Sweroside

Sweroside (or (-)-Sweroside) is a bioactive herbal ingredient isolated from Fructus Corni, which has been widely used for the treatment of osteoporosis in traditional Chinese medicine. Unfortunately, the working mechanisms of this compound are difficult to determine and thus remain unclear. Sweroside has shown anti-inflammatory and analgesic activities. Recently was found that sweroside attenuates α-naphthylisothiocyanate (ANIT)-induced cholestatic liver injury in mice by restoring bile acid synthesis and transport to their normal levels, as well as suppressing pro-inflammatory responses. Also has been suggested that sweroside can be a promising osteoporosis therapeutic natural product.

Ouyang and Xu examined the anticancer effects of a secoiridoid glycoside Sweroside, against a panel of glioblastoma cells.

CCK8 assay was used to examine the anti-proliferative effects of this molecule. Acridine orange (AO)/ethidium bromide (EB) and annexin V/propidium iodide (PI) staining assays were used to examine apoptotic cell death. Cell cycle analysis was performed by flow cytometry. The protein expression was examined by western blotting.

Sweroside inhibited the growth of the glioblastoma U251 cell with IC50 of 10 μM. However, Sweroside had low cytotoxic effects on the normal astrocytes cells with an IC50 of 100 μM. Sweroside exerted antiproliferative effects on the U251 glioblastoma cells by apoptotic cell death. This was concomitant with the upregulation of apoptotic proteins such as caspase 3 and 9, and Bax expressions. Sweroside also induced arrest of the U251 cells at the G0/G1 phase of the cell cycle. Finally, Sweroside also blocked the JNK/p38 MAPK signal pathway concentration-dependently in U251 glioblastoma cells.

Taken together, these results suggest that Sweroside exerts potent anticancer effects on glioblastoma cells and may prove essential in the management of glioblastoma [1)].

1)
Ouyang Z, Xu G. Antitumor effects of Sweroside in human glioblastoma: its effects on mitochondrial mediated apoptosis, activation of different caspases, G0/G1 cell cycle arrest and targeting JNK/p38 MAPK signal pathways. J BUON. 2019 Sep-Oct;24(5):2141-2146. PubMed PMID: 31786887.