HERBAL REMEDEIS FOR ORAL WELLNESS: THE MAGIC OF HERBALMOUTHWASH

1Ms. Ashwini M. Pujari, 2Ms. Dipali S. Jadhav, 3Ms. Priya H. Kapase; 4Dr. P.N. Sable
1Student, 2Student, 3Assistant professor, 4Principal
1B. Pharm Pharmaceutics,
S.S.P. Shikshan Sanstha’s Siddhi College of Pharmacy, Pune, India

Abstract: Conventional medicine has been used to prevent as as treat diseases for many of years. Herbal remedies have fewer adverse effects than conventional treatments. Numerous species of medicinal plants are members of different families and have historically been used for managing and treating a range of dental issues by the Native Americans. This essay focuses on a number of herbs that are used in dentistry and oral care, including, Mentha, cinnamon, garlic, clove, turmeric etc. The safety and effectiveness of this specific medication are also highlighted in the paper. In order to safely prescribe or use common herbal formulations on their patients, dental professionals should possess sufficient knowledge about them. To support their use as effective substitutes for the current preventive and curative treatments for oral health issues, more research is necessary.

Index Terms- Herbal remedies, Dentistry, Oral care, Safety, Effectiveness, Herbal formulation, Treatment, Oral health issue.

I. INTRODUCTION
Since ancient time medicinal plants have been used to treat a various disease. Research on natural sources, including plants, animals, and marine resources, is crucial in preventing immunological complications. The advent of chemical drugs has led to a decrease in the utilization of herbal medicine. Nonetheless, a lot of scientists continue to use herbal remedies in various fields. Turmeric, for instance, contains curcumin, which has anti-inflammatory, antidepressant, and anti-arthritic properties, among other therapeutic effects. The general quality of life is greatly impacted by oral health, and systemic and chronic illnesses are greatly impacted by dental hygiene. Herbal remedies have been used to treat a number of diseases in the oral cavity. The oral cavity contains more than 700 different types of microorganisms. A portion of these microorganisms have been linked to periodontitis and dental caries. Many oral diseases can be treated with herbs and herbal medicine. Herbal treatments are also utilized in alternative therapy and homeopathy for treating oral conditions like xerostomia, lichen planus, and peptic ulcers.
1.2 ANATOMY & PHYSIOLOGY: [3]
The mouth, also known as the oral cavity, is the main part of the digestive tract. It is surrounded by the palate on top, the lips below, the faces on the bottom, the cheeks on the side, and a muscular floor below.

**Figure No: 1**

**Lips and cheeks:**
The cheeks and lips play a significant role in the process of mastication by moving food around in the mouth and keeping it there while the teeth split it. They aid in word formation, which further supports the speech process.

**Tongue:**
Food is shaped by the tongue into a rounded mass known as a bolus, which is then pushed towards the esophagus for swallowing.

**Teeth and gingiva:**
The teeth are important for speech and play a major role in chewing food. Together with the mandibular and maxillary alveolar ridges, teeth are situated in alveoli. The gingivae cover the alveolar processes and form the gingival sulcus by slightly expanding into each socket.

**Oral mucosa:**
It performs a several functions such as protection, sensation, thermal regulation, secretion, immunological activities, and absorption.
II. MOUTH DISEASES: [4]

1. Oral Candidiasis: There is a noteworthy association between candidiasis and deficiency in folic acid, vitamins A, B1, B2, C, K, zinc, and a diet high in carbohydrate.

![Figure No: 2](image)

2. Potentially Malignant Oral Lesions: These could be brought on by low blood levels of folic acid, vitamins A, C, and B12, among other nutrients.

![Figure No: 3](image)

3. Micronutrient Deficiencies and Mucosal Disorders: Oral mucosal diseases can result from a variety of nutritional deficiencies. Deficits in micronutrients like iron, folate, and vitamin B12 may cause changes like surface ulceration, tongue swelling, and papillary atrophy.

HERBAL VS SYNTHETIC -:
Herbal remedies were used by indigenous healers, midwives, and herbalists in the eighteenth century to treat a wide range of illnesses. Despite the fact that natural medicines can also have side effects, synthetic medications have gradually taken the place of natural ones as medical science has advanced. Even though a lot of synthetic medications benefit mankind and are useful, a lot of medications are known to have serious adverse effects. The majority of common medications, including over-the-counter options like Aspirin, Clopidogrel, Diclofenac, Enoxaparin, Ibuprofen, Naproxen, and Warfarin, are linked to mild side effects like headaches and back pain as well as more serious ones like excessive bleeding, hemorrhage, and breathing difficulties. Phytochemical compounds found in herbal medicines are used to treat a wide range of illnesses. Herbs contain active ingredients that function as drugs, such as opiates, digitalis, which acts against heart failure and certain abnormal heart rhythms, and taxol, which has anticancer properties. Opioids are used for pain relief and sedation. Antioxidant activity was shown by certain medicinal plants. Indeed, several herbs are used in practice today and have been reported to have a variety of medicinal effects.

