

Abstract

Radix Astragali, a kind of Traditional Chinese Medicine (TCM), is categorized under “bu zhong yi qi” from the perspectives of TCM. Quality control is the first key step in order to identify the mechanistic action of the herb. Therefore, the separation of reference chemical standards and, the quantitative and qualitative analysis of the chemical standards in the herb are very important for investigation.

In China pharmacopoeia 2005, only Astragaloside IV was considered to be the standard marker for quality control on Radix Astragali. As we know, the effect of Traditional Chinese Medicine (TCM) is the result of combinatory actions of many compounds working together. So, single chemical marker can not totally reflect the quality of TCM. Manufacturing or isolation of sufficient varieties and quantities of reference chemical standards is one of the key step for multiple-marker quality control method. So, we decided to isolate the main chemical components in Radix Astragali at the initial of this study, and finally had isolated five compounds which structure were identified by UV, MS and NMR. Then, the isolated chemical compounds together with some commercial available chemical markers have been used to serve as reference standards for analysis of the chemical composition of Radix Astragali by HPLC-ELSD method.

This study consisted of the following parts:

Section 1: Review of the Radix Astragali. The current situation and outlook of the research on Radix Astragali were summarized by review of literatures.

Section 2: Separation and isolation of the main components from Radix Astragali. Using the silica gel method, MPLC method, pre-HPLC method and recrystallization, five different compounds namely (6aR, 11aR)-9,10-dimethoxy-3-hydroxypterocarpan, calycosin, fomononetin, β -sitosterol and Bu2 (not identified yet) with high purity have been isolated and identified for quality control of the herb.

Section 3: Quality control of several compounds in Radix Astragali with quantitative and qualitative chemical analysis methods. Using the HPLC –ELSD

column switching, several reference chemical standards including Astragaloside, isoflavone and some other components in Radix Astragali were analyzed.

Section 4: Pharmacological study of Radix Astragali. The effects of the fraction, extracted by ethyl acetate and normal butanol, on HUVEC cells proliferation have been investigated.

Key words: Radix Astragali, quality control, HPLC, ELSD, column switching