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Review Article

Various Dental problems and herbs involved in their treatment

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ABSTRACT

Herbal medicines is has been used rapidly all over the world anonymously. People prefer herbal medicines over allopathic as its symbolises safety and less side effects. The herbs are used for their phytochemical constituents, flavour, scent and their therapeutic properties. Oral health is referred as the overall health of the teeth, gums, and mouth. Some herbs play major role in treating toothache, tooth sensitivity and other dental problems. Pain and discomfort caused which may affect a person's ability to eat including a decreased self esteem. Herbs like clove, neem, tea tree oil, peppermint, sage etc are mentioned in the article. There are various dental disorders like gingivitis, oral cancer, dental caries, dental abscess, tooth erosion, periodontal disease, dental plaque, bleeding gums. They can be treated with herbal extracts in the earlier stage of the diseases. Oral diseases are generally caused due to improper oral hygiene, inadequate nutrition intake, sugar consumption, tobacco use, alcohol use. Even if herbs are used for the various dental problems, the proper dosage should be used by an individual.

INTRODUCTION

A man without a proper oral health cannot define him as a healthy person . Oral diseases, a priority conditions due to their complications in treating them and severity of pain formed. Oral health was linked with the internal organ system such that any changes in the internal system was indicated by the oral health . In this generation most of the causes for their poor oral health was caused due improper way of dental care. Tooth diseases are the most common diseases which can be cured by herbs

before it reaches the severe stage. The most common cause for the several tooth diseases are due to improper oral hygiene or less nutrition intake. There are plenty of herbs which are used in the treatment of dental diseases. Synthetic forms of herbs are used in the preparation of allopathic drugs. Extractions of herbs are used for the relieving of pain. Herbs are any part of material that are used for their antibacterial, anti inflammatory, antimicrobial, antifungal, antiviral, anti ulcerative activity. Herbs are used in their

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extracted form. In ancient times Our ancestors were aware about oral health so they are treating their oral problems with natural herbs and ingredients which has the potential to treat oral problems. There are various dental problems like gingivitis, oral cancer, peridontal disease, dental abscess, tooth erosion, tooth plaque, and bleeding gums. Herbs and their extracts can be used to treat or cure the pain of a dental disease. Even if we use the herbs, it has to be used in the proper dosage form, if used excess or if used in a improper dosage forms, it may leads to certain side effects. Some side effects includes that even if the chamomile is safe in breastfeeding mothers, it may cause allergic reactions on the topical use. Herbal drugs usage is safe when compared to the allopathic drugs due to its lesser side effects zone. People choose herbal drugs over allopathic drugs as it shows very less side effects compared to that. Drugs used in this article includes aloevera, neem, acacia, garlic, arctiumlappa, chamomile, tea, lemon, green tea, tulsi, marigold, grapes, papaine, coconut water, cranberries, septillin, myrrh, mint, rosemary, jasmine, sage, sanicle, prickly ash, thyme, violets, yarrow, wintergreen, atlas mastic tree, tabasco pepper. The biological sources along with their family and detailed uses of the each drug is listed below. The drugs are employed both in pure form and extraction form. Different concentration of herbal extract has different potential of activity against the dental diseases which can be compared with the novel dental preparation such as chlorhexidine.

MAJOR DENTAL DISEASES

BLEEDING GUMS

The most common gum problem is gingivitis. Gingivitis is defined as inflammation of the gums. Signs of gum inflammation include bleeding during tooth-brushing, swollen-looking gums, and red gums. Healthy gums generally appear firm, coral-pink, and do not bleed with stimulation. Gums can appear dark from pigmentation in

certain ethnic populations, and this is considered normal. The second most common gum problem is gum disease, also called "periodontitis. Periodontitis exhibits similar signs to gingivitis except it also can result in gum tissue and jawbone loss.[1]

CAUSATIVE AGENTS

Gingivitis, or gum tissue inflammation, is a common cause of bleeding gums. Inadequate oral hygiene is the primary cause of plaque buildup on teeth. Plaque comprises bacteria that emit toxins, which cause an immune reaction and gum inflammation. When the gums are inflamed, they are more likely to bleed, particularly when brushing or flossing. Other factors that can cause bleeding gums include hormonal changes (such as during pregnancy or puberty), blood clotting medications, systemic diseases like diabetes, vitamin deficiencies (particularly vitamin C and vitamin K), and lifestyle choices like smoking and stress. In rare circumstances, bleeding gums may indicate more severe periodontal disease.

TOOTH EROSION

It is also called as dental erosion .Tooth erosion is a condition in which it causes damage to the arrangement or condition of the teeth in a particular species or individual.

