Abstract

Danggui, the root of *Angelica sinensis* (Oliv.) Diels, which was firstly recorded in *Shennong Bencao Jing* and be famous for the efficacy in relaxing the bowels, enriching blood, promoting blood circulation and regulating menstruation, has been used as traditional medicines in Chinese, Korean and Japanese for thousands of years. Besides the wide applicantions in treatment of anemia and cardiovascular disease, Danggui is predominantly renowned for its use in the treatment of gynecological diseases and also been called *female ginseng*. Lots of chemical composition and pharmacological action of Danggui have been reported since 1950s. However, few of them focused on water decoction of Danggui, which is the main administration form in clinic. Thus, the objective of present study was to investigate the chemical components in Danggui water decoction and develop a valid method for quality control of Danggui.

There are four chapters in the thesis. **Chapter I** was a brife introduction on chemical, pharmacological and quality control of Danggui and the benefit to further research.

Chapter II was the chemical study of Danggui water extract. The separation of Danggui water extract was carried out by using macroporous resin column, silica gel column, pre-HPLC and HPLC. Eleven compounds were isolated from Danggui water extract and their structures were identified as adenine, adenosine, p-hydroxybenznoic acid, vanillic acid, ferulic acid 6,7-epoxyligustilide, 5'-adenosine monophosphate (AMP), uridine, guanosine, p-hydroxycinnamic acid, methyl *P*-hydroxycinnamate by MS, UV and NMR. Five compounds (AMP, uridine, guanosine, *P*-hydroxycinnamic acid and methyl *P*-hydroxycinnamate) were firstly isolated from *Angelica sinensis* (Oliv.) Diels.

Chapter III was simultaneous determination of 13 compounds in water decoction and methanol extract of Danggui. Furthermore, the chemical compositions and contents of bioactive compounds such as ferulic acid and *Z*-ligustilide were compared between water decoction and methanol extract of Danggui, and a quality

control method of Radix Angelicae Sinensis was developed.

In **Chapter IV**, based on the detection of nucleosides and bases in Radix Angelicae Sinensis, a HPLC-DAD method was developed for quantitative ananlysis of uridine, adenine, guanosine and adenosine in 6 tonic traditional Chinese medicines including Radix Ginseng, Radix Astragali, Radix Rehmanniae Preparata, Radix Angelicae Sinensis, Radix Ophiopogonis and Herba Cistanchis. The existence of nucleosides (or bases) in selected tonic traditional Chinese medicines may suggest that nucleosides are the tonic components.

Key words: Radix Angelicae Sinensis, Water extract, Chemical isolation, Quality control