

MASTER'S THESIS

熟三七滋補成分的研究

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熟三七滋補成分的研究

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論文摘要

傳統的中藥炮製學認為三七有所謂「生打熟補」的概念，但過往的研究發現三七在高溫處理下，3種主要補益成分人參皂苷 Rb₁、Rg₁ 及三七皂苷 R₁ 均見下降，與「生打熟補」的概念可謂背道而馳。最近國外有學者發現，雖然在高壓高溫 120°C 處理三七的時候，原生苷的成分會被受破壞，但多種次生苷成分會同時產生，經處理後的三七具抗癌潛力更勝人參及西洋參。

高壓高溫科學處理三七的方法，近年引起了學術界的關注；然而，傳統的油炸炮製熟三七，也是超過 100°C 的高熱處理方法，能否有異曲同工之妙，則國內外均未見報導。本專題研究將會探索不同炮製方法下，對三七所含皂苷成分的影響；近年被受關注的次生苷成分，將會是本研究的評價指標。

本研究將會利用同一批次的生三七，分別製成：蒸三七、高壓蒸製三七、九製三七、及多種油炸三七。更採用先進的液相-飛行時間質譜聯用儀，對生品及各炮製品所含的二十多種皂苷成分進行鑒別分析。

結果：

借鑒現代化人參炮製工藝而開發出來的高壓蒸三七及九製三七，是次生苷轉化最佳的炮製產品。但高壓蒸製三七需要使用特別儀器製造，飲片發展較為困難。而九製三七操作工序非常繁複，其味極苦，外觀亦欠理想。廣泛流傳的常壓蒸三七法及直接油炸法，效果均未如理想。採用雞油油炸，效果更稍遜於花生油。酒製油炸法，製作工序簡單，次生苷轉化理想。該法是最具發展潛力的熟三七飲片製作工藝。

人參皂苷原生苷口服生物利用度很低，次生苷具有更強的藥理活性和更高的肌體吸收能力。三七經酒製油炸法炮製後次生苷含量顯著增加；因此，次生苷的化學分析可視作三七「熟補」概念的理論依據。

關鍵字：三七；炮製；人參皂苷；次生苷；液相-飛行時間質譜聯用儀

Abstract

Panax notoginseng (Burk.) F. H. Chen is traditionally used for its haemostatic effects when raw and as a tonic when steamed. During high temperature processing, the amount of major ginsenosides in *Radix Notoginseng* (Rb₁, Rg₁, and Notoginsenoside R₁) were found to be reduced in the past. Latest literature shows that new secondary ginsenosides were formed during the high pressure and high temperature (120°C) processing of *Radix Notoginseng*. The processed *Radix Notoginseng* give and stronger anticancer potential than Asian and American ginseng.

This is one of the most significant studies of the high pressure and high temperature processing of *Radix Notoginseng*. Some traditional processing methods of *Radix Notoginseng* in Yunnan were also over 100°C high temperature treatment, but the secondary ginsenosides were not investigated. Our studies are therefore about the conversion of ginsenosides in *Radix Notoginseng* during different processing methods.

Our study compared the effect of different processing methods on the contents of Ginsenosides from *Radix Notoginseng* and used LC-TOF to analyze the ginsenosides of the raw and the processing products (steamed, high pressure steamed, multi-processed and fried) of *Radix Notoginseng*.

Results:

Secondary ginsenosides formed by traditional steaming and CP1977 fried processing methods were very limited. High pressure steamed and multi-processed *Radix Notoginseng* gives the best result. However, high pressure steaming method requires special equipment and the procedure of multi-processed *Radix Notoginseng* is too complicated. A special fried processing method in Yunnan gives satisfactory conversion of secondary ginsenosides. It is a potential processing method of *Radix Notoginseng*.

Keywords: Notoginseng Radix; processing method; Ginsenosides; secondary ginsenosides; LC-TOF.

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