

Evaluation of Biochemical, Hematological and Histological Parameters in Non Diabetic and Diabetic Wistar Rats Fed with Monosodium Glutamate

PDF (Size: 2863KB) PP. 66-76 DOI: 10.4236/fns.2013.41010

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ABSTRACT

The parenteral or oral administration of monosodium glutamate (MSG) has been reported to have a deleterious effect on the hypothalamic arcuate nucleus, which changes appetite control. This alteration in function may lead to obesity and disorders related to metabolic syndrome, such as alterations in carbohydrate metabolism (glucose and insulin resistance), dyslipidemia and cardiovascular disease. This study evaluates the induction of metabolic alterations due to subchronic consumption of diets containing MSG at levels of 1.0%, 2.5% and 5.0%. Initially the animals (newborn male Wistar rats) consumed the diets containing MSG for a period of 70 days. At the end of this period diabetes was induced by streptozotocin (STZ) and the rats maintained on the same diets for additional 21 days. The induction of diabetes is based on the susceptibility of diabetic animals to metabolic disorders. Methods capable of evaluating the entire metabolic profile of the diabetic condition were used, including biochemical tests and tests able to detect alterations in the organs usually affected by this disease. It was concluded that the consumption of diets containing up to 5.0% MSG did not change the studied parameters for both: diabetic or non-diabetic animals. The alterations observed in the diabetic animals mainly reflected metabolic changes caused by the disease and were not related to the administration of MSG.

KEYWORDS

MSG; Glutamate; Wistar Rat; Diabetes

Cite this paper

H. Maluly, M. Areas, P. Borelli and F. Reyes, "Evaluation of Biochemical, Hematological and Histological Parameters in Non Diabetic and Diabetic Wistar Rats Fed with Monosodium Glutamate," *Food and Nutrition Sciences*, Vol. 4 No. 1, 2013, pp. 66-76. doi: 10.4236/fns.2013.41010.

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