

Determination of Total Anthraquinone Glycosides in Aloe

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ABSTRACT

Aloe, dried leaf gel of *Aloe ferox* Mill, was a herb and used in Chinese medicine to prevent cardiovascular diseases, cancer, and diabetes. It was also used extensively by the cosmetic industry for its anti-inflammatory, cured of skin disease and burn healing effects. The major anthraquinones of aloe were aloin and aloe-emodin. Anthraquinones was one of the polyphenol glycosides, which was reported to be hydrolyzed to lower polar aglycones and then became absorbable in intestine. It would be more reasonable if the total glycosides of active ingredients could be assayed. The purpose of this article was to find an optimum hydrolysis condition and a gradient chromatographic method for the analysis of aloe extract and its hydrolysates. The linearity ($r > 0.9997$) and validation ($< 10\%$) of the calibration curves were excellent. The best hydrolysis condition was to use of HCl (1.2 N) solution, and heated in a water bath at 80°C for 1 h. As a result, the amount of aloin was $76.1 \pm 5.9 \mu\text{mol/g}$ in decoction and $77.7 \pm 2.8 \mu\text{mol/g}$ in hydrolysate. The content of aloe-emodin was $8.3 \pm 0.5 \mu\text{mol/g}$ in decoction and $8.1 \pm 0.3 \mu\text{mol/g}$ in hydrolysate. The contents of aloin and aloe-emodin in aloe showed no significant difference prior to and after hydrolysis. This method in the study can be applied to determine aloin and aloe-emodin in aloe for quality control in the future.

Key words: aloe, Chinese medicine, aloin, aloe-emodin, hydrolysis, HPLC