity.

At present, studies have shown that Macadamia green peel contains abundant phenolic substances and has strong antioxidant activity, but the effects of drying methods on the extraction of phenolic substances and antioxidant activity of Macadamia green peel have not been reported.

Therefore, in this study, fresh Macadamia green peel without drying treatment was used as the control group to study the effects of hot air drying, microwave drying and vacuum freeze drying on the extraction of total phenols and flavonoids from Macadamia green peel, and to evaluate the antioxidant activity in vitro, in order to provide theoretical basis for Macadamia green peel drying process.