

International Conference on
DIABETES AND HEALTHCARE
&
International Conference on
FOOD SCIENCE AND TECHNOLOGY
June 25-26, 2018 | Toronto, Canada



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Isoflavone C-glycosides isolated from the root of Kudzu (*Pueraria lobata*) and their estrogenic and antimutagenic activities

The kudzu root (*Pueraria lobata*) is used as an ingredient in kudzu-starch which is an important material for cooking as well as processed foods in Japan. In this study, chemical structures, and estrogenic and antimutagenic activities of isoflavones isolated from the root of kudzu are investigated. The extract of kudzu root was purified with various chromatographic techniques to afford four isoflavone C-glycosides as 6''-O- α -D-glucopyranosylpuerarin (1), puerarin (2), 3'-methoxypuerarin (3), and 6''-O- α -D-

apiofranosylpuerarin (4), and two aglycons as biochanin A (5), and formononetin (6), respectively. Four isoflavone C-glycosides, which are 8-C- β -D-glucosyl derivatives of daidzein, showed no estrogenic activity, on the other hand, daidzin, which is 7-O- β -D-glucoside of daidzein, exhibited the activity. These differences of the activities might be depended on the binding position (C-7 or C-8) or combination style (O- or C-) of glucose moiety to daidzein. Antimutagenic activity of daidzein, daidzin, puerarin, and 3'-methoxypuerarin were further assayed by Ames test. Daidzein showed the activity, on the other hand, three glucosids of daidzein showed no activity to suggest that regardless of the position or the style, binding of glucose moiety inhibit the antimutagenic potency of daidzein.

Biography

Shin-ichi Kayano graduated from Department of Food Science and Nutrition, Faculty of Human Life Science, Osaka City University, Japan, in 1985. He worked as a Senior Researcher of research institute, Miki Corporation, Japan, from 1985 through 2004. His job in Miki Corporation was the development of new products of functional foods, and study on functional components in fruits and vegetables. He was awarded a PhD in science in 2004, from Osaka City University, Japan, under the supervision of Professor Nobuji Nakatani. He joined the Kio University as a Professor in 2009. His current study is on the antioxidative, antimutagenic, and estrogenic ingredients in various fruits and vegetables, and the elucidation of chemical structures and action mechanism of these compounds.

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