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# Drug-Drug Interaction between Anaesthetic Drug Propofol and Andrographolide Derivative

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***SUMMARY*. Drug-drug interaction was speculated and investigated between andrographolide derivative and propofol, which is an important anaesthetic drug. The *in vitro* incubation system for propofol glucuronidation was used, and both recombinant UGT1A9 and human liver microsomes (HLMs) were selected as enzyme sources; 100 $\mu$M of andrographolide derivative (AD) strongly inhibited the glucuronidation of propofol catalyzed by recombinant UGT1A9 and 100 $\mu$M of andrographolide derivative (AD) also strongly inhibited the glucuronidation of propofol catalyzed by human liver microsomes (HLMs). Lineweaver-Burk plot indicated that AD competitively inhibited the glucuronidation of propofol catalyzed by recombinant UGT1A9 and human liver microsomes (HLMs). The fitting equation was *y = 9.2x + 188* and *y = 7.2x + 211.7* for the inhibition of AD towards glucuronidation of propofol catalyzed by recombinant UGT1A9 and human liver microsomes (HLMs), respectively. Using these equations, the inhibition kinetic parameters ($K_i$) were 20.0 and 29.4 $\mu$M for the inhibition of AD towards glucuronidation of propofol catalyzed by recombinant UGT1A9 and human liver microsomes. In conclusion, an important andrographolide derivative was synthesized in this study, and its inhibition capability towards UGT1A9-catalyzed propofol glucuronidation was demonstrated in the incubation system with recombinant UGT1A9 and human liver microsomes (HLMs) as enzyme source.**

*RESUMEN*. Se investigó la interacción entre un derivado del andrografólido y el propofol, un importante fármaco anestésico. Se utilizó el sistema de incubación *in vitro* para la glucuronidación de propofol y se seleccionaron UGT1A9 recombinante y microsomas de hígado humano (HLM) como fuentes de enzimas; 100 $\mu$M del derivado de andrografólido (AD) inhibió fuertemente la glucuronidación de propofol catalizada por UGT1A9 recombinante y también inhibió fuertemente la glucuronidación de propofol catalizada por microsomas de hígado humano (VAM). El gráfico de Lineweaver-Burk señaló que AD inhibe competitivamente la glucuronidación de propofol catalizada por UGT1A9 recombinante y por microsomas hepáticos humanos (HLM). La ecuación de ajuste fue *y = 9.2x + 188* e *y = 7.2x + 211,7* para la inhibición de AD hacia la glucuronidación de propofol catalizada por UGT1A9 recombinante y microsomas hepáticos humanos (HLM), respectivamente. Los parámetros cinéticos de inhibición ($K_i$) fueron 20,0 y 29,4 uM para la inhibición de AD hacia la glucuronidación de propofol catalizada por UGT1A9 recombinante y microsomas de hígado humano. En conclusión, un importante derivado de andrografólido se sintetizó en este estudio y se demostró su capacidad de inhibición sobre la glucuronidación de propofol catalizada por UGT1A9 en el sistema de incubación con UGT1A9 recombinante y microsomas hepáticos humanos (HLM).

*KEY WORDS:* andrographolide derivative, drug-drug interaction, propofol, UGT1A9.

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