

Impact of *Aloe vera* consumption on reproductive system: a review

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Abstract

Medicinal plants are used in pharmacological sector to improve health. There is a rich tradition of using herbal medicine for the management of several illnesses. Among these plants, *Aloe vera* has pulled specifically consideration of current medication due to its broad use and therapeutic properties. Though, *Aloe vera*'s impact on the reproductive system has not been clearly demarcated. Several researchers have stated that *Aloe vera* enhances male and female sexual function and has positive effect on testicular functions; increase the testosterone level in male; has ovulatory effect on ovary and increase estrogen hormone. However, *Aloe vera* has been shown in multiple studies to have detrimental effects on both the female and male reproductive systems. It has destructive effect on testes, inhibit the testosterone production; reduce the sperm motility, sperm count in male and degenerative changes in ovary. In the present review, we attempt to explain the uncertainty about the *Aloe vera*'s impact, its dose additionally duration with regard to reproductive system.

Keywords: *Aloe vera*, testes, sperm, testosterone, sperm motility.

Introduction

The term "aloe" in Arabic, meaning "a gleaming bitter material" is where the English word aloe (Ghazanfar, 1994). *Aloe barbadensis* miller is the botanical name for *Aloe vera*. It is a perpetual, bushy, xerophytic, tender colony within the family Liliaceae (Asphodelaceae). It might be located in Gujarat, Tamil Nadu, Rajasthan, Maharashtra, and Andhra Pradesh in India. It is mostly located in arid parts towards Asia, Africa, America, and Europe (Richard, 2005). On reproductive system *Aloe vera* has both beneficial and hazardous effect according to the literature various workers showed that *Aloe vera* caused damage to male reproductive system (Shah *et al.*, 1989, Oyeyemiet *et al.*, 2011, Oyewopoet *et al.*, 2011, Dhurvey *et al.*, 2020) and several workers stated the beneficial effect of *Aloe vera* on male reproductive system (Estakhr and Javdan 2011, Mehrdad and Alireza 2014). Similarly in female *Aloe vera* has both positive and negative effect.

Properties of *Aloe vera*

Aloe vera has numerous curative and therapeutic attributes. In diabetics, *Aloe vera* decreases blood sugar levels. It enhances reactivity as well of insulin in tissue, thereby enhancing the effectiveness of insulin. The active ingredients in *Aloe vera* also help lower high blood pressure. As a result, *Aloe vera* is appropriate for the treatment of diabetic diseases (Misawa *et al.*, 2008). In addition to alkaloids, saponins, and flavonoids, studies employing phytochemistry demonstrated the presence of tannins, anthraquinones, and amino acids as significant phytochemical groups in the whole leaf and green extracts of *Aloe vera*. (Nalimu *et al.*, 2022). (Reuter *et al.*, 2008) discovered that *Aloe vera* had anti-inflammatory properties in the skin UV erythema test. *Aloe vera* was found to have anti-inflammatory properties in this investigation. *Aloe vera* gel is a treatment for the inflammatory skin condition known as UV-induced erythema. Several approaches were utilized to demonstrate the antibacterial activity of *Aloe vera* gel against Gram-positive and Gram-negative bacteria. (Habeebet *et al.*, 2007). According to Jeyasakthi *et al.*, (2017) *Aloe vera* possesses a noteworthy antifungal impact on both *Aspergillus niger* and *Candida albicans*. Both directly and indirectly, *Aloe vera* possesses antiviral qualities. Anthraquinones, notably aloin, induce both direct and indirect effects by activating the immune system. Aloin stimulates multiple enveloped viruses, including influenza, herpes simplex, and varicella zoster (Sydiskis 1991). According to Reynolds and Dweck (1999), Polysaccharides and lectins (glycoproteins), two components of *Aloe vera*, have anticancer qualities. *Aloe vera* contains antimicrobial chemicals such as salicylic acid, phenol, urea nitrogen, lupeol, sulfur, and cinnamonic acid (Surjusheet *et al.*, 2008).

Aloe vera's effects on the male reproductive system

There are controversial reports in literature regarding impacts of *Aloe vera* on male and female reproductive systems. There be two contrary reports in the literature concerning the influence of *Aloe vera* on testicular histopathology. Three investigations exhibited beneficial effect on morphology of testes after *Aloe vera* administration evidenced by the increase in spermatogonia, primary spermatocytes, spermatids, Sertoli cells and Leydig's cells (Estakhr and Javdan (2011); Ibtisam and Zena (2014); Mehrdad and Alireza (2014). Indeed, Estakhr and Javdan 2011 found that *Aloe vera* gel extract (150mg/Kg), pulp extract (150mg/Kg), and *Aloe vera* gel+pulp (150mg/Kg) treatment for 56 days showed significant increase in testes weight of rat. Epididymal