MASTER'S THESIS

Quality assessment of Chinese medicines based on saccharide analysis

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ABSTRACT

Saccharides are the main constituents of many Chinese medicinal materials, they include monosaccharides, oligosaccharides and polysaccharides. They have been proved to have many bioactivities such as immunomodulating effects, anti-cancer effects, anti-viral activities, and anti-fatigue effects. Thereby, it is necessary to establish comprehensive qualitative and quantitative analysis of saccharides. On the other hand, saccharides are the main constituent of water extract of many Chinese medicines, which contains a large amount. Up to now, only two botanical drugs, namely Fulyzaq and Veregen, have been approved by the FDA. Despite their complex chemical profiles, 85%-95% of their chemical components could be determined, enabling effective quality control. Therefore, a higher level of qualitative and quantitative analysis is expected for saccharide-rich Chinese medicines. However, currently available methods are weak in terms of accuracy and specificity. Our study aims to develop a comprehensive qualitative and quantitative analysis of saccharides in saccharide-rich Chinese medicines.

In this study, a HPLC-NH_2P-ELSD quantification method is developed to determine monosaccharides and oligosaccharides. A high performance gel permeation chromatography method was developed to analyze the apparent molecular weight distribution patterns and a 3-Methyl-1-phenyl-2-pyrazoline-5-one derivatization method was used for monosaccharide composition analysis of polysaccharides. The methods were well validated and were then successfully applied in quality assessment

of one Chinese medicine material and three Chinese patent drugs from different manufacturers.

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