

Department Of Periodontology

Article Topic: Probiotics In Periodontal Health And Disease.

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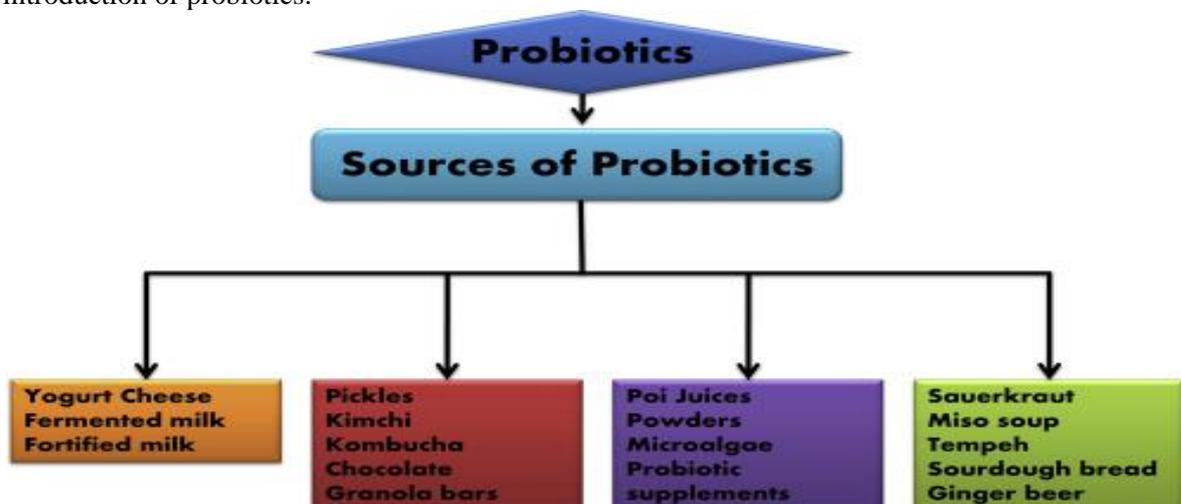
ABSTRACT:

Probiotics technology represents a breakthrough approach in maintaining oral health by using natural beneficial bacteria that are commonly found in the healthy oral cavity, to provide a natural defense against those bacteria which are thought to be harmful for the teeth and gingiva. The article endeavors to introduce the concept of probiotics in periodontal health.

KEYWORD: *Dental caries, periodontal disease, probiotics.*

INTRODUCTION:

Probiotics are defined as living microorganisms, principally bacteria that are safe for human consumption and when ingested in sufficient quantity has beneficial effect on host. It poses great potential within the arena of periodontics in terms of plaque modification, halitosis management, altering anaerobic bacteria colonization, improvement of pocket depth and clinical attachment loss. Probiotics are broadly categorised into two genera **Lactobacillus** and **Bifidobacterium**. These species are commonly used in probiotics. These bacteria are found in fermented dairy products and colonize the alimentary canal soon after birth. Due to the emergence of antibiotic resistance and frequent recolonization treated sites with pathogenic bacteria, there was a need for a new treatment paradigm to be introduced for periodontal disease. The need was fulfilled by the introduction of probiotics.¹



PROBIOTICS IN DENTISTRY:

Dental caries
Gingivitis
Periodontitis

Mechanism Of Action:

The mechanism of action varies from specific strains or combination of strains used, the presence of prebiotics and therefore the condition that being treated, as well as the stage of disease process during which the probiotics is administered.

1. Hindrance of pathogen attachment, colonization, and biofilm formation.
2. Induction of expression of cytoprotective protein on host cell surfaces.
3. Inhibition of collagenases and reduction of inflammation-associated molecules.
4. Stimulation and modulation of the host immune system.
5. Modulation of cell proliferation and apoptosis.
6. Killing or inhibition of growth of pathogens through the production of bacteriocins or other products like acid or peroxide, which are antagonistic towards the pathogenic bacteria.
7. Probiotics also can modify the encompassing environment by modulating the pH and/or the oxidation- reduction potential which may compromise the ability of pathogens to become established.^{2,3}

PROBIOTICS IN GENERAL USE:

Proven Indication

1. Rotavirus diarrhea
2. Reduction in antibiotic-associated side effects

Possible Indication

1. Dental caries and periodontal health
2. Food allergies and lactase deficiency
3. Atopic dermatitis
4. Prevention of vaginitis
5. Urogenital infection
6. Irritable bowel disease
7. Cystic fibrosis
8. Traveler's diarrhea
9. Enhance oral vaccine administration
10. Helicobacter pylori infection
11. Various cancer

Probiotics In Prevention Of Halitosis:

Halitosis has many causes (including consumption of particular food, metabolic disorder, respiratory tract infections), but in most cases, it is related to an imbalance of the commensal microflora of the mouth. Halitosis is the consequences of the activity of anaerobic bacteria that degrades the salivary and food proteins to produce amino acids, which are in turn transformed into volatile sulfur compounds, including hydrogen sulfide and methyl mercaptan, and dimethyl sulfide.^{4,5}

