

Abstract

The shelf life of medicine means that the duration could ensure its quality under special storage conditions, which is an important parameter for the safety and efficacy of the medicine. However, there is no shelf life for Chinese crude drug until now. Therefore, the quality control is a big problem. This thesis based on the study of *Danggui* (*Angelica sinensis*), a commonly used Chinese medicine, to explore the essentiality and feasibility of establishing the shelf life for Chinese crude drug.

There are three chapters in this thesis. The research background of this study was introduced in **Chapter 1**, which included the current status of Chinese crude drug's hoarding and the empirical methods of stability.

Chapter 2 developed a rapid, accurate with high repeatability HPLC method for simultaneous determination of ferulic acid, coniferyl ferulate, *E/Z*-ligustilide and *E/Z*-butylidenephthalide in *Angelica sinensis*. Sample preparation including ultrasonication, supercritical fluid extraction (SFE), hydro distillation (HD), accelerated solvent extraction (ASE) and decoction were also optimized.

Chapter 3 explored the shelf life based on the content variation of coniferyl ferulate and *Z*-ligustilide in *Angelica sinensis* using the classic homeothermia method. The validity of the predict value was evaluated by mimic practical storage. The results show that the homeothermia method is a potential approach for predicting the shelf life of Chinese medicines.

In a word, the shelf life of *Angelica sinensis* has been investigated, and its significance for ensuring the safety and efficacy of Chinese crude drug was also been discussed. Simultaneous determination of six components in *Danggui* by HPLC-DAD were developed, which is helpful to control the quality of *Angelica sinensis*. Five extraction methods including HD, PSE, SFE, ultrasonication and decoction had their characteristics for extraction of chemical components in *Danggui*.

Key words: Chinese crude drug, shelf life, classic homeothermia method, *Angelica sinensis*, coniferyl ferulate, ligustilide