

純化牡丹皮提取物之毒性及對癌細胞之作用

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摘 要

牡丹皮又名丹皮，為芍藥科(Paeoniaceae)芍藥屬牡丹(*Paeonia suffruticosa* Andr.)之乾燥根皮。牡丹皮在中醫藥之分類而言，屬於清熱涼血類。其藥效有活血化癥及清熱涼血之用，活血即指防止血液凝集；就現代醫學而言，則指抑制血小板之凝集，抑制血中可溶性凝集因子之活化，血液凝固，及調節血液流變性；化癥則指抑制血栓形成，促進血栓溶解，使血流順暢。近年牡丹皮更被證明可用於化妝品上。然而講求藥效外，其毒性的鑑定非常重要，必須了解其毒性方能安心使用。本研究將牡丹皮提取物純化後測其毒性並探討對癌細胞的作用。在本研究中我們選用fibroblast(纖維母細胞)(L929)，以MTT及Neutral Red二種試劑檢測牡丹皮萃取物的細胞毒性。研究結果顯示牡丹皮之毒性甚低，可應用於化妝品。在抗癥實驗方面，以Tamoxifen為positive control (10^{-5} M)有顯著之抑制作用，但同濃度之牡丹皮純化物PSC-K1,3,6對人類乳癌細胞MDA-MB231及T47D並沒有顯著的抑制效果。對其他癌細胞是否有抑制效果，則需要更進一步探討。

關鍵詞：牡丹皮、純化物、體外細胞毒性測試

前 言

藥物之來源主要是由天然物及化學合成而來。而天然物中之生藥則是我國過去二千多年以來，配合中醫治療原理，直接經人類在臨床使用，所累積之經驗及結果。因此，中藥之歸類完全是根據中醫理論及其臨床功效。由於已經有用兩千多年之臨床經驗，藥效之可信度應屬可靠。然而講求藥效外，其毒性的鑑定也非常重要，必須了解其毒性方能為人安心使用。

牡丹皮又名丹皮為芍藥科(Paeoniaceae)芍藥屬牡丹(*Paeonia suffruticosa* Andr.)之乾燥根皮。牡丹為多年生落葉小灌木，高1~1.5米。根莖肥厚。枝短而粗壯，葉互生，一般為2回3出複葉；柄長6~10公分；小葉卵形或廣卵形頂生小葉片通常為3裂，側生小葉亦有呈掌狀3裂者，上面深綠色無毛，下面略帶白色，中脈上疏生白色長毛。花單生於枝端，大形；萼片5，覆瓦狀排，綠色；花瓣5片或多

ABSTRACT

Determination of the Cytotoxicity of Purified Extracts Derived from *Paeonia Suffruticosa* and its Effects on Cancer Cells

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ABSTRACT

Peony peels, classified as genus *Paeoniaceae*, are the root part of *Paeonia suffruticosa*. When adopted in the domain of Chinese medicine, peony peel, by classification, serves as blood circulatory sedative and moderator, and acts, in function, as a blood circulatory medicine for rejuvenating blood clogging and regulating the metabolism, in which its blood circulatory rejuvenation pertains to preventing blood coagulation. In modern medicine terms, it helps to suppress hemoglobin from coagulating, prevent blood flow from condensing following rejuvenated soluble coagulation factors, and regulate blood circulatory stability; its de-clogging property refers to how it serves to prevent the formation of thrombosis, excel the dissolution of probable thromboses to ensure a smooth blood circulatory flow. In recent years peony peels have proven to provide cosmetic benefits. Valuable medicinal advantages aside, it is equally important that its toxicity is fully assessed to fall within a tolerable range before it can be widely supported in human. The study intends to examine its toxicity and how it affects to cancerous cells by measuring purified extracts from peony peels. We have chosen fibroblast L929 cells, which are put through the MTT and the Neutral Red screening methods for validating the cellular toxicity of peony peels extracts. Study findings concluded that peony peel's low toxicity could make it feasible to apply in cosmetics. In anticancer experiments, we observed that significant suppressing effects could be achieved by using Tamoxifen as positive control at 10^{-5} M, but no significant suppressing effects were found in the same concentration of peony peel extracts including PSC-k1, 3 and 6 against MDA-MB231 and T47D human transformed breast cancer cell lines. Whether peony peel extracts suppression of other types of cancerous cells or not still remain to be solved.

Key words: *paeonia suffruticosa*, pure compound, cytotoxicity.