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Anti-osteoporotic effect of ethyl acetate fraction of *Abeliophyllum distichum* nakai for OVX-rat model and RANKL-induced RAW 264.7 cellsEun Young Kim¹, Jae HO Park², Youngjoo Sohn¹ and Hyuk-Sang Jung¹¹Kyung Hee University, Republic of Korea²Jungwon University, Republic of Korea

Abeliophyllum distichum (AD), called Misun, is one of the Korean monotypic endemic species. AD has been used to treat the inflammatory disease, stomachache, diarrhea, deodorant and gynecologic disease with folk remedy in Korea. Some researchers have already reported that AD has anti-cancer, anti-inflammatory and anti-oxidant effect. But protective effect for osteoporosis of AD has not reported yet. In this study, we investigated that anti-osteoporotic effect of ethyl-acetate fraction from AD leaf on RANKL-induced osteoclastogenesis and OVX-induced osteoporosis. RAW 264.7 cells were used as a model for RANKL-induced osteoclastogenesis. To investigate the effect of AD, TRAP activity, pit formation and expression of osteoclast-related genes such as MMP-9, CA II, c-fos, NFATc-1, RANK, TRAP, OSCAR, ATP6v0d2 and CTK were measured. To investigate the mechanism of AD, expression of NFATc-1, c-fos and MAPK were analyzed using a western blot assay. OVX-induced osteoporosis model was used as menopausal osteoporosis. After both ovaries were removed through surgical procedure called ovariectomy and AD or 17 β -estradiol was orally administered for 8 weeks. Femurs of rat were extracted and measured bone parameter such as BV/TV, trabecular thickness, number and surface using a micro CT. AD significantly inhibited tarp activity, pit formation, expressions of osteoclast related genes by dose-dependent manner through inhibition of the MAPK pathway and c-fos/NFATc1 pathway. Also AD prevented bone loss without change of estradiol concentration. These results suggest that AD can be the basis of reasonable alternative for treating postmenopausal osteoporosis without adverse effect by change of hormone.

Biography

Eun-Young Kim has completed her PhD from Kyung Hee University and she is investigating the osteoporosis and atopic dermatitis at Department of Oriental Medicine in Kyung Hee University. She has published more than 20 papers in journals.

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