Analysis of Active Ingredients in Medicinal Herbs with High-Performance Liquid Chromatography and Related Technologies: A Review

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ABSTRACT

An increasing number of analytical techniques have been brought to bear on the herbal drugs used in traditional Chinese medicine. This in turn has led to improved quality control of medicinal herbs, ingredient stability and shelf-life tests, assurance of the concentrations of herbal drug ingredients in biological fluids, and pharmacokinetic studies. In the past decades, gas chromatography has been the method of choice for the analysis of volatile compounds, while liquid chromatography is a highly successful separation technique for nonvolatile molecules. Recently, high-performance liquid chromatography coupled with various column and detection systems have become some of the most important techniques for the qualitative and/or quantitative evaluation of medicinal herbs. Capillary electrophoresis has also been used to complement gas chromatography and liquid chromatography for herbal drug analysis. This review discusses the liquid chromatographic systems, and capillary electrophoresis and related technologies that have been applied in various medicinal herb analysis.

Key words: medicinal herbs, pharmaceutical analysis, pharmacokinetics, liquid chromatography, capillary electrophoresis.