

Effect of Aspartame on the Rat's Thyroid Gland: A histological and Morphometrical Study

Nali Abdulkader Maaruf (M.Sc)¹, Zana Mustafa Mahmood (M.Sc)²
and Paiman Jamal Muhamad Amen (PhD)³

Abstract

Background: The aspartame is a synthetic sweetener has been used for many purposes as an anti-inflammatory agent, antioxidants and hepato protective, its metabolites can be toxic to many organs and several studies on laboratory animals have been made to verify aspartames toxicity which can cause harmful effect after administration for long duration at a dose of 150 mg/kg body weight.

Objective: To evaluate the effect of aspartame on morphometric and histopathological changes of the rat's thyroid gland, since the aspartame sweetener is widely used worldwide.

Patients and Methods: Fifty adult Wister albino rats were used and divided randomly into two groups. The treated group received 150 mg/kg aspartame orally daily after dissolving it in 2cc distilled water and the control group received 2cc distilled water daily orally for eight weeks.

Results: Histological examination of aspartame-treated group showed loss of normal architecture of the thyroid gland. morphometrical measurement showed many follicles were small in size and others had disrupted wall and detached cells in their lumens, there was significant increase in the height of cells and number of follicles with decrease in width of the cells.

Conclusion: Administration of aspartame at a dose 150 mg/kg had a significant effect on both histologic and morphometrical structure of the adult rat's thyroid gland.

Key words: Thyroid gland, Aspartame, Histological examination.

Corresponding Author: nali.maaruf@med.hmu.edu.iq

Received: 22th November 2016

Accepted: 29th January 2017

^{1,2,3}Department of Anatomy and Histology-College of Medicine-Hawler Medical University- Iraq.