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Investigation of Rosmarinic Acid Inhibition Towards UDP-Glucuronosyltransferases (UGTs) Isoforms

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***SUMMARY*. Rosmarinic acid is an important ingredient isolated from many plants, and has been demonstrated to exhibit a variety of biochemical and pharmacological activities. Given that the UDP-glucuronosyltransferases (UGTs) plays a key role in the metabolism of many clinical drugs and endogenous compounds, the aim of the present study is to evaluate the inhibition of rosmarinic acid towards several important UGT isoforms, including UGT1A1, 1A3, 1A6, 1A9, 2B4, and 2B7. Recombinant UGT enzymes-catalyzed 4-methylumbelliferone (4-MU) glucuronidation was used as the probe reaction to perform the present study. The reaction rate was determined using different concentrations of 4-MU and rosmarinic acid, and Dixon and Lineweaver-Burk plots were utilized to fit the data to determine inhibition kinetic type. The second plot was used to calculate the inhibition kinetic parameter. The competitive inhibition was demonstrated, and the inhibition kinetic parameter (K_i) was calculated to be 75.8 μM. All these data were helpful for evaluating the risk of the daily utilization of rosmarinic acid.**

KEY WORDS: Rosmarinic acid, UDP-glucuronosyltransferases, Enzyme inhibition.

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