

MASTER'S THESIS

Development of the Hong Kong Chinese materia medica Standards monograph of Lini semen

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Abstract

The development of the monograph of a commonly used Chinese medicine, Lini Semen, for the Hong Kong Chinese Materia Medica Standards (HKCMMS) was recorded. HKCMMS is a set of reliable and internationally recognized standards of Chinese medicine. The monograph of Lini Semen was proposed, endorsed, and under editorial phase for the publication of the 9th volume of HKCMMS.

In the proposed HKCMMS monograph of Lini Semen, besides regular content such as macroscopic and microscopic identification, and TLC identification, a HPLC fingerprint method and two assay methods were developed. All methods were well-established and validated.

TLC identification: Lini Semen n-hexane extract is identified on a HPTLC Silica gel RP-18 plate, with α -linolenic acid and linoleic acid as the markers. The developing system consisted of acetone, acetic acid and dichloromethane in the ratio of 5:4:2. The spraying reagent was 5% sulphuric acid – ethanol solution and the plate was observed under 366 nm.

HPLC fingerprint: Fingerprint of Lini Semen was conducted on a HPLC system with a C8 column. Mobile phase consisted of (A) water and (B) acetonitrile and isopropanol (9:1). Six characteristic peaks, including α -linolenic acid and linoleic acid were detected under 210 nm.

Assay: α -Linolenic acid and linoleic acid were detected from Lini Semen n-hexane extract under the same HPLC condition of the fingerprint of Lini Semen. The proposed total content of α -linolenic acid and linoleic acid was not less than 0.56%. Secoisolariciresinol diglucoside (SDG) was detected from hydrolysed Lini Semen extract by HPLC system with a C18 column. Mobile phase consisted of (A) water and (B) acetonitrile. The detection wavelength was 280 nm. The proposed content of SDG was not less than 0.81%.

Conclusion: It is the first time to propose a HPLC fingerprint and introduce SDG as a assay marker of Lini Semen in a regional standard monograph. The established methods for TLC identification, HPLC fingerprint, assay of the total content of α -linolenic acid and linoleic acid, as well as assay for SDG were validated with in-house and inter-laboratory comparison to prove that the methods are reliable.

摘要

此論文記載了常用中藥亞麻子之香港中藥材標準的建立過程。香港中藥材標準（港標）是一套可靠並受國際認可的中藥材標準。論文所提出的亞麻子參考標準已被接納，現正處於編輯階段，將出版在港標第九冊。除了一般的性狀鑒別、顯微鑒別和薄層色譜鑒別外，本參考標準亦建立了一個高效液相色譜指紋圖譜鑒別方法和兩個含量測定方法。所有新建立之方法均經過驗證。

薄層色譜鑒別：以 α - 亞麻酸和亞油酸為對照品，於高效硅膠 RP-18 F₂₅₄ 薄層板上對亞麻子正己烷提取液進行鑒別，置紫外光（366 nm）下檢視。展開劑為丙酮、醋酸和二氯甲烷之混合溶液（5:4:2）。顯色劑為 5% 硫酸乙醇溶液。

高效液相色譜指紋圖譜鑒別：於八烷基鍵合硅膠填充柱上對亞麻子進行指紋圖譜鑒別。流動相為（A）水和（B）乙腈／異丙醇（9:1）。在 210 nm 波長下，可檢測包括 α - 亞麻酸和亞油酸在內的 6 個特徵峰。

含量測定：亞麻子正己烷提取液中的 α - 亞麻酸和亞油酸可在高效液相色譜指紋圖譜鑒別所列的條件中檢出，兩者的含量總和建議為不少於 0.56%；亞麻子水解液中的開環異落葉松樹脂酚 1,4-二葡萄糖苷可利用十八烷基鍵合硅膠填充柱在高效液相色譜系統中檢出。流動相為（A）水和（B）乙腈。檢測波長為 280 nm。開環異落葉松樹脂酚 1,4-二葡萄糖苷的含量建議為不少於 0.81%

結論：這是首次在區域性標準中加入亞麻子的高效液相色譜指紋圖譜鑒別方法，及提出以開環異落葉松樹脂酚 1,4-二葡萄糖苷作為亞麻子的含量測定標準品。新建立之薄層色譜鑒別方法、高效液相色譜指紋圖譜鑒別方法、 α - 亞麻酸和亞油酸總含量測定方法及開環異落葉松樹脂酚 1,4-二葡萄糖苷含量測定方法，均經過實驗室內部比較和實驗室外控樣互校實驗，證明方法之可靠性。

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