Periodontal Pocket Recolonization:

(Bacterial Therapy)

In periodontics “Replacement therapy” is also referred as “probiotics therapy”. The subgingival application of a bacterial mixture including streptococcus sanguis, S.salivarius, and streptococcus mitis after scaling and root planing significantly suppressed the recolonization of porphyromonas gulae and P.intermedia. the subgingival application of beneficial oral bacteria delays recolonization by periodontal pathogens, reduce inflammation and improve bone density and bone levels in a beagle dog model.^{7,8,9}

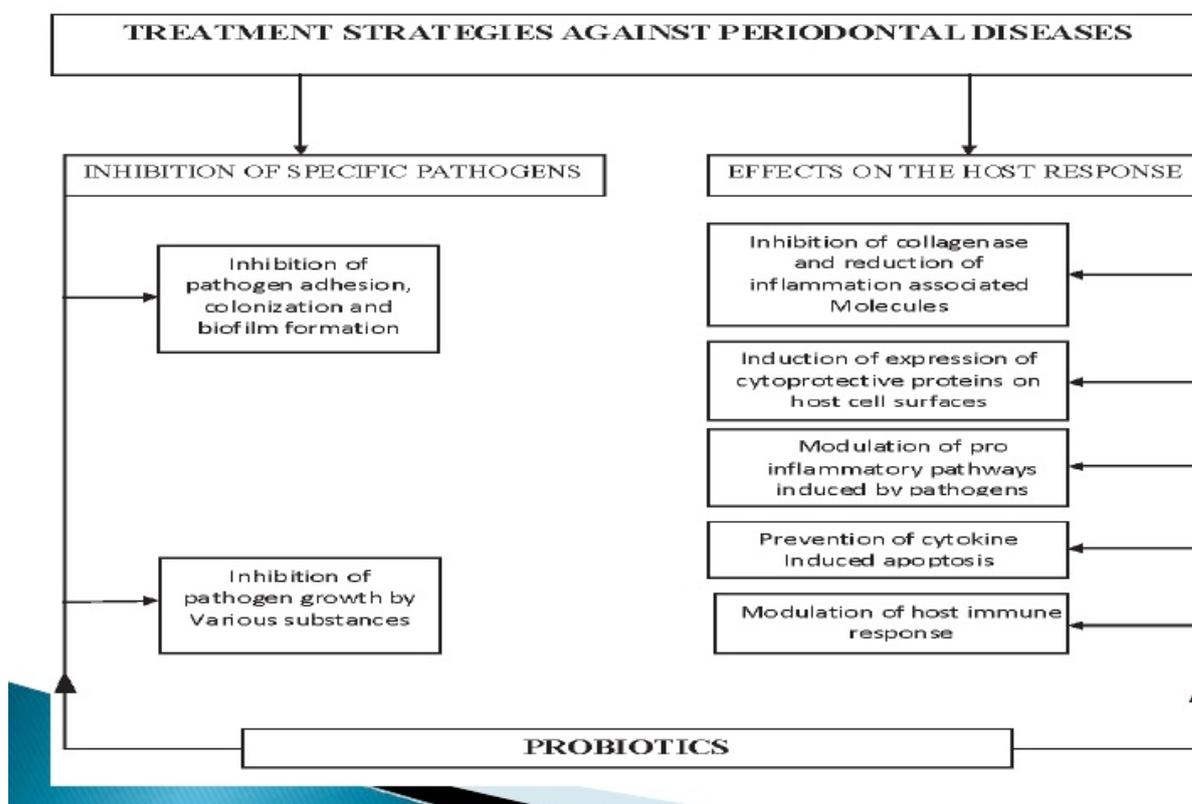
Prevention Of Periodontal Disease:

Periodontal Disease Is Classified Into 2 Types:

Gingivitis

Periodontitis

Gingivitis and periodontitis may be characterized by inflammation limited to the gingiva, whereas periodontitis may be progressive, destructive disease that affects all supporting tissues of the teeth, including the alveolar bone. The main pathogenic agents that are related to periodontitis are *P.gingivalis*, *Treponema denticola*, *Tannerella forsythias*, and *Aggregatibacter actinomycetemcomitans*. These bacteria have a variety of virulent characteristics allowing them to colonize the subgingival sites, escape the host's defense system and cause tissue damage. The persistence of the host's immune reaction also constitutes a determining factor in the progression of the disease.⁶



CONCLUSION:

The utilization of probiotics for use in oral care application is gaining momentum. There is increasing evidence that the utilization of probiotics or prebiotics, finally, it will be essential to develop an understanding of the broad ecological changes induced within the mouth by their ingestion on the long-term ecological use in oral health and disease.¹⁰

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