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Short Communication

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Determination of Alpinetin Glucuronidation Activities in Liver Microsomes from Different Species Using UFLC-ESI-MS

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***SUMMARY*. Alpinetin, a type of novel plant flavonoid derived from *Alpinia katsumadai* Hayata, has been demonstrated to exhibit multiple biochemical and pharmacological activities. The phenyl hydroxyl group existed in alpinetin is susceptible to the glucuronidation catalyzed by UDP-glucuronosyltransferase (UGT). The aim of the present study is to develop a sensitive and specific ultra-fast liquid chromatography (UFLC)-mass spectrum (MS) method to determine the glucuronidation activity of alpinetin in the liver microsomes obtained from different species, including human liver microsomes (HLMs), rat liver microsomes (RLMs), mice liver microsomes (MLMs), and dog liver microsomes (DLMs). The alpinetin's glucuronide was purified, and the structure was elucidated using ^{1}H-NMR and ^{13}C-NMR. The mass spectrometric detection was performed under selected ion monitoring (SIM) for alpinetin glucuronide at m/z 445 and 4-methylumbelliferyl-β-glucuronide (I.S.) at m/z 351. The assay exhibited linearity over the range 0.1-60 μM for alpinetin glucuronide with the correlation coefficient of 0.9991. The intra- and inter-day precision was less than 5.3 %, with accuracy in the range 105.1-106.8 %. The developed method has been successfully applied to determine the glucuronidation of alpinetin, and the intrinsic clearance was calculated to be 2.51, 1.29, 0.23, and 1.27 mL/min/mg pro for HLM, RLM, MLM and DLM, respectively. The results obtained from this study are helpful to selection of animal models for pre-clinical pharmacokinetic study.**

KEY WORDS: Alpinetin, Glucuronidation, Species difference, UFLC-MS.

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