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Intestinal Absorption Mechanism and the Effect of *Cornus officinalis* Sieb. et Zucc. on Sweroside *in Vitro* and *in Vivo*

Renjie XU [1,3] #, Beimeng YU [2] #, Shiqian WANG [1], Xin WEI [3], Ping ZHOU [1] * & Yichu YUAN [4] *

[1] *Department of Clinical Pharmacy,* [2] *Neonatal Intensive Care Unit, Shaoxing Women and Children's Hospital, No. 305 East Street Road, Shaoxing 312000, Zhejiang, China.*
[3] *Department of Pharmacy, Xinhua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, No. 1665 Kongjiang road, Shanghai 200092, China.*
[4] *Department of Urology, The Second Affiliated Hospital, School of Medicine, Zhejiang University, Hangzhou, Zhejiang, China.*

***SUMMARY*. Sweroside, a natural iridoid compound, is the main active component of *Cornus officinalis* Sieb. et Zucc. (CO), and has been used for the treatment of various diseases. This study investigated the intestinal absorption mechanism and the effect of CO on sweroside's absorption. The intestinal permeability of sweroside, was investigated using the human Caco-2 cell monolayer model. A pharmacokinetic study in rats was developed to investigate the effect of CO on sweroside's absorption *in vivo*. The intestinal absorption of sweroside occurred through passive diffusion with active diffusion, and sweroside might be composed of P-glycoprotein, multidrug resistance-associated protein and breast cancer resistance protein substrates. After CO was added, the absorption permeability from the apical (AP) to the basolateral (BL) side increased significantly by about 46.38%. Sweroside showed a higher systemic exposure after oral administration of CO than sweroside group rats. It can be assumed that some ingredients in CO promote sweroside's absorption.**

RESUMEN. Swerósido, un compuesto iridoide natural, es el principal componente activo de *Cornus officinalis* Sieb. et Zucc. (CO), y se ha utilizado para el tratamiento de diversas enfermedades. Este estudio investigó el mecanismo de absorción intestinal y el efecto del CO sobre la absorción del swerósido. La permeabilidad intestinal del swerósido se investigó utilizando el modelo de monocapa de células Caco-2 humanas. Se desarrolló un estudio farmacocinético en ratas para investigar el efecto del CO sobre la absorción de swerósido *in vivo*. La absorción intestinal de swerósido se produjo a través de la difusión pasiva con difusión activa, y el swerósido podría estar compuesto de glucoproteína P, proteína asociada a resistencia a múltiples fármacos y sustratos de proteína de resistencia al cáncer de mama. Después que se agregó CO, la permeabilidad de absorción desde el lado apical (AP) al lado basolateral (BL) aumentó significativamente en aproximadamente 46.38%. Swerósido mostró una exposición sistémica más alta después de la administración oral de CO que las ratas del grupo swerósido. Se puede suponer que algunos ingredientes en CO promueven la absorción del swerósido.

KEY WORDS: Caco-2, intestinal absorption, pharmacokinetics, sweroside.

* Authors to whom correspondence should be addressed. *E-mails:* 290772309@qq.com (P. Zhou); ycyuan@zju.edu.cn (Y. Yuan)

# Renjie Xu and Beimeng Yu contributed equally to this work.

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