P-37 ★

Metabolism and Pharmacokinetics of Swertiamarin in Rats

○王 志剛[1]、馬 超美[1]、唐 淑含[1]、来田浩明[2]、服部征雄[1]
[1]富山大学 和漢医薬学総合研究所 薬物代謝工学分野、[2]アルプス薬品工業

【Purpose】 Previously, we reported the metabolism of swertiamarin by human intestinal bacteria in vitro and three metabolites including a nitrogen-containing compound gentianine were isolated and identified . To investigate the metabolism and pharmacokinetics of swertiamarin, especially to find out if it is converted to gentianine in vivo, swertiamarin was subjected to rats by oral and intravenous administration.【Methods】Wistar rats were orally and intravenously administrated with swertiamarin, and the plasma was prepared from the whole blood of rats. A solid-phase extraction column was used to extract swertiamarin and its metabolite before they were analyzed by LC/ESI/MS. The quantification of swertiamarin in plasma was carried out with negative ionization in multiple reaction monitoring mode by using sweroside as the internal standard.【Results】No obvious metabolites were detected after intravenous administration of 50 mg/kg swertiamarin by using the APCI interface. But the nitrogen-containing metabolite gentianine was detected 24 h after 1000 mg/kg oral administration of swertiamarin by EIC in positive mode. Pharmacokinetics was evaluated using a two compartmental analysis of the plasma concentration-time data. After rapidly achieving maximal levels in the plasma, both dosing routes produced a sharp decline in plasma concentration of swertiamarin followed by a slower phase of decrease until the levels fell below detection limits, within 9 h after oral administration. 【Discussion】 This is the first report that swertiamarin can be metabolized into alkaloid gentianine in vivo. It has been reported that gentianine exerts anti-ulcerogenic action as well as inhibitory action against gastric secretion. The conversion of swertiamarin into gentianine may help to interpret the pharmacological effect of swertiamarin. The pharmacokinetics parameters may be used as reference to the in vivo study of swertiamarin in human beings in order to rationally utilize it.

P-38

Experimental studies on the pharmacodynamic effects of Orobanche cumana as a novel medicinal resource

○劉 東春[1,2]、王 芳[3]、劉 園英[2]、殷 軍[1]、李 玉山[1]、王 東[1]、崔 征[1]
[1]瀋陽薬科大学 中薬学院 生薬学教室、[2]北陸大学 薬学部 東洋医薬学教室、[3]瀋陽薬科大学 生命科学及び生物製薬学院 薬理学教室

【Purpose】 Orobanche cumana Wallr.(OC), a harmful parasitic plant to sunflower, is considered as an invigorator in Chinese folk therapy, however, the systemic pharmacodynamic research of OC is not reported. In order to develop OC as a novel medicinal resource, the antifatigue effect, immunoactivity and andrin-like action of OC were studied in the present paper for the first time. 【Methods】 Mice were administered orally aqueous extract from OC (AE-OC) for 6 days and ethyl-acetate extract (EAE-OC) and butanol extract (BE-OC) for 10 days. On the 7th day, exhaustive swimming time, the index of antifatigue effect, was detected by using swimming test. The weight of immune organ was measured and the immune organ index was calculated. Meanwhile the change of mononuclear phagocytic system function was determined by carbon clearance method. On the 11th day, the weight of sexual organ and accessory sex organ was measured. 【Results】 The swimming time was increased significantly in high dose AE-OC group. The weight of spleen, but not the weight of thymus, was significantly increased in high dose AE-OC group. And the spleen index was higher in high dose AE-OC group than those in control group. Phagocytosis index K was increased obviously in high dose AE-OC group compared to that in control group, though the phagocytic coefficient α did not changed. After 10 days administered orally, the weight of preputial glands was increased significantly in EAE-OC group and BE-OC group. 【Conclusions】 The results suggest that OC has effects of antifatige, enhancement of immune system and andrin-like action. OC can be developed in expect into a new medicinal resource.