The majority of people in rural and underdeveloped areas have blind faith in herbs, medicinal plants, and homemade remedies because they are less expensive than synthetic drugs. In addition to being effective in
treating various ailments, homemade remedies are also frequently used to improve appearance and treat skin-related problems. Herbal remedies are thought to be less toxic or to have fewer side effects than synthetic medications, even though they may occasionally be less effective than synthetic drugs. The most important standards for any medicine, whether created by humans or not, are their nontoxicity, efficacy, stability, potency, and specificity.

A synthetic drug not only cures disease but also causes severe side effect to human body. There is given an account of examples in literature which is related with the side effects caused by the synthetic drugs, e.g. paracetamol is popular antipyretic drug but it causes hepatotoxicity as major side effect. [2]

✦ DRUGS IN ORAL HEALTHCARE:

1. COCONUT: [5]

![Coconut](image)

**Synonym:** Coco, Coco palm, Narikela, Nariyal

**Biological source:** cocosnacifera

**Family:** Arecaceae

**Active Ingredient:** Sucrose monolaurate, Glycolipid compound

**MOA:** It is believed to prevent bleeding, prevent bronchitis, and have antipyretic and anti-gingival properties. A decoction from the roots of the coconut tree can be used as a gargle as well as mouthwash. Coconut flour has antibacterial properties due to its high lauric acid content and is used in the treatment of some oral diseases such as cancer.
2. CLOVE: [5]

Synonym: Clove buds, Lavang

Biological source: Extracted from buds of Eugenia caryophillus

Family: Myrtaceae

Active Ingredient: Eugenol, Flavonoids

MOA: Ethanol extracts from the flowers of E. caryophyllata exhibited strongest growth inhibitions against all the six test strains of H. Pylori

3. GARLIC: [5]

Synonym: Lahsun, Allium

Biological source: Dried bulb of Allium sativum

Family: Amaryllidaceae

Active Ingredient: Allicin, Allin

MOA: Allyl sulphur constituents shows its effect on H. pylori cell
4. LEMON GRASS: [6]

**Synonym:** Silky head, Cochin grass, Malabar grass

**Biological source:** Cymbopogon citratus

**Family:** Poaceae

**Active Ingredient:** Citral, Geranyl acetate

**MOA:**
1. Inhibit COX
2. Inhibit NO synthase
3. Activate K+ ATP channel and α2 receptors.

5. PAPAYA: [7]

**Synonym:** Pawpaw, musk, Papai

**Biological source:** fruit of carica papaya

**Family:** Caricaceae

**Active Ingredient:** Papain, Saponin, alkaloids, tannin

**MOA:** It maintains periodontal health.
6. COFFEE: [7]

**Synonym:** Joe, Java

**Biological source:** Dried ripe seed of Coffee Arabica

**Family:** Rubiaceae

**Active Ingredient:** Caffeine, Chlorogenic acid, Trigoneline

**MOA:** It decreases Streptococcus mutans salivary load

7. GUAVA: [7,8]

**Figure No:** 10

**Synonym:** Guava bush, apple guava, Peru

**Biological source:** Fresh fruit of Psidiumguajava

**Family:** Myrtaceae

**Active Ingredient:** guajaverin, psidiolic acid, 1.8-cineol, monoterpenes, ρ-cimen

**MOA:** It has antibacterial and anti-inflammatory activity.
8. CINNAMON: [9]

![Cinnamon sticks and powder](image)

**Synonym:** Cinnamomum, Cinnamon bark, Dalchini

**Biological source:** Cinnamomum zeylanicum

**Family:** Lauraceae

**Active Ingredient:** Cinamaldehyde

**MOA:** Cinnamaldehyde completely inhibited the growth of standard *H. pylori* strain. Also, the growth of bacteria was completely inhibited in only 9 h when the MIC was doubled. At acidic pH, increased activity was observed for this compound.

