

## **Nutrigenomic effects of edible bird's nest on insulin signaling in ovariectomized rats**

### **ABSTRACT**

Estrogen deficiency alters quality of life during menopause. Hormone replacement therapy has been used to improve quality of life and prevent complications, but side effects limit its use. In this study, we evaluated the use of edible bird's nest (EBN) for prevention of cardiometabolic problems in rats with ovariectomy-induced menopause. Ovariectomized female rats were fed for 12 weeks with normal rat chow, EBN, or estrogen and compared with normal non-ovariectomized rats. Metabolic indices (insulin, estrogen, superoxide dismutase, malondialdehyde, oral glucose tolerance test, and lipid profile) were measured at the end of the experiment from serum and liver tissue homogenate, and transcriptional levels of hepatic insulin signaling genes were measured. The results showed that ovariectomy worsened metabolic indices and disrupted the normal transcriptional pattern of hepatic insulin signaling genes. EBN improved the metabolic indices and also produced transcriptional changes in hepatic insulin signaling genes that tended toward enhanced insulin sensitivity, and glucose and lipid homeostasis, even better than estrogen. The data suggest that EBN could meliorate estrogen deficiency-associated increase in risk of cardiometabolic disease in rats, and may in fact be useful as a functional food for the prevention of such a problem in humans. The clinical validity of these findings is worth studying further.

**Keyword:** Ovariectomy; Lipid metabolism; Insulin resistance; Antioxidant; Aging