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Plant medicine for the treatment of Gingivitis, an East West Perspective:

What is Gingivitis?

A mild form of periodontal disease, where the gums become inflamed due to a build-up of bacteria/plaque underneath or around the gumline, that then release waste or endotoxins. Gingivitis is quite common. It can be kept at bay with consistent oral hygiene practices (brushing and flossing), regular dental hygienist visits (more in-depth cleaning), and at-home herbal treatments. If left, gingivitis can lead to a more severe disease called periodontitis, causing receding gums, bleeding gums, pain, and degradation of tooth structure leading to the loss of teeth.

Eastern and Western Herbal Research:

1) "This study was to estimate the effect of herbal medicines on periodontal disease. To screen effective materials for periodontal disease, we performed a series of test for herbal medicine extracts", "Eunhang (*Gingko biloba*), Youkdoogu, Daewhang (*Platycodon*), Hoobak (*Tobacco*), Goojulcho (*Pinguicula or butterwort*), Yongacho (*Tropaeolum*), Mokhyang, Sesin (*Cyclaman*), Sancho (*Euonymus planipes*) and Hoehyang extracts were effective for reduce *P. gingivalis*" (Lee, Dong-Jae, et al. 2010).

2) "Development in alternative medicine research has led to many mouth rinses and toothpastes based on plant extracts" (Rao, N. Jagan, K. R. Subash, and K. Sandeep Kumar, 2012). See Table.1 for outlined researched plants in relation to anti-inflammatory, anti-bacterial, and other sot-after phytochemical actions to combat mild *P. gingivitis* infections.

Int. J. Pharmacol., 8 (1): 1-5, 2012

Table 1: List of useful plant parts and their active constituents

Plant	Generic name	Useful parts	Active constituents	Properties
Aloe	<i>Aloe barbadensis</i>	Leaves	Anthraquinone	Anti-inflammatory
Amala	<i>Embllica officinalis</i>	Fruits	Vitamin C	Antioxidant
Babool	<i>Acacia arabica</i>	Bark	Tannins	Astringent
Blackberry	<i>Rubus fruticosus</i>	Leaves, root	Tannins	Astringent
Bloodroot	<i>Sanguinaria canadensis</i>	Root	Alkaloids (primarily sanguinarine)	Astringent
Blueberry	<i>Vaccinium myrtillus</i>	Ripe berries	Anthocyanosides	Antioxidant
Caraway	<i>Carum carvi</i>	Dried ripe fruit, dried seeds	Volatile oil	Anti-inflammatory
Chamomile	<i>Matricaria chamomilla</i>	Dried flowers	Volatile oils, biflavonoids	Anti-inflammatory
Clove	<i>Syzygium aromaticum</i>	Flower buds	Volatile oil, tannins	Antiseptic, analgesic
Cranberry	<i>Vaccinium macrocarpon</i>	Fruits	Flavonoids, triterpinoids	Antioxidant
Echinacea	<i>Echinacea purpurea</i>	Root	Alkylamides	Immune system stimulant, increases interferon production
Eucalyptus	<i>Eucalyptus globosus</i>	Leaves	Volatile oil	Anti-inflammatory
Green tea	<i>Camellia sinensis</i>	Leaves	Polyphenols	Antibacterial
Horsetail	<i>Equisetum arvense</i>	Stem	Silicic acid and silicates, K, Al, Mn, Biflavonoids	Antibacterial
Liquorice	<i>Glycyrrhiza glabra</i>	Root	Glycyrrhizin, flavonoids	Anti-inflammatory, antioxidant
Miswak	<i>Salvadora persica</i>	Bark, leaves	Tannins, volatile oils, alkaloids	Anti-inflammatory
Moringa	<i>Moringa oleifera</i>	Leaves, stem, roots	Carotenoids, vitamin C	Anti-inflammatory, antibacterial, astringent
Mulberry	<i>Morus alba</i>	Fruits	Anthocyanosides	Antioxidant
Myrrh	<i>Commiphora molmol</i>	Stem	Resin, gum, volatile oil	Antibacterial, astringent, analgesic, anticancer
Neem	<i>Azadirachta indica</i>	Leaves	Terpenoids	Antioxidant, anti-inflammatory, antibacterial
Peppermint	<i>Mentha piperita</i>	Leaves	Volatile oil containing menthol	Analgesic, counterirritant
Propolis	—	Resin itself	Flavonoids	Antibacterial, antioxidant, anticancer
Raspberry	<i>Rubus idaeus</i>	Leaves	Tannins	Astringent, anti-inflammatory
Rhatany	<i>Krameria triandra</i>	Root-bark	Tannic acid	Astringent
Rose	<i>Rosa canina</i>	Hips, leaves, flowers	Vitamin C, flavonoids, tannins, carotenoids, volatile oils	Antibacterial, antioxidant, astringent
Sage	<i>Sabia officinalis</i>	Leaves	Essential oil constituents	Antioxidant
Stinging nettle	<i>Urtica dioica</i>	Root, leaves	Polysaccharides, lectins	Anti-inflammatory
To tormentil	<i>Potentilla erecta</i>	Dried rhizomes (roots)	Tannins	Anti-inflammatory
Tulsi	<i>Ocimum sanctum</i>	Leaves	Ursolic acid, apigenin, luteolin	Anti-inflammatory
Turmeric	<i>Curcuma longa</i>	Dried rhizomes (roots)	Tannins	Analgesic, anti-inflammatory
White oak	<i>Quercus alba</i>	Bark	Tannins	Astringent

(Table. 1: Rao, N. Jagan, K. R. Subash, and K. Sandeep Kumar, 2012)

3) TRP (**Triphala**)- “TRP mouthwash can be considered a potential therapeutic agent in the treatment of gingivitis” (Pradeep, A. R., et al. 2016).

