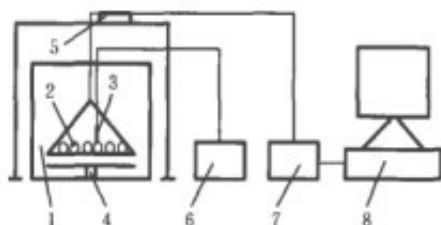


# Effect of microwave drying on the content of Codonopsis alkynoside in Codonopsis pilosula



**ABSTRACT:** **OBJECTIVE:** To investigate the effect of [microwave drying equipment](#) on the content of Codonopsis alkynoside in Codonopsis pilosula so as to provide basis for scientific evaluation and effective control of its quality. **METHODS:** HPLC, gradient elution and ultrasonic extraction were used. The chromatographic conditions were as follows: Kromasil C18 column (4.6 mm \*250 mm, 5 micron), flow rate: 1.0 mL/min, detection wavelength: 267 nm, column temperature: 25 C, mobile phase: acetonitrile-0.05% phosphoric acid gradient elution system.

**RESULTS:** The content of Codonopsis glycoside was higher in different microwave time (5 min, 5.5 min, 6 min, medium fire) and 25% honey-baked Codonopsis pilosula microwave for 5 min under the same conditions.

**CONCLUSION:** Different microwave time can affect the content of Codonopsis alkynoside in Codonopsis pilosula. The content of Codonopsis alkynoside in Codonopsis pilosula is higher when it is roasted with 25% honey and microwave for 5 minutes. Meanwhile, the determination of Codonopsis alkynoside in Codonopsis pilosula by HPLC is simple, reliable and reproducible. It can be used as an effective method for quality control of Gansu genuine medicinal material Codonopsis

**Key words:** [Codonopsis pilosula microwave drying](#); microwave method; Codonopsis pilosula alkynoside; HPLC



Codonopsis pilosula is the dried root of Codonopsis pilosula, Codonopsis pilosula or Codonopsis pilosula in Platycodon family. It is mainly produced in Shanxi, Shaanxi, Gansu, Sichuan and other provinces and northeastern regions. It is a commonly used Chinese medicine. It has the function of Tonifying the mid-qi, strengthening the spleen and lung. It is used for spleen and lung weakness, shortness of breath and palpitation, fewer stools, asthmatic

cough, internal heat and thirst.

Commodity varieties of *Codonopsis pilosula* are very large, including *Codonopsis striata*, *Codonopsis striata*, *Codonopsis phoenix*, *Codonopsis oral*, *Codonopsis Bandangshen*, *Codonopsis Ludangshen*, wild *Codonopsis pilosula*, etc. Gansu is the main producing area of *Codonopsis pilosula*, and its white-striped *Codonopsis pilosula* production accounts for 90% of the total output of the country, mainly distributed in central Gansu, including Longxi, Weiyuan, Minxian, Gangu, Zhangxian, Tongwei and other places; the output of *Codonopsis pilosula* accounts for 5% of the total output, limited to Wenxian and Wudu; in addition, Fengxian County, Chongqing Chengkou, Hubei Enshi, Shanxi and Northeast of Shaanxi account for 5% of the total output.

*Codonopsis pilosula* was originally published in "Materia Medica is New", but before the Qing Dynasty, it was used as medicine. As the resources of Shangdang Ginseng in Wujiake were decreasing day by day, it was extinct in Ming and Qing Dynasties, so the *Codonopsis pilosula* of Platycodon family produced in Taihang Mountains was utilized. To "Materia Medica from the New" to add a distinction, known as "Dangshen", "now the real party has been rare for a long time. There are many kinds of Dangshen sold in the shop, which are not suitable for use.

Only Fangfeng *Codonopsis pilosula*, the taste and sufficiency of expensive, the root of a lion head really. This is the first document to discover the main functions of *Codonopsis pilosula*. As the application history of *Codonopsis pilosula* is relatively short, its ancient processing content is relatively simple, occasionally recorded. In terms of the net system, we adopt the methods of "removing the tip" (Governing the Gold in Qing Dynasty) and "scraping and drying with bamboo knives" (Harmful Interests in Qing Dynasty). In terms of processing, there are "honey fried" (Jin Zhi) in the Qing Dynasty. Yan Xishi in the Qing Dynasty mentioned "tonifying the lung, mixing and steaming with honey" in "De Pai Materia Medica".

Processing is a pharmaceutical technology based on the theory of traditional Chinese medicine, according to the differentiation of symptoms and signs, the nature of drugs and the different requirements of modulation and preparation. It is a major feature of traditional Chinese medicine. At present, there are relatively few studies on the quality of processed products of *Codonopsis pilosula*. The method is simple, rapid, easy to operate, with good repeatability and recovery, and has good precision for the determination of active ingredients in *Codonopsis pilosula* and its processed products by HPLC.

Taking the content of *Codonopsis pilosula* alkynoside in *Codonopsis pilosula* as the detection index, the changes of *Codonopsis pilosula* alkynoside content before and after processing were compared by using HPLC-DAD method. The rationality and scientificity of Chinese medicine processing were discussed from the chemical point of view, and the optimum processing technology of *Codonopsis pilosula* was determined, which provided the basis for scientific evaluation and effective control of its quality.