Due to chemical progress like acids we eat or drink or even sometimes acids emerge from stomach which leads to loss in hard dental tissue. Tooth erosion is not derived from oral bacteria.[2]

CAUSATIVE AGENTS

Tooth erosion, also known as dental erosion, is mostly caused by acids dissolving tooth enamel and dentin. These acids can come from both internal and external sources. Internal sources include gastric acids from disorders like acid reflux (GERD) and bulimia nervosa, whereas external sources include acidic foods and beverages including citrus fruits, soft drinks, and fruit juices. Frequent use of acidic foods and beverages, extensive teeth brushing, and tooth



grinding (bruxism) can all contribute to the erosion process. External factors like eating and drinking, excessive oral hygiene, unhealthy lifestyle, teeth grinding, long term use of any medication.

SYMPTOMS OF TOOTH EROSION

In the beginning stages sensitisation of tooth and staining or darkening of teeth occurs. Breakage of teeth or chipping occurs, has sharp edges, and causes a twinge of pain in early stages of enamel erosion.

GINGIVITIS

Caused mainly due to accumulation of plaque and plaque accumulation is highly caused because of poor dental hygiene and oral hygiene[3]. In gingivitis gum becomes red swollen and bleeds when it is provoked like brushing, eating, touching. It may also cause spontaneous bleeding in some cases. Chronic gingivitis and periodontitis are chronic inflammatory lesions which displays stages of inflammations as well as healing. If gingivitis is not treated, it can cause severeness and leads to periodontitis[3]. Plaque is formed when bacteria in the mouth is mixed with sugary or starchy substances.

Microorganisms will not only destroy tooth structures but also the supporting structures of the tooth. This results in the loosening of tooth, affects overall dentition, causes pain, causes systemic infection and inflammation.

CAUSES OF GINGIVITIS

Gingivitis is generally caused due to the Poor dental hygiene and in some cases like smoking, alcohol, intake of drugs etc., It is also caused in patients with increased physical and emotional stress and those with chronic disease. Studies shows that some medications like oral contraceptives, calcium channel blockers, patients undergoing cancer therapy. In some minor cases traumas caused by toothbrush and Clenching of teeth. It can also occurs by hormonal changes

SYMPTOMS OF GINGIVITIS

Symptoms of the gingivitis includes bleeding of gums while consuming food and swelling of gums in the beginning stages. In some severe causes loosening of teeth and falling of teeth is also reported.

CAUSATIVE AGENTS

The primary cause of gingivitis is bacteria that inhibit dental plaque. These include *Streptococcus mutans*, *Porphyromonas gingivalis*, *Prevotella intermedia*, *Actinomyces* species, and *Fusobacterium nucleatum*, among others. These bacteria grow in dental plaque, causing gum inflammation and the development of gingivitis.

DENTAL PLAQUE

Dental plaque was commonly caused by the deposition of the various micro organism flora on the enamel surface upto the root receding the gum. These microorganism was feed with various uptake of host (human) in the buccal cavity. It was continued with the formation of hard deposition of the biofilm matrices from the root on the gum. Mainly involved species were the '*Streptococcus mutans*, *Prevotella* spp., *Porphyromonas gingivalis*, *Enterococcus faecalis*, A actinomycetemcomitans' and other Gram positive bacterias were associated with the progression of periodontal diseases. Dental plaque which is also known as Oral biofilm which from an matrices. [5]

CAUSATIVE AGENTS

Streptococcus mutans and *Lactobacillus* species are the primary causing microorganisms. These bacteria grow in dental plaque, which accumulates on teeth, particularly where food particles concentrate, such as between teeth and along the gum line. When sugars and starches from food are ingested, bacteria metabolize them and generate acid, which eventually erodes tooth enamel, resulting in the formation of cavities. Common causative agents are *Streptococcus mutans*, *S sanguinis*, *Porphyromonas gingivalis*, *Prevotella intermedia*, actinomycetes specie, *Enterococcus*



faecalis, Candida species such as candida albicans were also involved in the plaque formation

SIGNS AND SYMPTOMS OF DENTAL PLAQUE

Starting from discolouration of tooth, gum inflammation, it can also sensitizes the enamel. Dental caries can also been formed with untreated dental plaque leading to various dental problems such as gum diseases ,tooth decay, Peridontal diseases and up to loss of teeth due to receding gum.

