EFFECT OF NIGELLA SATIVA SEEDS AND ITS COMMERCIAL OIL ON GINGIVITIS IN ALLOXANE INDUCED DIABETIC RATS

Thesis

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Ву

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بسم الله الرحمن الرحيم

وَمَا أُوتِيتُم مِّن الْعِلْمِ إِلاَّ قَلِيلاً

صدق الله العظيم

الاسراء ٨٥

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Introduction and Review of literature

Introduction and Review of literature

Diabetes Mellitus

Diabetes Mellitus is a chronic endocrine disorder affecting carbohydrate, fat and protein metabolism. It is caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the reduced effectiveness of the insulin produced. Such a deficiency results in increased concentrations of glucose in the blood, which in turn damage many of the body's systems, in particular the blood vessels and nerves (WHO, 2002).

The three main types of diabetes mellitus are:

- Type 1 diabetes, is an autoimmune disease that results in the body destroying its own insulin-producing cells in the pancreas.
- Type 2 diabetes, is marked by an inability of the pancreas to make enough insulin (insulin deficiency) and/or the inability of the body to use insulin properly (insulin resistance).
- Gestational diabetes which occurs during pregnancy in about 3–8% of females not previously diagnosed with diabetes (Graves et al., 2006).

Diabetes and gingivitis

The association between periodontal diseases and diabetes has been studied by several investigators, it has been accepted that periodontal disease is more prevalent and more severe in diabetic persons than in non-diabetic ones (Taylor et al., 1998).

Subjects with type 1 diabetes have a higher prevalence of marginal gingivitis and a more frequent presence of gingival pockets and loss of marginal alveolar bone, teeth and periodontal attachments (Firatli et al., 1996) and (Kawamura et al., 1998). An increased prevalence of gingivitis and dental caries has also been observed in gestational diabetes (Albrecht et al., 1987).

Alloxan induced diabetes has been shown to cause histopathological breakdown of rat periodontal tissue with alteration of gingival collagen metabolism in the rat. (Golub et al., 1977). Streptozotocin induced diabetes has been shown to result in an increase of gingival collagenase activity in the rat (Ramamurthy and Golub, 1983).

The gingival abnormalities in streptozotocin diabetes were examined in plaque-susceptible rats. At the age of seven weeks, pocket probing depths of rats were measured. In control rats, the inflammatory changes were located in gingival epithelium, and some

polymorphonuclear leukocytes had infiltrated the gingival epithelium with accompanying moderate destruction of epithelial tissue. However in diabetic rats, many lymphocytes had infiltrated both the epithelial and underlying connective tissues, with severe destruction of epithelial tissue (Takal et al., 1986).

Diabetes have important oral alterations, of which periodontal disease and gingivitis are the best defined. These have a higher incidence in diabetes and are correlated with the degree of metabolic control. There is no doubt that the susceptibility of diabetics to stomatitis, glossitis, painful syndromes and sensory changes affecting the sense of taste are also linked to diabetes (Ponte et al., 2001).

Feher et al., 2001, stated that gingivitis and periodontitis are chronic bacterial diseases of the underlying and surrounding tooth tissues. The initial factor in the development of the periodontal disease is the host response and its defense capacity to the microbial stimuli. Systemic factors modify all forms of gingivitis and periodontitis through their effect on the immune and inflammatory defense.

Karakus et al., 2007, designed a study to analyze the number of vessels in gingival biopsies of patient suffering from type 2 Diabetes Mellitus with or without periodontitis and from systemically healthy subject with or without periodontitis. Sections were examined by