9. CUMIN: [9]

![Cummin seeds](image)

**Synonym:** Roman caraway, Spice caraway, Jeera

**Biological source:** Cuminum cyminum

**Family:** Apiaceae

**Active Ingredient:** Volatile oil (3–4 %), Cuminaldehyde

**MOA:** The ethanolic extracts of *C. cyminum*, among ethanolic or aqueous extracts from 17 plant materials, showed a significant in vitro effect against 11 *H. pylori*.
10. CARROT: [9]

Synonym: Daucus, Daucuscarotetasativa, Gajar

Bio source: Root of daucuscarota

Family: Apiaceae

Active ingredients: Essential oil, Caffeic acid, Thiamine, Riboflavin

MOA: The pH from 7.4 to 4.0 (acidic conditions) of essential oil of carrot seed resulted in a marked reduction in the minimal concentration required to completely inhibit H. pylori.

11. EUCALYPTUS: [8, 9]

Synonym: River red gum, Eucalyptus amygdalina, Nilgiri

Bio source: Eugenia caryophillus

Family: Myrtaceae

Active ingredients: Ethanol extract, Tannin, Hydrocyanic acid Themacrocarpals A, B, and C are phloroglucinol derivatives of eucalyptus leaves. All three ingredients successfully resist the growth of P. gingivalis

MOA: Ethanol extracts from the flowers of E. caryophyllata exhibited strongest growth inhibitions against all the six test strains of H. pylori.
12. NUTMEG: [9]

Synonym: Mace, genus myristica, jaiphol

Biosource: Myristicafragrans

Family: Myristicaceae

Active ingredients: Neolignan, Lignan, Terpenoid

MOA: Methanol extracts of M. fragrans (seed) inhibited the growth of 15 H. pylori strains. Gastrointestinal disease treatment was conventional use of M. fragrans.

13. PISTACHIO: [9]

Synonym: Pistaciavera, Genus pistacia, Pista

Biosource: Pistacialementiscus

Family: Anacardiaceae

Active ingredients: Triterpenic acid, Phylloquinone, carotenoids, chlorophyll

MOA: Triterpenic acids were found to be the most active fraction against a 11 H. pylori clinical strains.
14. ALMOND: [9]

**Synonym**: Prunusamygdalus, Sweet almond, Badam

**Biosource**: Prunusdulcis

**Family**: Rosaceae

**Active ingredients**: MOA: Almond skin extracts rich in flavonoids and three pure flavonoid compounds were evaluated on 34 strains of H. pylori. Natural almond skin was act most effectively against H. pylori followed by natural skin post gastric digestion, and natural almond skin post gastric plus duodenal digestion. Out of all pure flavonoid compounds, protocatechuic acid has the highest activity against H. pylori strains.

15. POMEGRANATE: [9]

**Synonym**: Redsaunders, Chaulmoogra, dalim

**Biosource**: Punicagranatum**Family** :Lythraceae

**Active ingredients**: Flavonoids, Anthocyanins, Punicic acid, Sucrose, Fructose

**MOA**: The ethanolic extract and semi-purified fractions of P. granatum demonstrated significant anti-H. pylori effects.
16. AJWAIN: [9]

Synonym: Caraway, Carumajowan, Ova

Bio source: Trachyspermumcopticum

Family: Apiaceae

Active ingredients: Thymol, terpene, cymene

MOA: Extracts of T. copticum shows significant effect on H. pylori activity. Over 93% of H.pylori sensitive to the extracts of T. copticum.

17. CABBAGE: [6]

Synonym: Broccoli, Kale, Coleslaw

Bio source: Brassicaoleracea

Family: Brassicaceae

Active ingredients: Betacarotin, Cholin, Lutein

MOA: Active against H. Pylori.
BITTER ORANGE:[6]

**Synonym**: Seville orange, Bigarade orange, marmalade orange

**Bio source**: Citrus aurantium

**Family**: Rutaceae

**Active ingredients**: Synephrin, Essential oil

**MOA**: Ischemia reperfusion

18. LEMON: [6]

**Synonym**: Citrus limon, Lemon peel

**Bio source**: Citrus lemon

**Family**: Rutaceae

**Active ingredients**: Essential oil, Citric acid

**MOA**: 1. Synthesis of mucus layer

2. It helps to release NO as well as it act as vasoactive intestinal peptide
19. Maintenance of PGE2 and glutathione level

CAVENDISH BANANA:[6]

