

Anti-diabetic Activities of Chalcones Derived from *Ashitaba*

*Ashitaba* (*Angelica keiskei*), is a perennial belonging to Umbelliferae and has been taken as a health-promoting vegetable around the Hachijo Island area. *Ashitaba* has been known to contain about 20 kinds of chalcones, and two major chalcones such as xanthoangelol (XA) and 4-hydroxyderricin (4HD) are more abundantly included than other chalcones. We previously found that these two chalcones have insulin-like activities such as the induction of adipocyte differentiation and the enhancement of glucose uptake. Moreover, 4HD especially showed stronger promoting activity of glucose uptake and preventive effect on the progression of diabetes in genetically diabetic mice than the XA. In this report, we tested whether 4HD can reduce the blood glucose levels of mice which developed hyperglycemia associated with insulin resistance, and the structure-activity relationships of chalcones on glucose uptake using other *Ashitaba* chalcones and synthetic chalcones. As a result, 4HD showed a lowering effect of blood glucose levels of diabetic mice, probably due to the enhancement of glucose uptake. Thus, it is suggested that 4HD exert a hypoglycemic action via an insulin-independent pathway. In the structure-activity relationship, both 4'-methoxy group and 3'-large substituted group, such as prenyl, geranyl, farnesyl and benzyl of A ring were considered to be essential for glucose uptake promoting activity.