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Effect of *Sesamum indicum* oil in Thyroidectomy-Induced Erectile Dysfunction in Rat

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Abstract

The aim of the present study has been to explore the effect of *Sesamum indicum* in thyroidectomy-induced erectile dysfunction in rat. The animals were anaesthetized with combination of midazolam and ketamine *i.p.,* and the thyroid gland was dissected out. The skin was then stitched and the wound was closed. Animals were treated with penicillin injection *i.p*. for 5 days postoperatively. After 45 days of surgery different groups of animals were treated with sesamum oil at dose levels 2 mL, 3 mL and 5 mL/kg *p.o*., and with standard drug sildenafil, respectively, for 28 days. At the end of the study erectile dysfunction-associated physical and biochemical parameters were evaluated to assess the effect of *Sesamum indicum* in thyroidectomy-induced erectile dysfunction. Thyroidectomy resulted in impairment of sexual function in the rat. Treatment of *Sesamum indicum* oil caused increase in testosterone level. It also produced significant positive effects on the physical parameters of sexual function such as mount latency, intromission latency, ejaculatory latency, post-ejaculatory interval, mount frequency and intromission frequency. Though the oil did not produce any significant effect on the levels of thyroid hormones, the oil at the doses of 2 mL, 3 mL and 5 mL/kg body weight restored sexual competence to a reasonable extent in which the highest dose produced the maximum response. A combination of *Sesamum indicum* oil and thyroxin may be recommended for hypothyroidism-associated sexual impairment.

Keywords: Erectile dysfunction, *Sesamum indicum*, Sesamum oil, Thyroidectomy, Thyroxine

1. Introduction

Erectile dysfunction (ED) is a common disorder involving various psychosocial and biological factors. Erectile dysfunction can be expressed as the continued inability to attain or maintain penile erection enough for satisfactory sexual performance. It is a medical condition that alters the sexual life of men world-wide [1]. Erectile dysfunction, male impotence and abnormal sperm morphology may result in infertility [2]. Erectile dysfunction is associated with lifestyle factors such as cigarette smoking, excessive alcohol consumption and age-related medical conditions [3]. Prevalence of ED is associated mainly with aging as well as one or more of co-morbiditiessuch as cardiovascular problems, diabetes, metabolic syndrome, hyperlipidemia, depression, pelvic surgery, side effects of medications, neurological disorders, trauma, symptoms of benign prostatic hyperplasia and psychological and interpersonal problems [4].

There are essentially three mechanisms of vascular changes associated with penile erection. They are, i) psychogenic, ii) reflexogenic, and iii) centrally originated (nocturnal erections). Psychogenic erections are those that occur by the stimulatory pathways (like, sound, smell, sight, touch, etc.) that frequently traverse via spinal erection centers (including T11–L2 and also S2–S4) and they are induced by dopaminergic initiation of the erection from the parts of medial pre-optic area[5]. Reflexogenic erections (RE) are induced by direct genital stimulation, which acts by transmitting ascending messages for the central erection centers (EC) and directly transmit messages to the autonomic nuclei. This explains the cause for residual erectile activity in patients suffering from upper spinal cord injuries. Nocturnal erections (NE) relate to

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