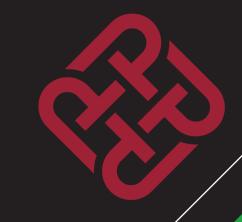
## QPAR:一個提取中藥內隱藏珍貴訊息的

## 創新技術

## A Novel QPAR Technique for Extracting Valuable Information from Herbal Medicines



這創新QPAR技術只需輸入中藥產品的化學指紋圖譜和相關生物活性數據,便能有效及精

準地提供有關產品內藏的生物活性指標 A novel QPAR technique provides effective and accurate bioactivity indicators of herbal products by merely inputting chemical fingerprints and related bioactivity data

在分析混合物(如中藥)生物活性特性時,這創新QPAR技 術,量化地結合了'化學組份'和'生物活性'的關係,因而 能突破性地解答了兩個現存重大難題:(1)能否只透過分析混 合物(如中藥)的色譜圖資料,就能準確地預測未知物的生 物活性指標?(2)能否指出活性化合物在色譜圖中的位置?在 研究中西草藥時,清楚地証明這創新技術能有效和精準地解 決這些難題。在第一個難題方面,它能準確地預測一種樣本 對抗癌症免疫方面指標的能力高達92%。另一突破,就是無 需在實驗室內進行任何分餾來分離樣本內與活性關連的化合 物組份,它也能成功地預測到另一樣本中那些組份含抗氧化 的能力和水平。

A Novel QPAR Technique for Extracting Valuable **Information from Herbal Medicines (HMs)** Herbal Medicines / Agricultural Plant / Foods Approach XTRACTION / DATA PROCESSING y = Xb + fb = X\* y X" = W R-1UT  $R_{esi-T}=X-U_x(c)*S_x(c)*V_x(c)$ **QPAR Modeling** PREDICTION Active ingredients/ Theoretical fingerprint for The activity fractions of the HMs preparation of HM products capacities/levels of at the assigned activity unknown samples capacities/levels The standardized herbal/ The preparation of 1. Drug developing chemical composition of HM personalized HM product 2. Bio-assay guided to meet the need of individual client The level of quality control of HM product to that similar of the modern medicine 系統圖

活性指標,同時也可以發現在色譜圖中那些化學部份 能與生物活性連上關係。 QPAR適用於中藥、食品、農產品、環境保護等方面, 透過數據分析出來的結果,更快更容易地找出在功能 上、活性上,或有毒的成份。此外,從品質管理的角度 來看,這技術能提昇檢測相關產品水平高至與現代化醫 藥的水平看齊。 第40屆瑞士日內瓦國際發明展 一金獎 (2012年4月) 第五屆國際功能食品座談會:促進身體健康及發展 一個可持續發展的環境-最佳科學演繹獎(海報組) (2011年3月10及11日)

這創新QPAR技術將兩組關於含生物活性的混合物的內

藏不同資訊併合起來,因而大大減低了提取有用訊息

所需的時間,成本及勞工資源。在併合中引出了一個

模型,透過它,便可利用混合物的化學色譜圖找出其

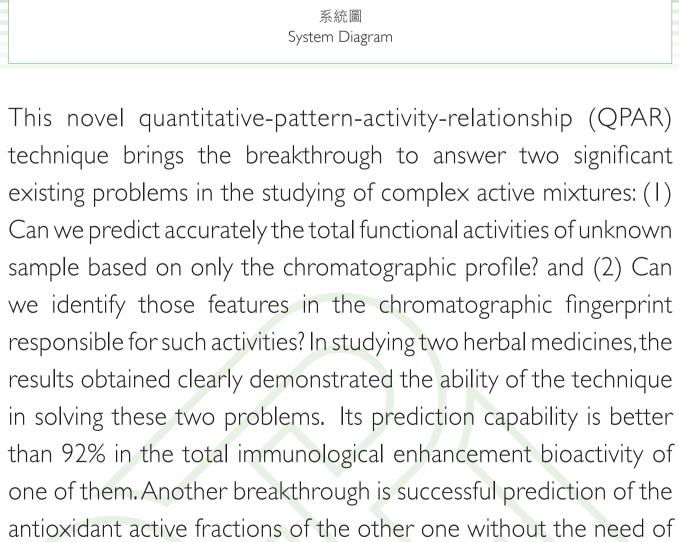


separating individual fractions through experimentation.

The novel QPAR technique greatly reduces the time, cost and labor to data-mine the two pieces of important information about complex active mixtures like herbal medicines. It provides a model for predicting total functional activity from the chromatographic profile, and the features in the chromatographic fingerprint responsible for the activity.

QPAR can be applied to study samples in herbal medicines, foods, agricultural plants, environmental protection, etc. Through these investigations, the bioactive, functional and toxic ingredients can be obtained much easier. Also the quality of related products can be evaluated quantitatively based on their functional activities, like that of western medicines.

- Gold Medal 40th International Exhibition of Inventions of Geneva, Switzerland (April 2012)
- Award in recognition of the Best Submitted Scientific Presentation (Poster Session). The 5th International Functional Food Symposium, Promoting Good health & developing a sustainable environment (March 2011)





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Application