Aloe vera (Aloe barbadensis) commonly called as “babosa”. “Curacao aloe” is a succulent plant belonging to the Liliaceae family. It has been used initially in wound healing and was found to be beneficial as radiation protectors, immune stimulant, chemopreventive etc. It is used in many systemic diseases because of its multiple therapeutic properties such as antioxidant, anti-helminthic, anti-inflammatory, anti-viral, lipolytic, laxative, anti-arthritis and also as a uterine stimulant. There are few clinical trials where Aloe vera has been used in the treatment of oral diseases such as oral lichen planus, recurrent aphthous stomatitis, oral pemphigus, herpetic stomatitis, radiation induced mucositis. The present review article aims in evaluation of these clinical trials to assess the efficacy of Aloe vera as a therapeutic in oral diseases and to emphasize the need for future clinical trials using Aloe vera in potentially malignant disorders of the oral mucosa.

**Keywords**: Aloe vera, oral diseases, oral lichen planus, oral submucous fibrosis, aphthous stomatitis

**INTRODUCTION**

**Background of aloe vera**

Aloe vera – the term Aloe being derived from the Arabic word “aloolh” meaning shiny and bitter while Vera from the Latin word meaning true[1]. It’s history dates back to 1500 BC. It was reported that Alexander the Great conquered the island of Socotra in the Red Sea, which was said to have abundant Aloe fields in order to help his troops from healing of battle wounds. The Egyptians called Aloe Vera as “the plant of immortality”[2]. Its modern use was recognized first in radiation burns by Dr.C.E.Collins in 1934[3]. Currently, Aloe Vera is used in various oral diseases like gingivitis, denture sore mouth[4], Shingles and Herpetic stomatitis[5], oral lichen planus[6], minor recurrent aphthous ulcer[7], leukoplakia, oral submucous fibrosis[8]. They are available in different forms like gel, ointment and also as drinks, capsules etc. The extraoral adverse effects reported are very few such as burning on topical application, contact dermatitis, and mild itching[9].

**Search strategy**

The following electronic databases were searched namely PubMed(MeSH), Wiley online library, Cochrane Library using key words ( aloe vera and oral diseases, aloe vera and lichen planus, aloe vera and oral submucous fibrosis, aloe vera and aphthous stomatitis, aloe vera and leukoplakia). The total number of articles obtained are 27 (Wiley online library -5, PubMed -17, Cochrane Library - 1, Hand search – 4). The current review article aims in evaluating the efficacy of Aloe vera only in oral diseases hence the following inclusion and exclusion criteria was devised to select the appropriate clinical trials.

**Inclusion criteria**: Human clinical trials where Aloe vera is used in treatment of oral lesions alone.

**Exclusion criteria**: In-vitro studies and review articles are not included.

**RESULTS**

This review article includes 7 trials where topical Aloe vera is used in treatment of oral lesions such as alveolar ostitis, oral lichen planus, oral submucous fibrosis, minor recurrent aphthous ulcers and radiation induced mucositis. The results of these trials are tabulated as follows: (Table 1)

**DISCUSSION**

Aloe vera being used in various diseases is said to have certain active components like saponins, lignin, salicylic acid, anthraquinones and amino acids [13] in which anthraquinones have the strong anti-bacterial, anti-viral and anti-neoplastic properties[14]. Though Aloe vera in literature has been reported to have significant medicinal value started from 1500 BC, clinical trials of Aloe vera on oral diseases were published since 2002 though its effects in extra-oral applications were studied early from 1985. The clinical trial conducted in 2002 for alveolar ostitis was the earliest to be done for the maximum number of patients of about 1,194 in total while the other trials included only a few study groups. Recent clinical trials of Aloe vera on oral diseases give very few side-effects with nausea as the main. Aloe vera showed the most beneficial effect in oral lichen planus but no significant benefit in radiation induced mucositis.

**Author’s suggestion**

Aloe vera has been proved to have multiple and few unique properties with very less side-effects and hence can be definitely tried in many oral and extra-oral diseases. The current review article reveals that there are very few clinical trials in use of Aloe vera exclusively in oral diseases in spite of significant medicinal value. This review suggests the future demand for more human clinical trials utilizing the unique properties of Aloe vera such as potent antioxidant, immune stimulant in potentially malignant disorders like leukoplakia, erosive lichen planus and oral submucous fibrosis.

