

Effects of Alismatis Rhizome on the Metabolic Ability of CYP450 in Rats

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SUMMARY. Cocktail method was used to evaluate the influence of Alismatis rhizome on the activities of CYP450 isoforms CYP1A2, CYP2D6, CYP3A4, CYP2C19 and CYP2C9, which were reflected by the changes of pharmacokinetic parameters of 5 specific probe drugs phenacetin, metoprolol, midazolam, omeprazole and tolbutamide respectively. The experimental rats were randomly divided into two groups, control group and Alismatis rhizome group. The Alismatis rhizome group rats were given 5 g/kg by oral administration once a day for 14 days. The mixture of 5 probes was given to rats through oral administration and the blood samples were obtained at a series of time-points through the caudal vein. The concentrations of probe drugs in rat plasma were measured by liquid chromatography-mass spectrometry. In the experiment for Alismatis rhizome and control group, there was no statistical pharmacokinetics difference for phenacetin, metoprolol and tolbutamide, while there was statistical pharmacokinetics difference for midazolam and omeprazole. Alismatis rhizome could not influence the activities of CYP450 isoforms CYP1A2, CYP2D6, and CYP2C9 of rats, while it could induce the activities of CYP3A4 and CYP2C19.

RESUMEN. Se utilizó el método cóctel en ratas para evaluar la influencia de rizoma Alismatis sobre las actividades de las isoformas CYP1A2, CYP2D6, CYP3A4, CYP2C19 y CYP2C9 de CYP450, a través de los cambios de los parámetros farmacocinéticos de 5 drogas sonda específicas (fenacetina, metoprolol, midazolam, omeprazol y tolbutamida). Las ratas fueron divididas aleatoriamente en dos grupos, un grupo control y el grupo rizoma Alismatis. Al grupo rizoma Alismatis se les dio 5 g/kg por vía oral una vez al día durante 14 días. La mezcla de 5 sondas se les dio a las ratas mediante por vía oral y las muestras de sangre se obtuvieron de la vena caudal a distintos tiempos. Las concentraciones de fármacos de la sonda en el plasma de rata se midieron por cromatografía líquida-espectrometría de masas. En el grupo control y en el grupo de rizoma Alismatis no hubo diferencia farmacocinética estadística para fenacetina, metoprolol y tolbutamida, pero sí las hubo para midazolam y omeprazol. Rizoma Alismatis no influiría en las actividades de las isoformas CYP1A2, CYP2D6 y CYP2C9 de CYP450 en ratas, pero podría inducir la actividad de las isoformas CYP3A4 y CYP2C19.

KEY WORDS: Alismatis rhizome, Cocktail, CYP450, LC-MS.

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