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WEIGHT REDUCTION AND CARDIOPROTECTIVE EFFECTS OF PHYTOESTROGENS IN RATS

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Phytoestrogens are compounds found in a wide variety of plant foods which are known to exert estrogen-like activities and have been reported to display both estrogenic and anti-estrogenic effects. In this study effect of dietary supplementation of an isoflavone compound, genistein containing polysaccharide on body weight reduction in comparison with estrogen in peri-menopausal or post-menopausal mimicked female rats. For a peri-menopausal state, forty-week old female Sprague-Dawley rats were supplemented with the genistein compound at low level (0.8 g/kg diet) or at high level(4.0 g/kg diet) or the combination of estrogen (200 μ g/kg diet) and high genistein compound (4.0 g/kg diet). All of the three groups supplemented with the genistein compound in a hyperlipidemic diet resulted in weight reduction. High level of the genistein compound was most effective, next was low level of genistein and then the combination of estrogen and genistein. For a post-menopausal state, ovariectomized female Sprague-Dawley rats were supplemented with estrogen (200 μ g/kg diet) or with the genistein compound at low level (0.8 g/kg diet) or at high level(4.0 g/kg diet). In these rats estrogen and the high level of the genistein compound were effective in weight reduction. Feeding estrogen resulted in the increase in plasma HDL-cholesterol concentrations. Cardioprotective effects were examined in post-menopausal mimicked female rats, and western analysis of ICAM-1 showed that the genistein compound could down-regulate this protein. Treatment of rats under a hyperlipidemic diet with either genistein or estrogen can induce weight loss in peri-menopausal or post-menopausal states. Genistein may have a cardioprotective effects through the decrease in the production of ICAM-1 and estrogen has this effect through the increase in HDL-cholesterol concentrations.