4) “Hence it can be concluded that the **pomegranate gel** when used as an adjunct with mechanical debridement was efficient in treating gingivitis” (Somu, C. Ashwini, et al. 2012).

5) MCR (**Moutan Peony Root bark extract**)- “This study showed that the MCR extract could comprehensively inhibit a wide variety of activations of inflammation-related genes, which may be due to paeonol and paeoniflorin. It is, thus, suggested that MCR may be applied to alleviate the inflammation of periodontal diseases” (Yun, Cheol-Sang, et al. 2013)

6) “In the present study, a toothpaste containing the herbal ingredients dried heartwood of *Acacia chundra* Willd. (**Red ebony tree**), dried leaves of *Adhatoda vasica* Nees. (**Malabar nut**), dried bark of *Mimusops elengi* L. (**Spanish cherry wood**), dried seeds of *Piper nigrum* L. (**Black pepper**), dried roots of *Pongamia pinnata* L. Poirre (**Indian beech tree**), dried gall of *Quercus infectoria* Olivier. (**Aleppo oak**), dried flower bud of *Syzygium aromaticum* L. (**clove**), dried fruit of *Terminalia chebula* Retz. (**chebulic myrobalan**), dried rhizome of *Zingiber officinale* Roscoe. (**Ginger**), was tested for its efficacy during 12 weeks of twice daily use in improving gingival and oral hygiene and salivary microbial variables.” & “The

Written & Researched by Shannon Hobson, Certified East West Herbalist, founder of Natural-Know How
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findings of the present study showed statistically significant reductions in all variables tested (gingival bleeding, oral hygiene and salivary anaerobic bacterial counts)" (Jayashankar, S., et al. 2011).

7) **Pomegranate and chamomile plant extracts-** "The mouth rinses with the herbal products were effective for this case, showing thus, antimicrobial and anti-inflammatory properties similar to that of chlorhexidine 0.12%" (Batista, Ana Luzia Araújo, et al. 2014).

8) "The herbal mouth rinses achieved significant reductions in dental plaque and gingival inflammation compared to placebo rinses. Five herbal products (Camelia sinensis (**Tea leaf**), Azadirachta indica (**Neem**), Anacardium occidentale Linn (**Cashew**), Schinus terebinthifolius (**Brazilian pepper**) and Curcuma longa (**Turmeric**) showed better results than chlorhexidine in dental plaque and gingival inflammation reductions" (Santi, Samantha Simoni, et al. 2019)

Refs:

Image herbal mouthwash: © 2020 · DESIGNED BY DELUXE DESIGNS <https://www.recipestonourish.com/easy-homemade-herbal-mouthwash/>

Image teeth: 2020 Airdrie Springs Dental, <https://airdriespringsdental.ca/gingivitis/>

- 1) Lee, Dong-Jae, et al. "Anti-microbial, anti-inflammatory and anti-oxidative effects of herbal medicine extracts as anti-gingivitis ingredients." Journal of dental hygiene science 10.1 (2010): 25-29.
- 2) Rao, N. Jagan, K. R. Subash, and K. Sandeep Kumar. "Role of phytotherapy in gingivitis: A review." Int J Pharmacol 1 (2012): 1-5.
- 3) Pradeep, A. R., et al. "Triphala, a new herbal mouthwash for the treatment of gingivitis: A randomized controlled clinical trial." Journal of periodontology 87.11 (2016): 1352-1359.
- 4) Somu, C. Ashwini, et al. "Efficacy of a herbal extract gel in the treatment of gingivitis: A clinical study." Journal of Ayurveda and integrative medicine 3.2 (2012): 85.
- 5) Yun, Cheol-Sang, et al. "Moutan Cortex Radicis inhibits inflammatory changes of gene expression in lipopolysaccharide-stimulated gingival fibroblasts." Journal of natural medicines 67.3 (2013): 576-589.
- 6) Jayashankar, S., et al. "A randomised double-blind placebo-controlled study on the effects of a herbal toothpaste on gingival bleeding, oral hygiene and microbial variables." Ceylon Medical Journal 56.1 (2011).
- 7) Batista, Ana Luzia Araújo, et al. "Clinical efficacy analysis of the mouth rinsing with pomegranate and chamomile plant extracts in the gingival bleeding reduction." Complementary therapies in clinical practice 20.1 (2014): 93-98.
- 8) Santi, Samantha Simoni, et al. "Effect of herbal mouthrinses on dental plaque formation and gingival inflammation: A systematic review." Oral Diseases (2019).

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