# Abstract

Extraction technique is a key technology in quality control of Chinese herb. The use of conventional extraction methods, such as Soxhlet extraction, reflux extraction and sonication suffers from a variety of disadvantages, including long extraction time, relatively large amount of organic solvents and unsatisfactory extraction efficiency. Conventional extraction techniques are increasingly becoming the bottleneck for quality control of Chinese herb.

Pressurized Solvent Extraction (PSE) is a new extraction technique, which has been developed and widely used in many fields such as sample analysis of environments, foods and pharmaceuticals in recent years. It offers many advantages with respect to extraction time, solvent consumption, extraction efficiency and reproducibility. Quality control of Chinese herb is a new application area of PSE.

In this thesis, by applying scientific experimental design combined with modern analytical technology, we studied the feasibility of pressurized solvent extraction for different kinds of chemical components, such as saponins, alkaloids, volatile oils, flavonoids and anthraquinones in Chinese herbs. Furthermore, comparisons of PSE and conventional extraction methods such as Soxhlet, reflux and sonication extraction have also been performed. The results showed that PSE offered a useful and powerful method for sample preparation in quality control of Chinese herbs.

**Keywords:** pressurized solvent extraction; Chinese herbs; quality control