

Aloe Vera in Dentistry

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ABSTRACT

Aloe vera is a medicinal plant which has been used for thousands of years. The health benefits of aloe vera is well known and the dental uses of this plant is multiple. Interest is gathering among researchers regarding the use of this plant. Studies have proved the antiseptic, anti-inflammatory, antiviral and antifungal properties of aloe vera and the use of this plant is proved beneficial. This plant is proved to be non-allergic and very good in building up the immune system. Aloe vera is gaining popularity in dentistry as it is completely natural and there is no side effects being reported with its use. This paper gives an overview of the uses of this miracle plant and its uses in dentistry.

Keywords: Aloe vera, Applications, Dentistry, Medicinal plant, Natural

INTRODUCTION

Aloe vera the medicinal herb comes from the family "Asphodelaceae" genus 'Aloe'. The most common and usefully among all in that species is Aloe Vera Barbadosensis in which the species name 'vera' means true [1]. It is a native plant of Africa which is found in Africa, Northern America, India, Egypt and Sudan.

Aloe vera is among the succulent plants which retain and store water in the stems and leaves [2]. This plant is highly resistant to insect pests and comes under 'Arbuscular plants' which has the fungus *Arbuscular Mycorrhiza* on the surface. This fungus penetrates inside and helps in absorption of potassium and other minerals from the soil. Because of this the plant is of high medicinal value. But like any other plant or fruit which loses its therapeutic value when cut, aloe vera also gets unstable as it gets oxidized when cut [3].

ALOE VERA AND HEALTH BENEFITS

Aloe vera the miracle herb is proven itself in being beneficial in many health functions. It is a source of 19 out of 20 essential amino acids which is required by our body and these amino acids help in smooth functioning of our complex enzyme system [4,5].

The next most useful benefit of aloe Vera is its source of vitamins, which includes A,B C,E and folic acid [6]. As this plant grows in soil rich in minerals it becomes a rich source of calcium, sodium, potassium, magnesium, iron ,copper and zinc [7]. Aloe vera is also thought to be a good antiviral, antibacterial and antifungal, as the inner gel is surrounded by polysaccharides which are able to defend our body from all these attacks [8-10]. It is also proved to be an effective anti-inflammatory agent with analgesic properties. Studies have shown that the extracts of this gel has inhibitory action on the arachidonic acid pathway via cyclooxygenase inhibiting inflammation [11].

Aloe vera is proved to be beneficial in dermatological problems and helps in good skin tone by increasing the activity of fibroblasts. These fibroblasts produce collagen and elastic fibers and give the skin its structure. The moisturizing effect of aloe vera due to polysaccharide components provides and sustains moisture in tissues [12].

A large number of studies have shown the healing property of aloe vera. It improved healing by increasing the blood supply, which increased oxygenation as a result [13]. Davis et al., in his study examined the possibility of aloe gel being an active growth substance as mannose- 6- phosphate was the major sugar in aloe gel [14].

ALOE VERA AND DENTISTRY

The dental uses of aloe vera are numerous. There is increased interest among researchers to analyze the use of aloe vera in dentistry and various studies have proved the effectiveness of this plant.

Having good antiseptic and anti-inflammatory properties they are used in the treatment of gingivitis and periodontitis. They readily reduce the gingival inflammation and pain associated with it. Clinically proven studies have showed that mouthrinses and dentifrices containing aloe vera have shown a remarkable reduction in gingivitis and plaque accumulation after its use [15,16]. Studies by Geetha Bhatt et al., have proved the use of aloe vera gel as a subgingival administrator in the treatment of periodontal pockets [17].

Its anti-viral properties help in the treatment of herpes simplex and herpes zoster infections. The sore areas of the oral mucosa which are covered by dentures can be treated with aloe gels as it is also a good antifungal agent, they also reduce the pain associated with ulcers in the commissures of the mouth. Aloe vera gel reportedly inhibited the growth of *candida albicans*, which is the most common *candida* species in the oral cavity [8]. Studies carried out prove the anti-microbial activity of dentifrice containing aloe vera have shown inhibition in the growth of organisms such as *S.viscosus*, *S. mutans*, *S.sanguis* and *C.albicans* [18]. Aloe emodin, aloetic acid, aloin, anthracene, anthranol, barbaloin, chrysophanic acid, ethereal oil, ester of cinnamonic acid, isobarbaloin and resistannol are the plant's natural anthraquinones and these are responsible for the antimicrobial quality of aloe vera [19]. A study in 2009 by Dilip George et al., demonstrates the efficiency of aloe vera tooth gel in controlling the microorganisms of the oral cavity [20].

As aloe vera tooth gel does not contain the abrasives which are present in the normal dentifrices they are a good alternative for individuals with sensitive teeth. Acemannan, a complex mannose carbohydrate which is derived from aloe vera plant has an inherent viscosity which makes it ideal to be used as a denture adhesive. A study report is proved its adhesive strength with minimal cytotoxicity [20].

The wound healing and anti-inflammatory property of this gel is proved by the studies by Poor MR et al., which has shown the reduction in the incidence of alveolar osteitis in patients who received an aloe vera gel [21]. Aloe vera gel is been used as a lubricant and a sedative dressing during biomechanical preparation in root canal treatment [22].

Lichen planus a dermatological disease affecting the oral cavity is successfully treated with aloe vera gel. Hayes SM has reported a case of successful treatment of lichen planus with aloe gel [6]. A study which was performed in 2010 to prove the efficacy of topical aloe vera in treatment of lichen planus in comparison with placebo showed a statistically significant result [23].

The dental directory is now come up with latex free aloe vera coated gloves mainly for cracked hands for the soothing, cooling, moisturizing effect of the substance [24]. Studies have demonstrated the antioxidant effect of some of the constituents of aloe vera gel. Three aloesin derivatives from aloe, namely isorabaichromone, feruoylaloetin, and p-coumaroylaloetin) showed potent free radical and superoxide anion activity. Similar studies have also confirmed the anti oxidation action of aloe vera gel [25,26].

CONCLUSION

Aloe vera has a lot to offer in the field of dentistry, a lot of studies is on the way to utilize the effective antimicrobial property of the miracle plant. Interest is gathering for the use of aloe vera in dentistry and this natural therapy is already proved its unlimited use in our field.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jan 09, 2014**
Date of Peer Review: **Feb 27, 2014**
Date of Acceptance: **Apr 18, 2014**
Date of Publishing: **Oct 20, 2014**