

Bakuchi (*Psoralea corylifolia*) in Oral Diseases

Neha Verma

Faculty of Dental Sciences, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

Corresponding Author's Email: drnehavermakgm86@gmail.com

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Introduction

Herbs have long been known to restore health and wellness in humans and animals. They are essential part of traditional medicine and vital adjunct to modern medicine. In current scenario, to overcome shortcomings of modern medicine, extensive research on herbal medicine is being conceded. In search of providing efficient, affordable and safe treatment, role of herbal preparations in dentistry has also increased notably. Natural medicaments have proven their efficacy in reducing inflammation and aiding in healing of dental, oral tissues.[1]

Bakuchi (*Psoralea corylifolia*) also known as Babachi, Babchi, Bavanchiyan, Bhavaj, Bakuci, Bemch, is a leguminous plant of family Fabaceae and species *P.Corylifoli*. It is a perennial plant found in Himalayan, central and eastern regions of India along with other tropical and subtropical regions of the world. Maturing to a height of 60-120 cm, its seeds, seed oil, roots, and leaves exhibit anti inflammatory, antioxidant, antimicrobial, and chemoprotective properties.[2] Presence of these properties make bakuchi a potential therapeutic agent in treatment of oral diseases.

Chemical composition

The biologically active constituents of *P. corylifolia* are corylifols a-c (prenylflavonoids) found in seed and psoralen, isopsoralen, neobavaisflavones found in fruits. Various other constituents like neobavaisflavones, borachin, Bavaisflavooz, bavachalcone, bavachromene psoralidin, corylifolinin, barachini psoralenoside,

isopsoralenoside, flavanoids and coumarins have also been identified as biologically active compounds. [3]

Therapeutic effects of Bakuchi (*Psoralea corylifolia*)

Antimicrobial- Katsura et.al (2001) studied effect of bakuchiol an extracted compound from bakuchi seeds on oral micro organisms. He found bactericidal effects of bakuchiol on *S. mutans*, *Streptococcus sanguis*, *Streptococcus salivarius*, *Streptococcus sobrinus*, *Enterococcus faecalis*, *Enterococcus faecium*, *Lactobacillus acidophilus*, *Lactobacillus casei*, *Lactobacillus plantarum*, *Actinomyces viscosus*, and *Porphyromonas gingivalis*. It disrupts cell membrane and inhibits DNA polymerase in bacteria. [4] It effectively reduces *E.faecalis* biofilms formation and can prove to be a potent root canal irrigant.[5] Acharya et.al (2015) studied various formulations of *Psoralea corylifolia* and concluded that bakuchi taila and gel formulations have antibacterial effect on gram positive and negative bacteria.[6] Gel formulations can be used as topical anti infective therapy for oral lesions.

Anti-inflammatory- Neobavaisoflavone a flavanoid found in *Psoralea corylifolia* inhibits production of reactive oxygen species (ROS), reactive nitrogen species (RNS) and cytokines: IL-1 α , IL-6, IL-12p40, IL-12p70, TNF- α in LPS+IFN- γ or PMA- stimulated RAW264.7 macrophages.[3] Neve et.al(2018)concluded that fruit of *Psoralea Corylifolia* possess anti-inflammatory properties by reducing inflammatory edema.[6] Thus *Psoralea corylifolia* extracts can serve as natural anti inflammatory compounds in dentistry.

Anti-cancer - Psoralidin present in *Psoralea*

corylifolia has anticancer and chemo preventive properties. Psoralidin enhances activity of Tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) which stimulates apoptosis in cancer cells and spares normal tissues. [3] Byung *et al* revealed antitumor and cytotoxic activity of *Psoralea corylifolia*. [7] Guo *et al* observed antitumor activity on BGC-823 cancer cells by psoralen and isopsoralen found in *Psoralea corylifolia*. [8] more research is required to see effect of *Psoralea corylifolia* on oral malignant and pre malignant lesions.

Antioxidant- Antioxidants are vital in treating numerous oral diseases especially in premalignant and autoimmune oral lesions. Guo *et al* (2005) found Bakuchiol, Corylifolin, Corylin and Psoralidin present in *Psoralea corylifolia* have strong antioxidant properties, [9] they are potent free radical scavengers. [10] Bakuchi can be an answer for indigenous affordable antioxidant supplement.

Conclusion

Bakuchi (*Psoralea corylifolia*) has demonstrated its potency as an anti inflammatory, antimicrobial and anti cancer compound, it promises to be an efficient, natural, affordable therapeutic agent. More research and clinical trials are required to use this compound successfully in dentistry.

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