Research Abstract

Anti-microbial Activity of Tulsi {Ocimum Sanctum (Linn.)} Extract on a Periodontal Pathogen in Human Dental Plaque: An In Vitro Study

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Introduction: Periodontal disease is a chronic infectious disease of the oral cavity and one of the principal causes of tooth loss in humans. This chronic inflammatory disease that affects the supportive tissues of the teeth has a complex etiology [1]. One of the major etiological factors for periodontal disease is the dental plaque biofilm on the teeth surfaces [2]. The noxious products produced by the bacteria in dental plaque trigger the inflammatory process in the periodontal tissues. Actinobacillus actinomycetemcomitans, in human dental plaque is one of the most commonly implicated microorganisms in the causation of periodontal disease [3]. Hence, reducing their levels in the oral cavity is one of the rationales for the prevention and control of periodontal disease.

Tulsi is a popular healing herb in Ayurvedic medicine. It is widely used in the treatment of several systemic diseases because of its anti-microbial property. However, studies documenting the effect of Tulsi on oral disease causing organisms are rare. Hence, an attempt was made to determine the effect of Tulsi on a periodontal microorganism in human dental plaque.

Aim: To determine if Ocimum sanctum (Linn.) has an anti-microbial activity (Minimum Inhibitory Concentration and zone of inhibition) against Actinobacillus actinomycetemcomitans in human dental plaque and to compare the antimicrobial activity of Ocimum sanctum (Linn.) extract with 0.2% chlorhexidine as the positive control and dimethyl sulfoxide as the negative control.

Results: At the 6% w/v concentration of Ocimum sanctum (Linn.) extract, a zone of inhibition of 22 mm was observed. This was the widest zone of inhibition observed among all the 10 different concentrations tested. The zone of inhibition for positive control was 25mm and no zone of inhibition was observed around the negative control.

Conclusion: Ocimum sanctum (Linn.) extract demonstrated an antimicrobial activity against Actinobacillus actinomycetemcomitans. The maximum antimicrobial potential was observed at the 6% concentration level. Undesirable effects due to prolonged use of currently used antibacterial agents and financial considerations there is a need for alternate preventive and treatment strategies that are safe, effective and economical when compared to existing treatment methods. In this direction, natural phytochemicals isolated from traditional medicinal plants like Tulsi serve as a good alternative.


This article is freely available to the public
Zinc supplementation in the management of diarrhea; Biological, behavioral and contextual rationale

A continuing lack of safe water and adequate sanitation in many parts of the world means that diarrhea remains the leading cause of death among infants and young children in low- and middle-income countries. Every year more than a million children under five years of age succumb to the fluid loss and dehydration associated with the majority of diarrhea related deaths. It is estimated that 13% of all years lost due to ill health, disability, or early death (so-called “disability-adjusted life years”) are caused by diarrhea. Good guidelines on the clinical management of diarrhea among the world’s most vulnerable children therefore remain critical. There are two simple and effective treatments for the clinical management of acute diarrhea - use of low concentration oral rehydration salts (ORS); routine use of zinc supplementation, at a dosage of 20 milligrams per day for children older than six months or 10 mg per day in those younger than six months, for 10–14 days. Oral rehydration is a well-known and relatively simple treatment approach. Zinc supplementation has been found to reduce the duration and severity of diarrheal episodes and likelihood of subsequent infections for 2–3 months. Zinc supplements are generally accepted by both children and caregivers and are effective regardless of the type of common zinc salt used (zinc sulphate, zinc acetate or zinc gluconate).

Supplementary zinc benefits children with diarrhea because it is a vital micronutrient essential for protein synthesis, cell growth and differentiation, immune function, and intestinal transport of water and electrolytes. Zinc is also important for normal growth and development of children both with and without diarrhea. Zinc deficiency is associated with an increased risk of gastrointestinal infections, adverse effects on the structure and function of the gastrointestinal tract, and impaired immune function. Dietary deficiency of zinc is especially common in low-income countries because of a low dietary intake of zinc-rich foods (mainly foods of animal origin) or inadequate absorption caused by its binding to dietary fiber and phytates often found in cereals, nuts and legumes.

Although the benefits of zinc supplementation in the management of diarrhea have been established, there remain a number of barriers to the widespread implementation of this treatment strategy. Currently, zinc is not used to treat most cases of diarrhea because the known benefits of zinc supplementation are still not widely appreciated by physicians and health-care workers in developing countries. There is a need to establish the optimal dosage and to investigate whether the same benefits of zinc supplementation are also applicable to children in middle- or high-income nations. There is also concern that high zinc intakes may compete for absorption with other micronutrients such as iron and calcium. This, in turn, can have unintended negative consequences for children’s health and development. Studies are needed to help identify subpopulations that would benefit most in resource-limited settings and to ensure access to zinc supplementation, especially for those families whose children are most at risk of diarrhea but may not be able to afford treatments that include zinc supplements.

However, zinc deficiency remains difficult to diagnose because measuring serum zinc levels is not necessarily accurate for this purpose. Currently, only a very small proportion of children in need have access to zinc supplementation.

Edited article- Originally written by Satyendra Narayan Ojha B.AM.S.; Masters in Ayurveda PhD

Case Study

Ayurvedic Clinical Management Of Irritable Bowel Syndrome

Background - Irritable bowel syndrome (IBS) also referred to spastic colon or mucus colitis is one of the most frequent disorders of the gastro-intestinal tract. It affects the females more than the males in the ratio of 2:1. Pellet like or ribbon like stools with or without mucus is seen in IBS. In Ayurveda IBS can be compared to ‘GRAHANI’ because of the similarity in the bowel pattern. In this the patient passes loose stools or constipated stools frequently. The present case report deals with a case of IBS who came for Ayurvedic treatment.

Clinical features – A 60 year old female patient visited us with complaints of abdominal pain followed by mucus stools with altered bowel pattern more of diarrhoea type for the past six months. The abdominal pain was relieved by defaecation but there was a sense of incomplete emptying of rectum. Abdominal distension was present with audible intestinal sounds and dyspepsia.She was on regular medicines for the past one year and did not find any relief. The patient was diagnosed depending on the clinical history. Laboratory investigations were done to exclude any other organic pathology

Intervention and treatment – The patient was put on samana chikitsa and was monitored for every 20 days. Initially the patient was put on Kutaja Ghana vati, 500mg BD with water. Then the patient was put on Panchamrita Parpati 250mg BD and Sutasekhar Ras 250 mg BD. Finally the patient was given Swarna Malini Vasanta Ras 150 mg in dose of two tablets BD with Mustarista, 20ml BD. The treatment was altered according to the condition of the patient and was monitored regularly.

Conclusion - There was a gradual relief to the patient and the patient was completely relieved within three months after starting the treatment. As IBS is a highly distressed condition, Ayurveda provides an effective treatment in the management of IBS.

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