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Xanthones from *Swertia mussotii* plant as multi-target addressed anti-diabetic agents

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Swertia mussotii Franch (SM), locally called “sang di” or “zang yin chen”, is a traditional Tibetan folk medicine used to treat the febrile diseases in the liver and gallbladder. Traditionally, SM is not used as anti-diabetic agent; while some other plants belonging to the same *Swertia* genus like *Swertia kouitchensis*, *Swertia japonica*, and *Swertia chirayita* have been reported for their anti-diabetic activity. In the present investigation, 32 xanthones including 5 new compounds have been isolated from the ethanol aqueous extract of SM. Carefully screening of the xanthones as anti-diabetic agents were carried on. The results indicated that 1,3,7,8-tetrahydroxyxanthone, 1,3,5,8-tetrahydroxyxanthone and 2,3,6,8-tetrahydroxyxanthone-7C-(β -D-glucoside) were good antioxidants and α -glucosidase inhibitors. 1,3,5,8-tetrahydroxyxanthone was also confirmed as a potent inhibitor of aldose reductase (ALR2). This xanthone was the most active α -glucosidase and ALR2 inhibitor, with IC_{50} values of $5.2 \pm 0.3 \mu\text{M}$ and $88.6 \pm 1.6 \text{ nM}$ respectively. Given the overall profile, 1,3,5,8-tetrahydroxyxanthone is considered to be the most promising multitarget antidiabetic agent, and may have potential for the treatment of both diabetes and diabetic complications. This is the first compound screened from natural medicinal plant as multi-target addressed antidiabetic agent. Further *in vivo* studies of this candidate are planned.

Biography

Heru Chen has completed his PhD from the Hong Kong University of Science and Technology with Professor Richard K Haynes as supervisor. He got postdoctoral training with Professor Dr. Peter W Schiller in the Clinical Research Institute of Montreal, Canada. He worked as a visiting scholar with Professor Dr. Jürgen Scherckenbeck in Wuppertal University. Since March 2008, he is a full-time professor and research director in the Institute of Traditional Chinese Medicine and Natural Products, Jinan University. He has published more than 60 papers in reputed journals and serving as editorial board members of several reputed journals.

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