DENTAL CARIES

Dental caries is a localised breakdown of a dental hard tissues that are sensitive to damage from acidic byproducts resulting from the fermentation of carbohydrates in the diet by bacteria[6]. One of the most prevalent illnesses in the world today is dental caries. People can contract this illness at any stage in their lifetime. Approximately 36% of people worldwide suffer from dental caries in their permanent teeth. Roughly 9% of people experience it with infant teeth. Physical, biological, environmental, behavioural, and lifestyle variables are all linked to caries risk[7]. Dental caries is a complicated illness influenced by a number of factors like dietary sugar consumption, salivary flow and composition, exposure to fluoride, and preventive behaviours like brushing one's teeth. The disease is first caused by microbial changes inside the complex biofilm[8].

CAUSATIVE AGENTS

Streptococcus mutans and Lactobacillus species are the primary causing microorganisms. These bacteria grow in dental plaque, which accumulates on teeth, particularly where food particles concentrate, such as between teeth and along the gum line. When sugars and starches from food are ingested, bacteria metabolize them and generate acid, which eventually erodes tooth enamel, resulting in cavities. External factors includes lack of oral hygiene, high sugar intake, malnutrition.

SIGNS AND SYMPTOMS OF DENTAL CARIES

Some general symptoms are bad breath and foul tastes, Brown black or white staining on any surface of a tooth, fever, chills ,abscess ,and trismus[L].and Visible holes or pits in teeth is seen.

PERIODONTAL DISEASE

It is a gum disease where there is an infection in the tissues that holds the teeth in place . it is appearing all over the teeth followed by destruction of connective tissue and dental bone due to periodontal bacteria which may result in tooth loss also results in mixed microbial infections . its also called as periodontitisI Its also a risk factor for lung and heart disease [9].

CAUSATIVE AGENTS

Porphyromonas gingivalis, Treponema denticola, and Tannerella forsythia are the primary pathogenic bacteria found commonly in these peridontal disease , and these are also generally found in dental plaque. Some external factors like tobacco smoking, oral bacteria, hormonal changes, stress, osteoporosis and can also occur in elderly patients with diabetes mellitus.

SYMPTOMS OF PERIODONTAL DISEASE

In the earlier stages there will be painful chewing, continuous bad breath, tender gums and dark swollen gums. As severities takes place formation of pus between teeth and gums is seen also receding gums and loosening of teeth is seen.

DENTAL ABSCESS

Dental abscess is also known as tooth infection which is caused by numerous microorganism. At the root apex of the tooth was filled with the pus due the colonisation of polymicrobial causative organisms.[10]Abscess is caused due to the improper filling after root canal treatment .The process include entering through the periapical tissues via apical foramen and causing inflammation associated with pus formation . The untreated dental abscess can leads to the evolve



and spread causing septicaemia along with cavernous sinus thrombosis causing brain abscess with shock and some of the cases up to death .Pathogenesis of tooth infections is influenced by the various host factors .

CAUSATIVE AGENTS

Numerous organisms were involved in dental abscess such 490 various bacteria was causing the endodontic infection. They includes an anaerobic Streptococci, Fusobacterium, Prevotella and Porphyromonas species[11].

Prevotella includes intermedia, P. nigrescens, P. pallens, Phorphyromonas species such as endodontalis and gingivalis are similarly found pathogens

Fusobacterium periodonticum, Fusobacterium nucleatum were frequently found in acute dental abscess.

Clostridium species such as C.hastiforme, C. histolyticum, C.perfringens, C.subtyerminalis, C.clostridioforme are frequent seen and C. sporogenes, C. bifermentans, C. botulinum, C.oedematiens, C. welchii are infrequent clostridium species found in oral cavity

Bacteria of Atopobium species such as Atopobium parvulum, Atopobium rimae were found on the dental abscess

Various other pathogens are involved in minor ranges in the complication of tooth infection.

SIGNS AND SYMPTOMS OF DENTAL ABSCESS

It pain and swelling, erythema on the affected tooth were seen on acute abscess whereas untreated can lead to the complications such as fever, intraoral and extra oral swelling, erythema, tenderness, palpation and trismus (which is a condition inability to speak due to pain) .

ORAL CANCER

Proliferation of cells that infiltrate and also damage neighbouring tissues described as cancer. [12]The symptoms that shows in the early stage of oral cancer are sour in the mouth , encompassing

the cheeks, tongue , lips and area from the base of the mouth to the oropharynx[14]. The treatment for oral cavity in malignancies presents a challenge because it affects both function and appearance[13].

CAUSES OF ORAL CANCER

The general causes of oral cancer includes the Human papilloma virus infection (HPV), and some causes like immunosuppression. Diet and nutrition and of an individual and mate drinking can also influence the state of oral cancer. Studies shows that one's socio-economic status can also influence the oral cancer

SIGNS AND SYMPTOMS OF ORAL CANCER

Basically in the very beginning stages it shows symptoms like non healing ulcer with or without induration / non healing socket, Tooth pain and referral pain, White patch with firm consistency Severities shows an abnormal lump in the mouth with increase in size gradually was days pass by and Exophytic / ulceroproliferative growth and Mass or lump in the neck and neighbouring regions (Lymph node enlargement) is seen.

