Applications of medicinal plants in dentistry

Several lines of evidence indicate that the earliest known medications were derived from natural plant and animal products. Other primates species, including chimpanzees, gorillas, and various monkeys, have been observed to select and consume specific plant parts to aid digestion and ease pain. Fossilized pollen discovered in association with ancient human remains suggests plant exploitation for both food and medicine. The fact that botanical medicines are now utilized in all cultures of the world also attests to their lengthy and successful history of experimentation and application. An extensive stockpile of evidence, ranging from anecdotal reports to scientifically controlled double-blind laboratory experiments, supports the healing power of plants – one of the most significant discoveries in medical history.

A few of the many proven beneficial phytochemically derived medicines, their sources, and their associated applications include the following:
Digitalis – Foxglove plant (*Digitalis lanata*): Cardiovascular medication
Quinine – Cinchona tree bark (*Cinchona officinalis* and *Cinchona pubescens*): Anti-malarial drug
Saw Palmetto (*Serenoa repens*) berries: Prostate gland disorder medication
Taxol – Pacific Yew tree bark (*Taxus brevifolia*): Anti-cancer drug
Reserpine – Dogbane plant bark (*Rauwolfia serpentina*): Anti-hypertension drug
Morphine/Codeine – Poppy flower (*Papaver somniferum*): Analgesic
Colchicine – Autumn crocus corm (*Colchicum autumnale*): Gout treatment
Aspirin – Meadowsweet plant root (*Filipendula ulmaria*) and Willow tree bark (*Salix alba*): Analgesic, anti-inflammatory, body temperature regulator.

Some examples of reported animal-based medical products include beeswax and honey (burns, wounds, and eye disorders); oyster pearls (heart and liver ailments); pulverized sea shells, animal teeth and bones (calcium deficiency and purgatives); goat cheese (cancer); gazelle horn (blood purifier and jaundice); and rhinoceros horn (sexual dysfunction).

Access this article online	
Quick Response Code:	Website: www.ejgd.org
	DOI: 10.4103/2278-9626.105349

Medicinal plants also have a lengthy history of use in the treatment and prevention of dental disorders. A publication by the present author ("Botanical Medicines for Oral Health", *Natural Product Communications*, Vol. 3, 2008, pp. 1813-1824) is based on data collected in a survey of 91 *"botanicas"* (medicinal plant shops) located in Miami, Florida, USA. Thirty-three plant species were discovered that are sold specifically for dental disease treatments and for maintaining oral health. An additional 178 plant species with reported applications in traditional dentistry in different cultures were noted from published scientific sources. More than 500 additional plant species have been described in academic journals and on the internet as sources of toothache treatments and dentifrices.

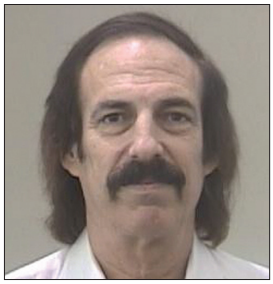
Other botanical products have historically been prescribed by herbalists around the world for halitosis (*Boswellia sacra*), oral infections (*Plumeria multiflora, Vicia faba*), teething pain in babies (*Hyoscyamus niger, Glycyrrhiza glabra*), decay prevention (*Myrica cerifera*), cosmetic tooth whitening (*Acacia arabica, Azadirachta indica*), tooth strengthening (*Coix lacryma-jobi, Ricinus communis*), and as reconstructive material for tooth fillings and restorations (*Symphytum officinale*). Various plant products have been applied in the treatment of gum ailments, including gingivitis (*Commiphora myrrha*) and pyorrhea (*Croton hibiscifolius, Equisetum bogotense*). Numerous additional plant-derived preparations are regularly recommended cross-culturally as sources of analgesics for oral pain (e.g., *Dalechampia scandens, Jatropha urens*).

Besides botanically-based toothpastes/powders and mouthwashes, more than 180 plant species have served as sources of antiseptic chewing sticks for teeth cleansing and disinfection. Eighteen different plant components have been utilized as raw materials in the formulation of oral medications, including roots, stems, seeds, leaves, barks, oils, gums, and resins.

Clinical studies have confirmed the biodynamic dental healing properties of several plant species, especially *Salvadora persica* (peelu plant), *Centella asiatica* (gotu kola), and *Punica granatum* (pomegranate). Oral medications produced from these plants have been credited with significant reductions in plaque, oral bacteria, gingivitis, and oral bleeding. *Salvadora persica* is the most frequently used botanical species in traditional dentistry.

Only a small fraction of the world's plants has been

scientifically tested for their potential medical value, including their possible applications in dentistry. Negative side effects must also be explored and carefully documented for those species with demonstrated therapeutic results.



Robert A. Halberstein

Department of Anthropology and School of Nursing & Health Studies, University of Miami, Coral Gables, Florida, 33124, USA

Address for correspondence:
Dr. Robert A. Halberstein,
Department of Anthropology and School of Nursing & Health Studies, University of Miami, Coral Gables, Florida, 33124, USA.
E-mail: r.halberstein@miami.edu

How to cite this article: Halberstein RA. Applications of medicinal plants in dentistry. Eur J Gen Dent 2012;1:123-4.