

Elateriospermum tapos Yogurt Supplement in Maternal Obese Dams during Pregnancy Modulates the Body Composition of F1 Generation

ABSTRACT

Maternal obesity is a key predictor of childhood obesity and a determining factor for a child's body composition. Thus, any form of maternal nutrition during the gestational period plays a vital role in influencing the growth of the fetus. *Elateriospermum tapos* (*E. tapos*) yogurt has been found to comprise many bioactive compounds such as tannins, saponins, α -linolenic acid, and 5'-methoxy-bilobate with apocynoside I that could cross the placenta and exhibit an anti-obesity effect. As such, this study aimed to investigate the role of maternal *E. tapos* yogurt supplementation on offspring body composition. In this study, 48 female Sprague Dawley (SD) rats were induced with obesity using a high-fat diet (HFD) and were allowed to breed. Upon confirmation of pregnancy, treatment was initiated with *E. tapos* yogurt on the obese dams up to postnatal day 21. The weaning offspring were then designated into six groups according to their dam's group (n = 8) as follows; normal food and saline (NS), HFD and saline (HS), HFD and yogurt (HY), HFD and 5 mg/kg of *E. tapos* yogurt (HYT5), HFD and 50 mg/kg of *E. tapos* yogurt (HYT50), and HFD and 500 mg/kg of *E. tapos* yogurt (HYT500). The body weight of the offspring was accessed every 3 days up to PND 21. All the offspring were euthanized on PND 21 for tissue harvesting and blood sample collection. The results showed that both male and female offspring of obese dams treated with *E. tapos* yogurt showed growth patterns similar to NS and reduced levels of triglycerides (TG), cholesterol, LDL, non-HDL, and leptin. Liver enzymes such as ALT, ALP, AST, GGT, and globulin, and renal markers such as sodium, potassium, chloride, urea, and creatinine levels significantly reduced ($p < 0.05$) in the offspring of *E. tapos* yogurt-treated obese dams with the normal histological architecture of the liver, kidney, colon, RpWAT, and visceral tissue that is comparable to NS. In toto, *E. tapos* yogurt supplementation of obese dams exerted an anti-obesity effect by preventing intergenerational obesity by reversing HFD-induced damage in the fat tissue of the offspring.