HERBAL DRUGS USED IN THE VARIOUS ORAL DISEASES

ACACIA

Biologically knowns as Acacia genus belonging to the family Fabaceae. It shows antibacterial activity against Streptococcus mutans and e.faecalis It has been traditionally used to treat skin, genital, stomach, and dental issues. It has been proven to be a helpful treatment for malaria, sore throat (aerial part), and toothache (bark).It possess antibacterial activity because it contains tannins, phenolic compounds, essential oils, and flavonoids.

ALOEVERA

It is a dried or fresh leaves obtained from Aloe barbadensis Miller ,belonging to the family Liliaceae. It has various uses in all forms of oral diseases especially used in the apthous



ulcers, lichen planus, alveolar osteitis[15].Aloevera is also used in toothpick injuries, chemical burns, gingival problems related with AIDS, leukaemia[16]. It shows decrease in gingival irritation, decrease in gingival bleeding and plaque scores. Gingival index reduction when compared to chlorhexidine[19]. Further uses are such as Antibacterial, antioxidant, anti-fungal, antiviral, anti-inflammatory and also shows biological activities like Sedative, anxiolytic and hypnotic[18]. Chemical constituents used are beta-sitosterol, Cholesterol, uric acid, lignins, salicylic acid, gibberellin, triglycerides, steroids[21].

ARCTIUM LAPPA

Arctium lappa Linn. belonging to the family Asteraceae. It has antifungal activity, diuretic, antibacterial and anti-oxidant and anxiolytic action, platelet anti-aggregating effect, and HIV inhibitory action. [15] This plant has been brought from Japan and acclimated in Brazil, which is widely used in popular medicine all over the world for its well-known therapeutic applications[20]. It is reported that A. lappa exhibits antimicrobial activity against oral microorganisms and can be used as intra-canal medication for 5 days in teeth infected with *Candida albicans*, *E. coli*.

CHAMOMILE

Biologically known as *Marticaria chamomilla* belonging to the family Asteraceae. The German chamomile has been used as a medical herb for centuries, primarily for its anti-inflammatory, analgesic, antibacterial, anti-spasmodic, and sedative properties[15]. Usually considered safe during pregnancy or breastfeeding. However, several hazards and unpleasant effects have been proposed, such as vomiting at excessive doses, numerous skin rashes, and anti-platelet action leading to uncontrolled bleeding while using this herb. [16]. In dentistry, chamomile is used as mouthwash to prevent periodontal disease and also it shows soothing effect on tissues inside the

mouth, nose and throat infection. Chamomile is also often taken three to four times daily between meals as a tea[23]. It is also used in the production of toothpaste.

CLOVE

It is biologically known as *Syzygium aromaticum*, belonging to the family Myrtaceae. Clove consists of β -caryophyllene, eugenol, eugenol acetate, and essential oil. It has analgesic, antioxidant, antiviral, antibacterial, and anti-inflammatory properties [16]. Dried flower buds from clove trees and other East Indian evergreens are frequently used as spices. They also generate a volatile oil used in fragrances and medicine [17]. Cloves are antimicrobial, antioxidant, and antiemetic. There are treatment options for oral, lung, gastrointestinal, and blood circulation problems. Chewing cloves can help reduce bad breath[18]. When it comes to topical anesthesia in their daily practices, dentists can use clove gel instead of benzocaine, particularly when treating younger patients.

COCONUT WATER

Biologically named as *Cocos nucifera* belonging to the family Palmae. The name coconut is derived from the Spanish and Portuguese word *coco*, which means "monkey face." Coconuts are the fruit of the coconut palm, which is botanically known as *CocosNucifera*, where *nucifera* means "nut bearing." [16] The coconut palm is known as *Kalpa Vriksha* in Sanskrit, which means "tree which gives all that is necessary for living," because almost every portion of the tree can be used in some way. [20] It has anti-ageing, anti-fungal, anti-viral, and antimicrobial activity. It has excellent oral rehydration property and enhances immune function and relieves spasm and acts as root canal irrigant[20]. Decoction obtained from coconut tree roots are used as mouthwash and gargle. Coconut flour has antimicrobial properties due to its high lauric acid content that has been



used as medicaments for some oral infections such as mouth sores.

