World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:8, No:09, 2014

Gonadotoxic and Cytotoxic Effect of Induced Obesity via Monosodium Glutamate on Mus musculus Testis Cytoarchitecture and Sperm Parameter

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Abstract : Impaired fertility may be the result of indirect consumption of anti-fertility agents through food. Monosodium glutamate (MSG) has been widely used as food additive, flavour enhancer and included in vaccines. This study focuses in determining the gonadotoxic and cytotoxic effect of MSG on selected sperm parameters such as sperm viability, sperm membrane integrity and testes cytoarchitecture of male mice via histological examination to determine its effect on spermatogenesis. Twenty-four Mus musculus were randomly divided into 4 groups and given intraperitoneal injections (IP) daily for 14 days of different MSG concentrations at 250, 500 and 1000mg/kg MSG to body weight to induce obesity. Saline was given to control group. Mice were sacrificed and analysis revealed abnormalities in values for sperm parameters and damages to testes cytoarchitecture of male mice. The results recorded decreased viability ($p<0.05$) and integrity of sperm membrane ($p>0.05$) with degenerative structures in seminiferous tubule of testes. The results indicated various implications of MSG on male mice reproductive system which has consequences in fertility potential.

Keywords : sperm parameter, testes histology, sperm viability, sperm membrane integrity
Conference Title : ICANRE 2014 : International Conference on Agricultural and Natural Resources Engineering
Conference Location : London, United Kingdom
Conference Dates : September 26-27, 2014