

Evaluation of antioxidant and osteoprotective effects of silymarin in fracture healing

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Therapeutic or supportive agents are needed to ensure faster recovery of bone function in fracture injuries. Accordingly, this study aimed to evaluate the accelerating effects of silymarin on fracture healing through antioxidant balance mechanisms. In the study, 48 male rats were divided into three equal groups: control, sham, and silymarin. Rats with right tibia fractures were administered 50 mg/kg/day of silymarin and/or normal saline by gavage for 21 days. After administration, serum samples were analyzed for antioxidant-oxidant markers such as superoxide dismutase (SOD), catalase (CAT), and malondialdehyde (MDA) levels. In addition, bone tissue was examined radiologically and histopathologically. Following silymarin administration, CAT and SOD enzyme activities increased compared to the control group, but the MDA level, which is an indicator of oxidative stress, decreased. Histopathologic and radiologic examination revealed that silymarin increased osteoblastic activity, stimulated bone formation, and exhibited osteoprotective effects. Silymarin may stimulate bone formation through oxidative stress inhibition and antioxidant effects in fracture injuries. It supports osteoprotective effects in wound healing mechanisms activated after fracture injury.

Keywords: Milk thistle supplement, Bone regeneration, Reactive oxygen species, Antioxidant defence, Osteogenic effect