Identification of tadehaginoside and its metabolites in rat plasma using LC-MS/MS with selected reaction monitoring

ZHANG Xiao-po\textsuperscript{1,2}, LI Hai-long\textsuperscript{1,2}, TAN Yin-feng\textsuperscript{1,2}, LAI Wei-yong\textsuperscript{1,2}, CHEN Feng\textsuperscript{1,2}

(1. Hainan Provincial Key Laboratory of R&D of Tropical Herbs, Haikou 571199, China; 2. School of Pharmacy, Hainan Medical University, Haikou 571199, China)

[Foundation Project]: It is supported by National Natural Science Fund (81202994, 81460029).

[Author]: ZHANG Xiao-po (1983-), M.D., Associate Professor. Tel: 0898-31350773, Email: xiaopozhang@yahoo.com.

[Correspondence to]: CHEN Feng, M.D., Associate Researcher. Tel: 0898-66895337, E-mail: cy.chen508@gmail.com.

Received: 2014-11-18 Revised: 2014-11-25

JHMC, 2015;21(2):145-147

View from specialist: It is creative, and of certain scientific and educational value.

[ABSTRACT] Objective: To identify tadehaginoside and its metabolites in rat plasma after oral (p.o.) or intravenous (i.v.) administration of tadehaginoside solution to rats. Methods: The Sprague Dawley rats were randomly divided into two groups of three rats each to identify the metabolites of tadehaginoside after a single intravenous (i.v.) dose (2 mg/kg) or oral (p.o.) dose (10 μg/kg) of tadehaginoside solution. Serial blood samples were collected and heparinized for plasma preparation. For identification of tadehaginoside and its metabolites, the collected plasma samples at different time points (5, 15, 30 min and 1, 2 h) were pooled for each group and aliquots (200 μL each) were treated with 600 μL methanol and then mixed by vortex-shaking for 10 min and centrifuged at 18,140 g for 10 min. The upper supernatant was dried under a stream of N\textsubscript{2}. The residue was reconstituted in 50 μL of methanol, centrifuged ditto, and 10 μL of the resulting supernatant were applied to LC-MS/MS analysis. The tadehaginoside and its metabolites were identified using liquid chromatography/tandem mass spectrometry (LC-MS/MS) with selected reaction monitoring mode. Results: Compared with the LC-MS/MS spectrum of standard chemicals, tadehaginoside, p-coumaric acid and phloretic acid in rat plasma were identified. Meanwhile, the p-coumaric acid was sulfated to conjugated metabolite. Conclusion: Tadehaginoside and three metabolites were identified in rat plasma using LC-MS/MS. The p-coumaric acid might be the active metabolite of tadehaginoside. Further research is needed to evaluate the activities of tadehaginoside and p-coumaric acid.

[KEY WORDS] Tadehaginoside; p-coumaric acid; Phloretic acid; Metabolites; LC-MS/MS