



Cairo University
Faculty of Veterinary Medicine



Histological and Immunohistochemical studies on the effect of vitamin C and Nigella Sativa on some organs of adult rats exposed to MonoSodium glutamate

A thesis presented By

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(B.V.Sc., Cairo University, 2013; M.V.Sc., Cairo University, 2016)

For the Degree of Ph.D.

(Cytology & Histology)

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Abstract:

Monosodium glutamate (MSG) is a major taste enhancer that is used as a food additive. Vitamin C (Vit. C) and *Nigella sativa* oil (NSO) are known for their potent antioxidant activities. The present study was designed to investigate the ameliorative role of Vit C and NSO against the adverse effect of MSG on the cerebellum, liver, thyroid gland and submandibular salivary gland of adult male albino rats. Fifty adult male albino rats were divided into 5 groups (10 rats/group). Group I (control): rats received distilled water; Group II (M): rats received MSG (6 gm/kg b.wt./day); Group III (MC): rats received Vit C (100 mg/kg b.wt /day) plus MSG; Group IV (MN): rats received NSO (50 mg/kg b.wt /twice a week) plus MSG and Group V: rats received both of Vit C and NSO with MSG at doses as mentioned in previous groups by oral gavage needle for 60 days. Light microscopical examination of cerebellum, liver, thyroid gland and submandibular salivary gland showed various lesions after exposure to MSG which were confirmed immunohistochemically. Exposure to MSG adversely affected the measured liver enzymes activity, thyroid hormones levels, oxidative stress and lipid peroxidation parameters. On the other hand, administration of Vit C and NSO concomitantly with MSG ameliorated most of the undesirable effects. It could be concluded that, the adverse effects induced by MSG, were markedly ameliorated by supplementation with Vit C and NSO.

Key words: Monosodium glutamate, Nigella sativa oil, Vitamin C, Albino rats.

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