**TABLE 1**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FORM OF ALOE VERA</th>
<th>DOSAGE AND DIRECTION OF USE</th>
<th>PATIENTS</th>
<th>ORAL DISEASE</th>
<th>RESULTS</th>
<th>ADVERSE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor et al 2002-</td>
<td>Saliccept patch - freeze-dried pledget containing Acemannan Hydrogel from inner gel of Aloe</td>
<td>2 Saliccept patches placed immediately after extraction</td>
<td>1194 patients</td>
<td>Alveolar osteitis</td>
<td>Occurrence of alveolar osteitis 7 days post-surgical: 1) Saliccept group- 1.1% (P&lt;0.001) 2) Gel foam- 8%</td>
<td>No adverse effects reported</td>
</tr>
</tbody>
</table>

**ABSTRACT**

Aloe vera in oral diseases - A review

B. DHEEPIKA, DR.T.N.UMA MAHESWARI

CRRI, Saveetha Dental College and Hospitals, Saveetha University, Chennai-600 077. Associate Professor, Dept of Oral Medicine and Radiology, Saveetha Dental College and Hospitals, Saveetha University, Chennai-600 077.

Email: dheepikabalu@gmail.com

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**Gel**

94.5% gel-soaked gel foam applied 4 times daily for the full duration of radiation treatment and 6 weeks post-treatment.

58 head and neck cancer patients.

Radiation-induced mucositis.

No significant difference in the parameters of Aloe vera gel and placebo gel.

No adverse effects reported.

Choonhakarn et al, 2008 - Randomized double-blind [5].

**Gel**

70% aloe mucilage in hydrophilic gel base applied 2 times daily to affected area for 8 weeks.

54 patients (Female=34 Male=20)

Oral Lichen planus (erosive and ulcerative lesions)

7% complete remission. Good response: 81% - Aloe vera gel (P<0.001) 4% - Placebo gel

No adverse effects reported.

Sabee et al, 2012 - Randomized double-blind [7].

**Gel**

2% oral gel applied 3 times a day for 10 days (singular lesions in buccal mucosa and mucosal zone of lips)

40 patients (15-35 years)

Minor recurrent aphthous stomatitis.

Duration of complete wound healing, pain score, wound size, inflammation zone diameter significantly lower than control group (P≤0.05)

No adverse effects reported.

Sudarshan et al, 2012 - Randomized parallel single-blind [8].

**Gel**

5mg gel - Applied 3 times daily for 3 months

20 [19-Male 1-Female] Group A - Aloe vera gel

20 - Placebo gel (Male=12 Female=8)

Oral Submucous Fibrosis

Significant reduction in: Burning sensation- P=0.008

Improvement in mouth opening- P=0.02

Cheek flexibility- P=0.01 of Group A in comparison with Group B

3 patients - Nausea in Group A

El-Soudany K et al, 2013 - Self-controlled single-blinded [12].

**Ointment**

Aloe vera High Molecular weight fractions 0.1% by weight.

3 times daily on affected side. Reviewed after 4 and 8 weeks.

20 patients (At least 18 years)

Oral Lichen planus

75% - complete remission

10% - partial remission

5% - no response

5% - patient dropped out

No adverse effects reported.

Virdi et al, 2013 - Randomized, single-blind [1].

**Gel- Curagel**

After Scaling and Root Planing: Aloe vera gel with syringe inserted to base of the pocket. Reapplied after 1st and 2nd week at the entrance of the pocket.

20 patients (35 to 65 years)

11-Male 9-Female

One side of jaw-scaling and Root Planing only.

Contralateral side of jaw-Additional aloe vera therapy

Chronic periodontitis

AFTER 6 WEEKS OF ADDITIONAL ALOE VERA THERAPY:

1. Probing depth: from 5.975±1.392 to 2.488±0.582

2. Gingival index: from 2.50±0.353 to 0.55±0.305 (P<0.0001).

3. Plaque index: from 3.926±0.687 to 1.325±0.379 (P>0.1771)

AFTER 6 WEEKS OF ONLY SCALING AND ROOT PLANNING:

1. Probing depth: From 5.887±1.620 to 4.213±1.283

2. Gingival index: From 2.50±0.353 to 0.55±0.305 (P<0.0001).

3. Plaque index: From 3.835±0.609 to 1.475±0.307

No adverse effects found.
REFERENCES


