

Protective Effect of *Lepidium Sativum* Seeds and Buttermilk on Osteoporosis in Female Rats

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Abstract

Glucocorticoid-induced osteoporosis (GIO) is one of the serious side effects which have become the most common secondary osteoporosis. The study aimed to evaluate the effect of different levels of *Lepidium sativum* seeds and buttermilk on glucocorticoid-induced osteoporosis in rats. **Methods:** The present study was carried out in the National Nutrition Institute NNI Cairo, on forty-eight female rats. The rats were divided into eight groups (six rats each). The first group was fed on a basal diet and represents the negative control, while the other seven groups were injected subcutaneously with betamethasone at a dose of 4 mg/ kg BW three times a week. One group of them represents the positive control. The other six groups were fed on a basal diet containing 10% and 20% *Lepidium sativum* seeds (LSs), 10% and 20% buttermilk (BM), 10% and 20% mixture of LSs and BM for a period of eight weeks. **Results:** The positive control group showed a significant decrease in serum Estradiol (E2), Calcium (Ca), Phosphorus (P) levels and Ca and P in femur bone and a significant decrease in total Bone Mineral Density(BMD), and a significant increase in serum Alkaline phosphatase (ALP). On the other hand, all osteoporosis groups administrated with different levels of LSs and BM (10 and 20%) had a significant decrease in (ALP) and a significant increase in Ca, P in serum and Ca, P in bone and BMD, compared with the positive control group. The pathological examination of bone confirmed these results. **Conclusion:** *Lepidium sativum* seeds and buttermilk showed bone protection against glucocorticoid-induced osteoporosis in rats. *Lepidium sativum* seeds had a potent protective effect more than Buttermilk due to its content of isoflavones.

Key words: Osteoporosis, *Lepidium Sativum*, Buttermilk, phytoestrogen, Probiotic.