CRANBERRIES

Biologically named as Genus *vaccinium* belonging to the family *Ericaceae*. Cranberries include several biologically active chemicals, such as flavonoids, phenolic acids, anthocyanins, condensed tannins, and antioxidants[16]. These should be used with caution because cranberry juice is naturally acidic and, if consumed in excess, can cause tooth erosion. This may cause discomfort and sensitivity in the teeth. [20] The chemicals also limit acid production and decrease the acid tolerance of the bacteria. Because of its anti-adhesive property dental caries, periodontal disease, oral squamous cell carcinoma[25].

GARLIC

It is biologically known as *Allium sativum* belonging to the family *Amaryllidaceae*. Garlic includes the sulfur-containing molecule allin, which when crushed yields the active component "allicin"[15]. It is cut and held in the mouth for 5 minutes to sterilize the oral cavity due to its high antibacterial activity[16]. The antibacterial effect of garlic is due to allicin in it. For generations, garlic has been used to prevent and treat a range of ailments, as well as to promote longevity. It is now utilized as a natural antibiotic to treat fungus and bacterial infections[17]. Garlic boosts the immune system, lowers blood pressure, and inhibits cholesterol formation in the liver[18]. Garlic is made up of alliin, ajoene, diallyl sulfide, dithin, S-acetylcysteine, enzymes, B vitamins, proteins, and minerals[21].

GRAPES

Biologically named as *Vitis vinifera* belonging to the family *Vitaceae*. Grape seed extract contains proanthocyanidins (PA), which are powerful antioxidants and are known to have anti-inflammatory, antibacterial, and immune-stimulating properties.[16] It was opined that when it was applied specifically against the broad

spectrum of oral bacteria which are responsible for gingivitis, plaque and periodontal disease, this herbal mouth rinse could prove beneficial for maintaining oral health.

JASMINE

Jasminum grandiflorum, belonging to the family *Oleaceae*, commonly known as the Spanish jasmine, Royal jasmine, Catalanian jasmine, and Chameli in Hindi, is a jasmine species native to South Asia.[17]. It is used in treating oral lesions like lichen planus.

LEMON

Citrus limonum Risso (Nimbuka, lemon) belonging to the family *Rutaceae*. Because of its broad antibacterial activity, including against *E. faecalis*, fresh lemon solution is utilized as a root canal medicament. Lemon oil can be applied topically to treat oral thrush and stomatitis.[15] Therapeutic activity shows antifungal potential against three *Candida* species (*C. albicans*, *Candida tropicalis*, and *Candida glabrata*). Lemon EO is suggested to be used as an effective remedy against candidiasis caused by *C. albicans*.

LIQUORICE

Biologically known as *Glycyrrhiza glabra* Linn belonging to the family *Leguminosae*. Licorice root is an anti-inflammatory that can help with arthritic or allergic problems, as well as a digestive stimulant and a relaxing expectorant for lung disorders including asthma and bronchitis. Its antibacterial characteristics aid in the treatment of ulcers[17]. Licorice has long been an important herb in Chinese medicine. According to the researchers, chemicals obtained from licorice root can help combat inflammation, infections, ulcers, and even cancer, in addition to being utilized as flavoring and sweetening agents in candies, tobaccos, and beverages[20]. It is used to treat dental cavities due to its antibacterial, anti-inflammatory, and antiviral properties[21].

MARIGOLD



Biologically named as *Tagetes* belonging to the family *Asteraceae*. It is indigenous to the Mediterranean regions. It is used to treat skin problems and pain, as well as to aid in the healing process following oral surgery and oral cavity inflammations. It also has anti-oedema action. [16]marigold as a mouthwash to relieve ulcers, wounds, or inflamed areas and to relax muscles associated with tension in the jaw joint and pressure from braces.

MINT

Biologically named as *Mentha piperita* belonging to the family *Lamiaceae*. It is analgesic and also has muscle-relaxing action. Peppermint leaves yield approximately 0.1-1.0% volatile oil that is composed primarily of menthol (29-48%) and menthone (20-31%) [25]. It is one of the oldest domestic medicines, used to heal the stomach, intestines, and muscles, as well as to enhance circulation. [17] To relieve toothache, apply peppermint oil. Soak a cotton ball in oil before placing it in the cavity or rubbing it on the tooth. To reduce gum inflammation, use peppermint mouthwash [22].

MYRRH

Myrrh, a gum derived from plants of *Commiphora* myrrh trees and shrubs belonging to the family *Burseraceae*. Topical application for the treatment of and for local application as an anodyne to treat infections of the oral cavity [25]. Myrrh, a potent antiseptic, has traditionally been used to heal stomach and lung disorders [17]. It promotes healing in situations of pyorrhea. Gargling with myrrh can help reduce foul breath [22]. Myrrh helps promote healing in cases of pyorrhea. Rinse the mouth with myrrh tea and brush with the powder when gum disease exists [17].

