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Ameliorating Potentiality of Sesame Seed on *Aloe Vera* Induced Male Albino Rat

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ABSTRACT

Many herbal medicines have antifertility properties, while some have fertility potentiality. Sesame seed (S) has been considered as a damage recovery drug over the *Aloe vera* (AV) induced reproductive toxicity. The aim of the present study was to evaluate the ameliorating effect of S on AV induced histopathological and biochemical changes in albino rats. 18 male albino rats weighing between 200 to 250 grams were randomly divided into 3 groups of 6 animals each. Group I, control and provided normal saline, group II and III were experimental and provided 25 mg/kg b.w AV and 25+50 mg/kg b.w AV+S respectively for 45 days daily orally. On treatment completion the rats were anesthetized and dissected. The testes were procured and processed for histology, proteins and lipid peroxidation estimation. AV results in decreased body and organ weight. Histopathology of testes showed atrophic tubules, decreased Leydig cells, increased interstitial spaces, thickened peritubular wall of blood capillaries, empty lumen, vacuolated spermatocytes, degenerated Sertoli cells, detached basement membrane and lumen with cell debris. The tissue protein level found to be reduced. Malondialdehyde (MDA) concentration was significantly increased. S showed recovery effect on histopathological and biochemical changes caused by AV. Data expressed as mean $\pm$ standard error (SEM) and analyzed using student's t-test to compare values from experimental and control groups. Present findings concluded that AV has antifertility potential and may impair the fertility, whereas S has ameliorating potentiality over it.

Keywords: Sesame, *Aloe vera*, Histology, Proteins, Malondialdehyde

1. INTRODUCTION

Medicinal plants have specific property and its use attributed to their biological group of compounds. *Aloe vera* (AV) is one of them. AV gel is collected mucilaginous gel obtained from parenchymatous cells in the flesh leaves of AV [1, 2]. The bitter yellow latex from AV leaf contains aloin, aloin, and barbaloin which can cause abdominal cramps, impair fertility or cause miscarriage in humans and animals during overuse or misuse [3]. Hydro-alcoholic extract of this plant has an anti-androgenic property that can reduce androgen dependent parameters including secretions of gonadotropins and probably cause oligospermia [4]. Some studies showed that AV reduced sperm count and motility hence it could be served as a contraceptive drug [5]. High dose AV treated groups cause histopathological changes such as atrophic tubules, germ cell debris, pyknotic cells and Sertoli cell vacuolization in testes and in prostate glands, atrophic tubules and mononuclear cell infiltration were observed [6]. [7-9] Takeda studied the effect of AV gel on ovulation and uterine weight of rats, to determine ovulation, oestrogenic, androgenic and progesterone levels.

Sesame seeds are one of the richest food sources of lignans, mainly type of phytoestrogen [10]. According to [11] lignans of sesame leaves improve and increase epididymal spermatocyte reserve, testosterone level and decrease FSH level in adult male Sprague Dawley rats. Sesame seed could improve testicular parameters, fertility, sperm count, motility, diameter of the seminiferous tubules and also increase the LFT in a dose-dependent manner [12, 13]. Sesame improves sperm motility and morphology due to the reactive oxygen species [14] and free radical scavenging activity of sesame lignans as a powerful anti-oxidant with inhibitory effect on lipid peroxidation, dismutase and catalase oxidase, which inhibit sperm motility and maturation in the epididymus [15]. Sesame lignans