

中醫品質管制 - 近紅外光譜分析技術的發展和應用(NIRS)

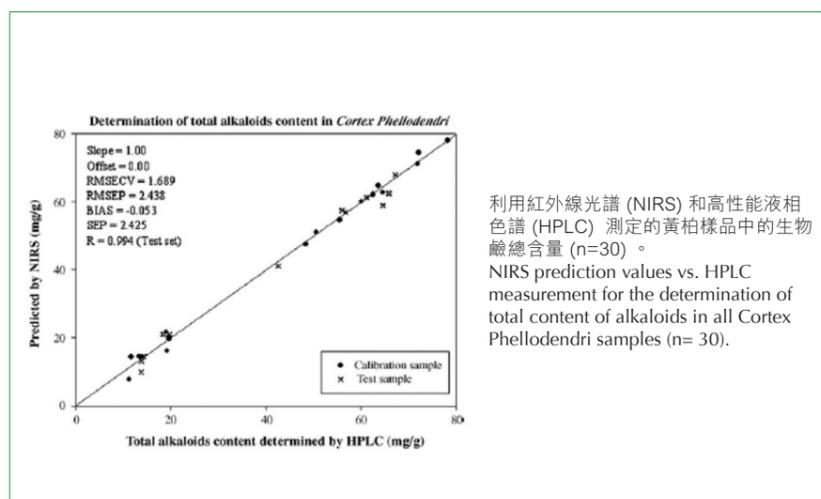
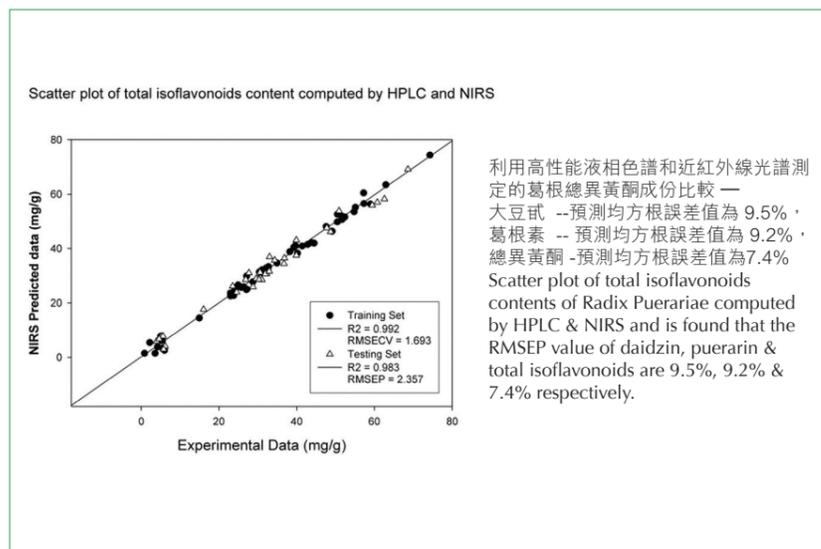
Development and Application of Near-Infrared Spectroscopy (NIRS) for Quality Control of Chinese Medicine

成分和定量分析

Qualitative and quantitative analysis

由於中國草藥的化學成分複雜(CHMs)，傳統的分析方法如色譜法和電泳法，不但分析時間較長而且需由較專業的技術人員進行分析，同時過程亦需消耗部份樣本。

近紅外光譜(NIRS)技術近年已應用在食品，農業和製藥產業中作為有效的定性和定量分析工具。它提供一個快速，無損耗的方法，而且樣品製備過程十分簡單，甚至無需製備。與傳統分析方法相比，NIRS不需試劑，而且無產生廢物，精確度亦頗高。



Owing to the complicated chemical compositions of Chinese herbal medicines(CHMs), common analytical methods such as chromatography and electrophoresis, are time consuming and require experienced personnel to perform the analysis. The samples will also be destroyed during preparation.

Near Infrared Spectroscopy (NIRS) has been developed and proved to be a powerful tool for qualitative analysis and quantitative analysis of constituents in food, agricultural and pharmaceutical industries. It provides a fast, nondestructive method, requiring minimal or no sample preparation and the precision can be high whereas no reagents are required and no wastes are produced comparing to traditional analytical methods.

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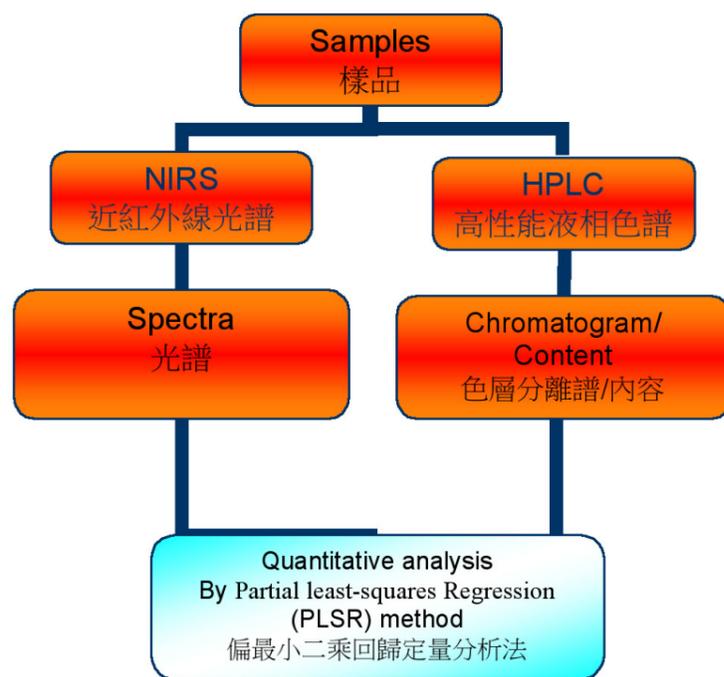
特色與優點

近紅外光譜是可同時測定樣品的物理特性和化學成分

應用

利用近紅外光譜透過建立預測模型測定異黃酮(Isoflavonoid)成份跟高性能液相色譜(HPLC)測定的數值相差在10%之內，結果令人鼓舞。相信近紅外光譜是快速評估葛根質量的一個好方法，此技術亦可應用於其他草藥和草藥產品

Experimental Design 實驗設計



定量分析法的實驗設計
Experimental design of quantitative analysis

Special Features and Advantages

NIRS is an analytical technique that can determine several parameters in one measurement including physical properties and content of chemical constituents

Applications

The predictions of the isoflavonoid content using the NIRS model are within 10% of the value determined by HPLC. The result is encouraging and the study demonstrates that NIRS can be a good technique for fast evaluation of quality of Radix Puerariae and the techniques can be applied to other related products or herbs