NEEM

It is a fresh or dried leaves, roots, stems of a plant *Azadirachta indica* belonging to the family *Liliaceae*. It has been proved that neem is effective against *E. faecalis* and *Candida* [15]. Neem has

inhibitory effects of upon various bacterial growth, adhesion to hydroxyapatite on tooth surfaces, and production of insoluble glucan, which may affect in vitro plaque formation [20]. Neem consists of genin, sodium nimbin, salannin, nimbin, azadirachtin, nimbidol, quercetin and nimbidin [21]. Neem leaves contain fibre, carbohydrates and at least 10 amino acid proteins, calcium, carotenoids, fluoride [21]. Neem stick extract can be used to reduce some streptococci to colonize tooth surfaces, and may be useful as anti caries products [20].

PAPPAINE

Biologically named as *Carica papaya* belonging to the family *Cariaceae*. Pappaine is a proteolytic enzyme found in the latex of green adult papaya leaves and fruits. It possesses anti-inflammatory, bacteriostatic, and bactericidal properties and works against both gram positive and gram negative pathogens. [16] Pappaine is a proteolytic enzyme found in the latex of green adult papaya leaves and fruits. [20] Pappaine acts only in infected tissue as it lacks a plasmatic anti protease called α -1- antitrypsin. The absence of this enzyme in infected tissues allows pappaine to break the partially degraded collagen molecules only, contributing to the degradation and elimination of fibrin "mantle" formed by carious process.

PISTACIA ATLANTICA

This plant is classified as a *Pistacia* species. Different elements of the plant, such as resin, leaves, fruit, and aerial portions, can be used for therapeutic purposes. Its resin, called as Saqqez in Iran, can be used as a mouth freshener, antiseptic, and gum tissue strengthener, as well as chewing gum for gastrointestinal disorders and motion sickness treatment [18]. This plant extract can have antibacterial effects on *S. mutans* and *S. mitis*.

PRICKLY ASH

Prickly Ash (*Zanthoxylum*). Used to stimulate the flow of saliva and reduce pain in toothaches [22].

ROSEMARY



Biologically named as *Rosmarinus officinalis*.L belonging to the family Lamiaceae. This evergreen shrub, native to the Mediterranean region, is frequently planted for its aromatic leaves, which are used as a spice, perfume, and medicinal ingredient. Long used to treat the stomach, intestines, liver, nerves, and lungs, rosemary promotes bile production and boosts blood pressure. [17] Rosemary mouthwash is useful for treating gum disease and bad breath. [22]

SAGE

Salvia, a member of the mint family, Lamiaceae, grows wild in fields and along roadsides. Currently, the leaves are used to treat laryngitis, tonsillitis, and sore throat. The herb also possesses antifatulent and moderate laxative effects. [17]. Sage oil has antibacterial, antifungal, and antiviral activity which may partially explain the effectiveness of sage for these indications.[23]. It is used in treatment of sore throat, inflammations in the mouth, and gingivitis[11]. As a mild antiseptic, this herb will help heal bleeding gums and mouth ulcers (cold sores)[17].

SANICLE

Sanicle's leaves are sharply serrated, and the flowers are pale, belonging to the family Umbelliferae. The seeds are packed within a spherical burst. This herb was traditionally regarded a cure for dispelling "evil humours." The blooming tips and leaves, which are high in tannin, resin, and essential oil, are now utilized for their antibacterial, anti-inflammatory, stomachic, and astringent effects. [17] Used as a potent antioxidant, Apply as a salve or ointment to septic wounds.

SEPTILLIN

Septilin is a poly herbal preparation that contains a variety of herbs and minerals. These medicinal plants have immuno-modulatory and anti-inflammatory qualities that help boost the immune system and increase the body's nonspecific immunological responses[16]. Septillin can reduce

gingival index and gingivitis. It helps in improving the body's natural defence mechanism against infections.

TABASCO PEPPER

Capsicum frutescen belonging to the family Solanaceae it controls plaque and gingivitis. It is used in many different various like gum inflammation, dental infections and toothache problems. It is mostly expanded as traditional medicine.

TEA

The biological source of tea tree is *Melaleuca alternifolia* belonging to the family Myrtaceae. Terpinen-4-ol is the main active component in tea tree oil, accounting about 30-40%.[24,25] To avoid the negative effects of NaOCl, a scanning electron microscope investigation was undertaken utilizing two medicinal plants, German chamomile extract and tea tree oil, which may disinfect the root canal system with reduced toxicity when used as irrigants[15]. Tea has a inhibitive property that inhibits the growth of bacteria that causes tooth decay. Tea also contains natural fluorides which is used to prevent dental caries.

