

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

((وَيَخْلُقُ مَا لَا تَعْلَمُونَ))

صدق الله العظيم

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The Effect Of Taste Adaptation On The Salivary Glands Of The Rat.

Thesis

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Abstract:

Salivary gland structure, as affected by several factors continues to be the subject of interest that occupies the attention of many investigators. **Purpose:** studying the salivary glands response to prolonged intake of the four taste modalities in rat histologically and histochemically. **Methods:** Ninety albino rats were used. Animals were weighed and divided into four experimental groups (Sweet, Salt, Sour, Bitter) 20 rats in each, and a control group of 10 animals. Animals were weighed before being sacrificed after eight weeks. Their submandibular and sublingual glands were then subjected to histological, histochemical and morphometric examinations. **Results:** Maximum gain in body weight was seen in the sweet group, followed by bitter and salt groups. The least gain of body weight was observed in sour group. Extensive histopathological changes were observed in the sweet group. Morphology of the mucous acini of the sublingual gland was more stable. The morphometric results revealed an increase in the size of ducts and acini in sweet and salt groups, and decrease in the diameter of ducts and acini in the sour and bitter groups. All groups demonstrated decrease in the number of acini and ducts when compared to the control group. **Conclusions:** An interrelation is strongly suggested between the function of salivary glands and taste sensation that was achieved through over stimulation of taste receptors by taste adaptation. Taste adaptation in rat changes its salivary gland tissues histologically, histochemically, and morphometrically. The structure of the sublingual salivary gland in rat is less sensitive to the taste adaptation. The use of computerized Image Analysis System provides a high quality method that could assure non subjective morphometric & histochemical assessments.

Keywords: Salivary glands, Rats, submandibular salivary gland, sublingual salivary gland, Taste adaptation, *Taste modalities*, histochemistry, morphometry, Image analysis system.

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Sir Issac Newton uttered these words in 1772: "***If I have seen further, it is because I sat on the shoulders of giants***" inspired by his words, I would like to dedicate this work to one of these giants **Prof. Dr. Kamal El Motayam** .

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