



## Efficacy of The Therapeutic Potential of Ginger (*ZingiberOfficinale*) on The Submandibular Salivary Glands in Streptozotocin –Induced Diabetic Albino Rats: An Animal Study

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### Abstract:

Background: Diabetes mellitus is the most common metabolic endocrine disorder with concomitant oral manifestation that impact dental care. The latest assessments show a prevalence of 382 million people with diabetes in 2013 worldwide and more than 592 million people will be affected at 2035(Chen, Magliano and Zimmet, 2012 & Nita and Nicholas, 2014).Ginger is one of the most commonly consumed dietary condiments in the world. It's pharmacological and physiological actions have increased over the last few years.More recently, it was reported that ginger also possesses anti-cancer, anti-clotting, anti-inflammatory and anti-oxidative characteristics, since it can scavenge superoxide anion and hydroxyl radicals. (Elshater, Salman and Moussa, 2009 and Li et al., 2012)

Objective: Investigate the therapeutic effect of aqueous extract of *ZingiberOfficinal* on submandibular salivary gland in streptozotocin (STZ)-induced diabetic rats. Material and methods: 24 adult male albino rats were utilized, eight as control healthy group (group I), eight as STZ-induced diabetic group (group II) and eight as ginger (*Zingiberofficinale*) treated diabetic group (group III). All the animals in all groups were sacrificed after 30 days from the beginning of ginger extract treatment. The submandibular salivary glands were dissected and examined histologically, immunohistochemically, and by Real-time Reverse Transcription Polymerase Chain Reaction (RT-PCR). Results: Histologically, Diabetic untreated group (group II) showed marked loss of acinar architecture as well as degeneration in duct system. Group III, revealed almost normal acinar and ductal histology. Immunohistochemically, there was as significant statistical decrease in the expression of NF-KB in group III as compared to group II. RT-PCR analysis demonstrated a statistical significant decrease in IL-2 mRNA gene expression in group III as compared to group II. Conclusions: Diabetes led to marked histopathological changes in rat's submandibular salivary glands. *ZingiberOfficinale* (ginger) administration led to beneficial pharmacological effect mainly



through its antioxidant, anti-inflammmtory and anti-diabetic effect of ginger throughout the ongoing study might be attributed to its bioactive ingredients. These compounds have been reported to display diverse biological activities. (White, 2007 & Ali et al., 2008). It is recommended that dietary or medical use of ginger could be excellent adjuvant support in the therapy of diabetes mellitus and prevention of its complications.

### Biography:

Sarah Mohamed Ellithy has graduated from Cairo University. Her grade was very good with honour degree. She trained for approximately two years in her college at different departments as a house officer “an intern”, then as a visiting resident. Further, she worked at the Ministry of Health for about more than two years as a dentist. Moreover, she worked at Future University in Oral Biology Department for one year as a teaching assistant. She has recently completed her master's degree in Oral Biology Department at Cairo University. She had lots of experience from her master where she did many research, prepared her specimens and wrote her thesis. She worked clinically on laboratory rats and made Histological, Immunological examinations and PCR. Currently, she is preparing to continue her study abroad in UK to deepen and expand her knowledge. Sarah is hard-working, passionate, punctual and very efficient. She could communicate with her students and simplify any complex subjects. Furthermore, Sarah is a good researcher and presenter. She likes to search not only for new articles to be up-to-date but also for general health information.

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