TEA TREE

The biological source of tea tree is *Melaleuca alternifolia* belonging to the family Myrtaceae. The native Australian plant, also known as Australian tea tree oil, has several health benefits, including being antibacterial, antifungal, non-irritating, and a mild solvent[16]. Tea tree oil's main active component is terpinen-4-ol (30-40%). This substance's antifungal and antibacterial properties are its cause[20]. Use tree tea-infused mouthwash to minimize mouth inflammation. Because of its mild solvent effect, it could potentially be used in root canal therapy to dissolve necrotic pulp tissue [22].

THYME

Thyme (*Thymus vulgaris*) To cure oral herpes, apply a salve comprised of thyme, myrrh, and goldenseal, which contains fluorine found in



toothpaste. Thymus Vulgaris extract is efficient against Streptococcus Mutans. [22]

TRIPHALA

It is generally a combination of three fruits that includes Emblica officinalis, Terminalia chebula, and Terminalia berririca. These fruits produces synergistic effects. Triphala, a powdered mixture of amalaki, haritaki, and bibhitaki, is widely used in Indian medicine. Niacin, thiamine, riboflavin, and ascorbic acid are all found in amalaki. It contains gallic acid, ellagic acid, galloyl glucose, ethyl gallate, and β -sitosterol. Haritaki, in addition to corilagin, contains chebulagic and chebulinic acids[17].

TULSI

Biologically known as Ocimum sativum belonging to the family Lamiaceae. Tulsi contains tannins (4.6%) and essential oil (up to 2%), eugenol (62%), methyleugenol (86%), a- and B-caryophyllene (42%), methylchavicol, linalool, and 1,8-cineole. [16]. It is used in periodontitis. It has anthelmintic, analgesic, antipyretic, anti ulcer, antimicrobial, anti inflammatory property. The ocimum sanctum is a potent anti-ulcerogenic and have ulcer healing properties. The powdered tulsi leaves mixed with mustard oil can be used as toothpaste for tooth brushing. The tulsi causes healing of sores and blisters.

TURMERIC

The biological source of turmeric is Curcuma longa ,belonging to the family Zingiberaceae. Turmeric's volatile oil (6%) contains

monoterpenes and sesquiterpenes such as zingiberene, curcumin, and α - and β -turmerones. It is antimutagenic, anti-carcinogenic, antioxidant, and antibacterial, and is utilized in dental caries, oral lichen planus, gingivitis, and halitosis. pit and fissure sealants, as well as dental plaque detection systems [16]. When dried, it transforms into a yellow powder with a bitter, slightly acerbic, but sweet flavor. Turmeric offers a number of medicinal benefits, including antioxidant, anti-inflammatory, and antimutagenic properties[17]. Turmeric has excellent antibacterial effects against S. mutans biofilm and is as effective as CHX. As a result, it has the potential to prevent dental cavities [18].

VIOLETS

Violets (clematis virginica) Violet mouthwash can help alleviate the pain and sensitivity associated with oral cancer sores. It is also effective in treating canker and cold sores. [22]

WINTERGREEN

Wintergreen (Gaulthiera procumbens) wintergreen has good astringent and antibacterial properties. It also helps in soothing gums and fight bacteria which causes plaque. Wintergreen oil applied it to a sore tooth or irritated gums[22].

YARROW

YARROW (Achillea millefolium) used to treat heamorrhages, ulcers, and promote blood clotting. The drug's fresh leaves are used for toothache relieve. Yarrow mouthwash heals the cuts in mouth from surgery, braces and dental cleaning.

List of drugs used in the dental problems

DRUGS	USES	ACTIVITY OF THE DRUG	MECHANISM OF ACTION
Aloe barbadensis miller	It shows decrease in gingival irritation.	Antibacterial activity	Overall decrease in the gingival index
Azadirachta indica	Used to reduce some streptococci to colonize tooth surfaces	Antibacterial activity	It Shows inhibitory action towards streptococci



Curcuma longa	It is used to prevent dental caries in some cases.	Antibacterial activity	Turmeric has excellent antibacterial effects against <i>S. mutans</i> biofilm and is as effective as CHX
Melaleuca alternifolia	It is used in the treatment of reducing mouth inflammation.	Antifungal and antibacterial activity	It is used in the treatment of root canal therapy to dissolve necrotic pulp therapy.
Syzygium aromaticum	It is used to reduce bad breath.	Antimicrobial, antioxidant, and antiemetic activity	It has analgesic property over tooth problems
Glycyrrhiza glabra	It is used to treat dental cavities.	Anti-inflammatory, antibacterial activity	Chemicals obtained from liquorice combats inflammation.
Acacia arabica	It is used to treat toothaches and sore throats.	Antibacterial activity	Possess Antibacterial activity due to its phenolic compounds, essential oils.
Allium sativum	It is used to sterilize the oral cavity.	Antibacterial activity	Allicin in the garlic shows antibacterial activity that treats range of ailments.

