



Disruption of Propofol's Therapeutic Window by the Ingredients from Malaytea scurfpea Fruit

Pan LUO¹, Jian-Tao BAO², Ke-Jing WANG^{3*}, & Fuhu SONG⁴

¹ Institute of Cell Biology and MOE Key Laboratory of Cell Activities and Stress Adaptations, Lanzhou University, Lanzhou 730000, China.

² Department of Otolaryngology, Anning Branch of General Hospital of Lanzhou Military Region, Lanzhou 730070, Gansu Province, China.

³ Department of endocrinology, General Hospital of Lanzhou Military Region, Lanzhou 730070, Gansu Province, China.

⁴ Department of Anesthesiology, Third Affiliated Hospital of Southern Medical University, Guangzhou, Guangdong 510630, P.R. China.

SUMMARY. Propofol has been clinically utilized as a short-acting, intravenously administered hypnotic/amnestic agent. Frequent drug-drug interaction (DDI) or herb-drug interaction (HDI) has been detected for the co-administration of propofol and many other clinical drugs. Therefore, early evaluation of the influence of drug candidates or herbs towards the metabolism of propofol is very important to avoid the potential DDI and HDI which might limit the application of drugs or herbs. The present study aims to investigate the influence of malaytea scurfpea fruit (dried ripe fruit of *Psoralea corylifolia* L.) administration towards the metabolic behaviour of propofol. Two major components of malaytea scurfpea fruit (bavachin, psoralen) was used to incubate with the *in vitro* propofol metabolism system. Non competitive inhibition was observed for these compounds towards the metabolism of propofol, and the inhibition potential was listed as followed: bavachin > psoralen. These results indicated the high risk on the influence of malaytea scurfpea fruit towards the therapeutic window of propofol, limiting the application of malaytea scurfpea fruit and propofol in clinic.

RESUMEN. El propofol ha sido clínicamente utilizado como agente hipnótico/amnésico de acción corta, administrado por vía intravenosa. Tanto la interacción droga-droga (DDI) como la interacción de hierbas con las drogas (HDI) se han detectado para la co-administración de propofol y otros muchos fármacos. Por lo tanto, la evaluación temprana de la influencia de los fármacos candidatos o hierbas hacia el metabolismo de propofol es muy importante para evitar el potencial DDI y HDI que podría limitar la aplicación de medicamentos o hierbas. El presente estudio tiene como objetivo investigar la influencia de la administración de frutos de malaytea scurfpea (el fruto seco maduro de *Psoralea corylifolia* L.) sobre el comportamiento metabólico de propofol. Dos componentes principales de frutos de malaytea scurfpea (bavachin y psoraleno) se utilizaron para incubar con el propofol *in vitro*. Se observó inhibición no competitiva para estos compuestos sobre el metabolismo del propofol, donde el potencial de inhibición de bavachin es mayor que el de psoraleno. Estos resultados indican el alto riesgo de frutos de malaytea scurfpea sobre la ventana terapéutica de propofol, lo que limita los usos de frutos de malaytea scurfpea y propofol en la clínica.

KEY WORDS: Malaytea scurfpea, Propofol, *Psoralea corylifolia* L., Therapeutic window.