**Synonym:** Chinese banana, Canary banana

**Bio source:** Musa acuminate

**Family:** Musaceae

**Active ingredients:** Flavonoid, Tannin, Saponin, Alkaloid, Phenol

**MOA:** Crued flavonoid exract increase the mucus production

21. MANGO: [6,8]

**Synonym:** Aam, Mangifera

**Bio source:** Mangifera indica

**Family:** Anacardiaceae

**Active ingredients:** Mangiferrin, glucosylxanthonegums, resins, and tannins

**MOA:**
1. It protects the GIT
2. Antisecretory
3. Antioxidant
22. TERMERIC: [5]

Synonym: Curcumin, Halad

Bio source: Rhizomes of Curcuma Longa

Family: Zingiberaceae

Active ingredients: Curcumin

MOA: Antiseptic, Antiinflammatory, Antiseptic

23. PEPPERMINT:[5]

Synonym: Mentha, Pudina, Mint

Bio source: MenthaPiperita

Family: Lamiaceae

Active ingredients: menthol, methyl acetate, tannic acid, 0.1-1.0% volatile oil and Vitamin C.

MOA: Anti-inflammatory
24. NEEM: [5, 8]

**Synonym:** Margosa, arishth  
**Bio source:** Azadirachta indica  
**Family:** Meliaceae  
**Active ingredients:** Alkaloids, saponins, flavonoids, sterols, resins, tannins, oils, gum, chloride, fluoride, silica, sulfur, and calcium.  
**MOA:** Significantly decreases gingival, bleeding and plaque indices

