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## Evaluation of the fracture healing potentials of Marantodes pumilum var. alata in rat osteoporosis model

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Marantodes pumilum var. alata (MPva) has been shown to protect the bone of laboratory animals against osteoporosis. Market MPva Despite the abundant evidence of its osteprotective properties, its role on healing of osteoporosis-related fracture has not been reported. This study aims to investigate the effects of MPva leaf extract on fracture repair response in ovariectomized rats. Thirty-six healthy female Sprague-Dawley rats were sorted into six groups (n=6) namely: baseline (BL); sham-operated (SO); ovariectomized control (OC); estrogen treatment (ET); 20mg leaf treatment (MP<sub>20</sub>); and 100mg leaf treatment (MP<sub>100</sub>) groups. All rats, except the SO group, were ovariectomized. Eight weeks after ovariectomy, the right tibiae of rats were fractured and fixed with titanium plates. For 8 weeks, ET received 64.5µg/kg/day estrogen (Premarin<sup>®</sup>) while MP<sub>20</sub> and MP<sub>100</sub>, respectively, received 20mg and 100 mg/kg/day doses of MPva leaf extract orally. At the end of treatment, fractured tibia were excised from euthenized rats and investigated for bone morphometry and mechanical strength. Significantly higher (p < 0.05) callus bone volume (BV<sub>callus</sub>) and volume fraction (BV/TV<sub>callus</sub>) were seen in MP<sub>20</sub> and MP<sub>100</sub> groups when compared with OC. Bone maximum stress were significantly higher (p < 0.05) in MP<sub>100</sub> group. Results obtained showed that MPva leaves, at higher dose, enhanced bone formation and mechanical strength restoration of fractured tibiae of ovariectomized rats. Thus, MPva carries a high potential of being a supplementary or complemmentary medicine in the management of osteoporotic fracture in postmenopausal contition.

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