



Biotransformation of *Rhizoma Paridis* Saponins by Rat Intestinal Microflora

Yang LIU ¹, Wenyuan GAO ^{1*}, Shuli MAN ¹, Chaoyi MA ¹, Jingze ZHANG ¹ & Changxiao LIU ²

¹ School of Pharmaceutical Science and Technology, Tianjin University,
Weijin Road, Tianjin 300072, China;

² Tianjin Institute of Pharmaceutical Research, Tianjin, 300193, China

SUMMARY. *Rhizoma Paridis* saponins (RPS) were considered to be the principal bioactive components of *Paris polyphylla* Smith var. *yunnanensis*. Intestinal microflora-mediated metabolism may affect their pharmacological activities *in vivo*. In this study, the biotransformation of RPS by rat intestinal microflora *in vitro* was investigated. A high-performance liquid chromatography with electrospray ionization combined with mass spectrometry (HPLC-ESI-MS) method was developed to identify RPS and their metabolites. The metabolism of RPS by rat intestinal microflora was mainly based on cleavage of the oligosaccharide chains which is connected to the C-3 or C-22 position. However, the elimination of the glucose molecule at C-26 and F-ring closure occurred firstly in prototype saponins. In addition, the biotransformation routes of RPS in the presence of rat intestinal microflora were elaborated, from which RPS were presumed primarily responsible for the metabolism via α -rhamnosidase and β -glycosidase activities. These results would contribute to understanding of the mechanisms in bioavailability of herbal drugs and their metabolites.

KEY WORDS: Biotransformation, HPLC-ESI-MS, Intestinal microflora, *Rhizoma Paridis*, Saponin.

* Author to whom correspondence should be addressed. E-mail: biochemgao@hotmail.com