DRUGS	USES	ACTIVITY OF THE DRUG	MECHANISM OF ACTION
Arcticum lappa	It has antifungal and antioxidant effect.	Antibacterial activity, and antifungal activity.	Exhibits antimicrobial activity against oral microorganism.
Matricaria chamomilla	It has antiinflammatory, antibacterial, anti- spastic and other sedative properties.	Antibacterial, analgesic activity	Shows soothing effect on tissues inside the mouth.
Thea sinensis	It is used for the treatment of root canal therapy.	Antibacterial activity	Inhibits the growth of bacteria that causes tooth decay.
Citrus limon	It is applied topically to treat oral thrush.	Antibacterial activity	It shows effective remedy against candidiasis caused by <i>C.albicans</i> .
Tabasco pepper	Toothache, gum inflammation, and dental infections are used in dental treatments.	Anti-inflammatory activity	It controls plaque and gingivitis.
Ocimum sanctum	It is used in the healing of sores and blisters	Antibacterial activity	The ocimum sanctum is a potent antiulcerogenic and have ulcer healing properties.
Tagetes	It is used in the healing of oral surgeries and cavity inflammations.	Anti-inflammatory activity	marigold relieves ulcers, wounds, or inflamed areas and to relax muscles associated with tension in the jaw joint and pressure from braces.
Vitis vinifera	Used in the treatment of periodontal disease	Anti-inflammatory activity, and	It shows broad spectrum against oral bacteria which are responsible for gingivitis, plaque

		antibacterial activity.	
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DRUGS	USES	ACTIVITY OF THE DRUG	MECHANISM OF ACTION
Carica papaya	Used in the dental caries	Anti-inflammatory activity	It has bacteriostatic and bactericidal properties works against gram positive and gram negative pathogen.
Cocos nucifera	It acts as root canal irrigant.	Antimicrobial activity	Coconut has antimicrobial properties due to its high lauric acid content that has been used as medicaments for some oral infections such as mouth sores.
Vaccinium macrocarpon	It can reduces plaque formation when consumed excess causes tooth erosion.	Anti adhesive property	The chemicals also limit acid production and decrease the acid tolerance of the bacteria.
Commiphora myrrha	It can reduce foul breath when gargled with myrrh.	Antiseptic activity	In treatment of and for local application as an anodyne to treat infections of the oral cavity.
Mentha piperita	It is used to reduce gum inflammation.	Analgesic and muscle relaxing property	menthol and menthone shows cooling property over irritated gums.
Salvia rosmarinus	It is used to reduce gum disease and bad breath.	Antioxidant activity	Rosemary promotes bile production and boosts blood pressure.

DRUGS	USES	ACTIVITY OF THE DRUG	MECHANISM OF ACTION
Jasminum officinale	It maintains overall dental health.	Antimicrobial activity	Treats oral lesions like lichen planus and shows antimicrobial activity against S.mutans, L.casei and E.coli.
Salvia officinalis	It is used to treat laryngitis, tonsillitis and sore throat.	Antioxidant activity and anti inflammatory activity	It inhibits acetyl cholinesterase.
Sanicula europeae	It is used in treating bad breath.	Antibacterial, anti inflammatory activity	Acts as a potent antioxidant
Prickly ash	It stimulates the flow of saliva and reduce pain in toothaches.	Anti-inflammatory activity	The barks acts on the gums to reduce inflammation and pain.
Pistacia atlantica	It can be used as mouth freshener.	Anti-septic activity	This plant extract can have antibacterial effects on S. mutans and S.mitis.
Thymus vulgaris	Used in the toothpaste formulation.	Antibacterial activity	Thymus Vulgaris extract is efficient against Streptococcus Mutans. [8]
Clematis Virginia	It is effective in treating cold sores.	Anticancer activity	Violet alleviate the pain and sensitivity associated with oral cancer sores



Achillea millefolium	The drug's fresh leaves are used for toothache relief.	Antioxidant activity	Acts as a potent antioxidant.
Gaultheria procumbent	Used for a sore tooth and irritated gums.	Antibacterial activity	Soothes gums and fight bacteria which causes plaque

CONCLUSION

In this review article we compared the various dental problems including causative agents, symptoms and their treatment with the available herbs and their extracts. The chemical constituents of herbs with their activity in the dental care were

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