In vivo Antiosteoporotic Effects of Dioscorea spongiosa and Its Constituent, Methyl protodioscin

Osteoporosis, a major disease of our aging society, results in bone fracture and paralysis in oldster, especially in post-menopausal women. After screening 30 categories of Chinese traditional herb, both for stimulatory activity on the proliferation of osteoblast cells UMR106 and for inhibitory activity on the formation of osteoclast-like cells, the water extract of rhizomes of Dioscorea spongiosa showed strong activities in both cell culture systems. Accordingly, 90% EtOH-H2O fraction of the water extract showed the strongest activity in these in vitro experiments. Further separation of this fraction afforded 28 compounds, in which methyl protodioscin, a major constituent, possessed the strong inhibitory activity both on the formation of osteoclast and the bone resorption. The present study revealed that both 90% EtOH fraction and methyl protodioscin exhibited good effects in preventing bone loss in postmenopausal bone loss models of OVX rats and mice by using pQCT.