

## Developmental and Reproductive Toxicity of Soybean Isoflavones to Immature SD Rats

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**Objective** To investigate the dose-dependent toxic effect of soybean isoflavone extracts (SIE) on reproductive development in immature rats. **Methods** Growing male and female rats ( $n=50$  each, 4 weeks) were divided into five groups fed with a standard cereal-based diet and gastrogavaged daily with 0, 30, 150, 300, and 600 mg SIE / kg body weight, respectively, for 12 weeks. Body weight, organ weights, and serum level of estrogen and testosterone were measured. **Results** Oral administration of SIE had no effect on food intake but decreased food efficiency ratio ( $P<0.01$ ). Suppression on body weight gain by SIE was dose-dependent and the effect was greater on male than on female rats ( $P<0.01$ ). SIE at high doses exhibited hepatotoxicity by increasing a relative liver weight, and also caused a smaller uterus but a greater relative ovary in female rats, while leading to larger relative testis and epididymis in male rats. SIE could decrease progesterone concentrations in female rats, whereas in male rats it reduced not only total testosterone level but also sperm count compared with the control group ( $P<0.05$ ). **Conclusion** SIE at a range of 50-1000 times of human intake level affects not only growth but also development of reproductive system in growing rats.

**Key words:** Isoflavones; Rat; Reproduction; Soybean; Toxicity

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