

Effect and evaluation of different drying methods on six chemical constituents of *Paeonia lactiflora*

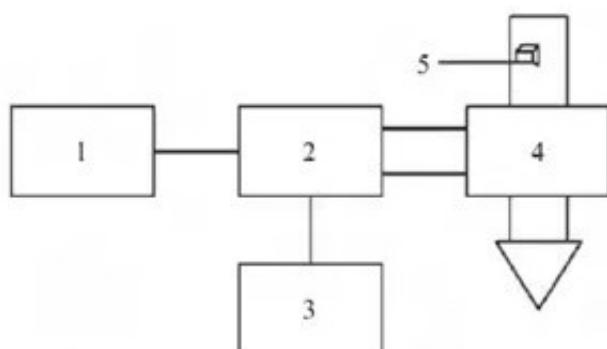


ABSTRACT: To study the effects of different drying methods on the chemical constituents of monoterpenoid glycosides and phenolic acids in *Paeonia lactiflora*, and to provide a basis for the determination of suitable drying methods for *Paeonia lactiflora*; to simultaneously determine the contents of four monoterpenoid glycosides and two phenolic acids in samples prepared by different drying methods by HPLC; to make principal component analysis by SPSS software, and to make a comprehensive evaluation by principal component score.

The results showed that the content and water content of *Paeonia lactiflora* in different drying methods could meet the requirements of Chinese Pharmacopoeia in 2015 edition. Vacuum freeze-drying was used to dry monoterpenoid glycosides and phenolic acids with the highest content of 6.248%, followed by hot air drying at 60 C with 6.141%. The contents of monoterpenoid glycosides and phenolic acids in *Paeonia lactiflora* treated by different drying methods were comprehensively evaluated by principal component analysis. The order is as follows: vacuum freeze drying > hot air 60 drying > [Microwave Drying Equipment](#) > far infrared drying > sun drying > hot air 40 > hot air 80 drying > shade drying > hot air 100 drying.

Different drying methods have certain effects on monoterpenoid glycosides and phenolic acids in *Paeonia lactiflora* L. Therefore, according to the comprehensive analysis of the content, cost and practicability of each component, hot air drying at 60 C is the suitable drying method for *Paeonia lactiflora*.

Key words: [Paeonia lactiflora microwave drying](#); drying method; high performance liquid chromatography; comprehensive evaluation of principal components



Paeonia lactiflora is the dry root of *Paeonia lactiflora*, which has the functions of nourishing

blood and regulating menstruation, astringent Yin and relieving sweat, soothing liver and relieving pain, and suppressing liver-yang. Modern pharmacological studies have shown that paeoniflorin, paeoniflorin and paeoniflorin have anti-inflammatory and analgesic effects, regulating immunity and treating rheumatoid arthritis. Phenolic acids in *Paeonia lactiflora*, such as catechins, have antioxidant activities and prevent cardiovascular diseases. Gallic acid has anti-aging, anti-inflammatory and anti-cancer activities.

Processing of medicinal materials refers to the initial treatment and drying of medicinal materials from the medicinal parts harvested to form commercial medicinal materials. Processing of medicinal materials from the origin is an important link in the production and quality formation of medicinal materials, especially the drying process. Traditional drying methods have disadvantages such as long drying time, vulnerability to weather conditions and uneven quality of medicinal materials after drying.

With the deepening of industrialization in the production of Chinese medicinal materials, modern drying technologies such as hot air drying, microwave drying and freeze-drying are applied in the processing of Chinese medicinal materials in their producing areas. They have the advantages of short drying time, controllable drying conditions and stable product quality. For example, the leaves of *Ginkgo Biloba* can be dried by hot air at 80 degrees, *Schisandra chinensis* can be dried by hot air at 50 degrees, and lilies can be dried by freeze-drying. Wait.

The author has not seen the domestic (foreign) literature reports on the modern drying methods in the drying process of *Paeonia lactiflora*. This study intends to compare the effects of traditional and modern drying methods on monoterpene glycosides and phenolic acids in *Paeonia lactiflora*, explore the drying methods in the process of *Paeonia lactiflora*, and seek a more conducive drying method to reduce the loss of active ingredients, in order to provide a basis for the future production of *Paeonia lac* The production of products and efficient utilization of active substances and follow-up research provide basis and reference.