25. TULSI: [8]

**Synonym:** Holy basil  
**Bio source:** Ocimum sanctum  
**Family:** Lamiaceae  
**Active ingredients:** Eugenol  
**MOA:** Antibacterial activity
<table>
<thead>
<tr>
<th>Drug</th>
<th>Biological source</th>
<th>Active ingredients</th>
<th>uses in oral health</th>
</tr>
</thead>
</table>
| COCONUT:       | Cocosnacifera     | Sucrose monolaurate, Glycolipid compound | 1. Reduces plaque formation & plaque induced Gingivitis  
2. Reduce bad bacteria  
3. Prevent gingivitis  
4. Prevent tooth decay (10) |
| CLOVE:         | Eugenia caryophillus | Eugenol, Flavonoids | 1. Eugenol & cynamaldehyde inhibit growth of 31 strains of H.pylori. (11) 
2. Useful in treatment of  
   - Toothache  
   - Tooth decay  
   - Ulcer |
| GARLIC:        | Aliumsativum      | Allicin, Allin | 1. Garlic has synergistic activity against H.pylori with proton pump inhibitor. (12)  
2. Shows aid against oral flora imbalance.  
3. Treat gum bleeding |
| LEMON GRASS:   | Cymbopogon citratus | Citral, Geranyl acetate | 1. Lemongrass oil useful in treatment of gingivitis. (13)  
2. Reduce plaque level  
3. Treat sore throat |
| **PAPAYA:** | Carica papaya | Papain, Saponin, alkaloids, tannin | **1.** Decreases gingival bleeding and inflammation [14]  
**2.** Have Good healing property  
**3.** Can treat Mouth ulcer, gum inflammation |
| **COFFEE:** | Coffee Arabica | Caffeine, Chlorogenic acid, Trigoneline | **1.** Coffee containing chlorogenic acid have antibacterial activity against P. Gingivalis. [15] |
| **GUAVA:** | Psidium guajava | Flavonoids, tannin, Phenol, Carotenoids | **1.** Guava leaf extract had a excellent effect on gingivitis.  
**2.** Guava can act as antiplaque agent. [16] |
| **CINNAMON:** | Cinnamomum zeylanicum | Cinamaldehyde | **1.** Caries  
**2.** Periodontal disease  
**3.** Endodontitis  
**4.** Candidasis [17] |
<table>
<thead>
<tr>
<th><strong>CUMIN:</strong></th>
<th>Cuminum cyminum</th>
<th>Volatile oil (3–4 %), Cuminaldehyde</th>
<th>1. Cumin essential oil shows antibacterial and antbiofilm properties against P. gingivalis. [18] 2. It cure the gum bleeding, oral ulcer &amp; halitosis.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CARROT:</strong></td>
<td>Daucus carota</td>
<td>Essential oil, Caffeic acid, Thiamine, Riboflavin</td>
<td>1. Carrots are good for human teeth as well as mouth because it scrape away plaque &amp; food particles. 2. Carrots stimulate gums to produce lot of saliva. [5]</td>
</tr>
<tr>
<td><strong>EUCALYPTUS:</strong></td>
<td>Eugenia caryophyllus</td>
<td>Ethanol extract, Tannin, Hydrocyanic acid</td>
<td>1. Eucalyptus oil acts as an antiplaque agent for bleeding gums, halitosis &amp; stomatitis. [19] 2. It can treat endodontics and periodontics.</td>
</tr>
<tr>
<td><strong>NUTMEG:</strong></td>
<td>Myristica fragrans</td>
<td>Neolignan, Lignan, Terpenoid</td>
<td>1. It can used as an adjunctive in periodontitis. [20] 2. It is effective in the treatment of gingivitis.</td>
</tr>
<tr>
<td><strong>PISTACHIO:</strong></td>
<td>Pistacia lentiscus</td>
<td>Triterpenic acid, Phylloquinone, carotenoids, chlorophyll</td>
<td>1. It is active against H. pylori.</td>
</tr>
</tbody>
</table>
| **ALMOND:** | Prunus dulcis | Flavonoids, Oleic acid, Linoleic acid | 1. It provides calcium & fibre which strengthen the teeth enamel.  
2. It decreases plaque from teeth. |
|------------|--------------|-------------------------------------|------------------------------------------------------------------|
| **POMEGRANATE:** | Punica granatum | Flavonoids, Anthocyanins, Punic acid, Sucrose, Fructose | It is helpful in  
1. Gingivitis  
2. Reducing plaque formation.[21] |
| **AJWAIN:** | Trachyspermum opticum | Thymol, Terpene, Cymene | 1. Ethanolic extract of ajwain reduces ulcerative lesions.  
[22]  
2. It helps to decrease pain in toothache. |
| **CABBAGE:** | Brassica oleracea | Beta carotin, Cholin, Lutein | 1. It reduces gum inflammation.  
2. It prevents gum diseases & promotes healthy teeth. |
| **BITTER ORANGE:** | Citrus aurantium | Syneprhin, Essential oil | 1. It reduces hardness of tooth enamel.  
2. It promote healthy teeth & gums. |
|------------------|------------------|--------------------------|---------------------------------|
| **LEMON:**       | Citrus lemon     | Essential oil, Citric acid | 1. It removes accumulated supra gingival debris. [23]  
2. It soothe toothaches. |
| **CAVENDISH BANANA:** | Musa acuminate | Flavonoid, Tannin, Saponin, Alkaloid, Phenol | 1. It has an antiulcer property. [24]  
2. It strengthen the tooth enamel. |
| **MANGO:**       | Mangiferaindica  | Mangiferrin, glucosylxanthone | 1. It is effective in treatment of dental caries. [25]  
2. The branches of mango tree can used as ayurvedic natural toothbrush. |
<table>
<thead>
<tr>
<th>Herbs</th>
<th>Plant Name</th>
<th>Active Components</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TURMERIC:</td>
<td>Curcuma Longa</td>
<td>Curcumin</td>
<td>1. It play role in treatment of periodontal disease &amp; oral cancer. 2. It provides relief from Gingivitis. [26]</td>
</tr>
<tr>
<td>PEPPERMINT:</td>
<td>Mentha Piperita</td>
<td>menthol, methyl acetate, tannic acid, 0.1-1.0% volatile oil and vitamin C</td>
<td>1. It is important remedy for dental caries. [27] 2. It decreases bacterial plaque formation.</td>
</tr>
<tr>
<td>NEEM:</td>
<td>Azadirachta indica</td>
<td>alkaloids, saponins, flavanoids, sterols, resins, tannins, oils, gum, chloride, fluoride, silica, sulfur, and calcium</td>
<td>1. It shows antibacterial activity against dental caries causing organism such as S. mutans, S. Mitis, S. Salivarius etc. [28] 2. It can heal the Orla ulcer.</td>
</tr>
<tr>
<td>TULSI:</td>
<td>Ocimum sanctum</td>
<td></td>
<td>1. It is effective in Periodontal diseases &amp; gingivitis. [29] 2. It can treat halitosis.</td>
</tr>
</tbody>
</table>

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REFERENCES:

1. Herbal Medicine and Oral Health: A Review Soussan Irani1,2

2. Comparison of Medicinally Important Natural Products versus Synthetic Drugs-A Short Commentary Bushra Nisar1*, Aeysha Sultan2 and SyedaLaila Rubab3

3. Physiology of the Oral Cavity C. R. <;:elebi, and S. Y


5. Dr Jagjit Singh Dhaliwal1, Dr Ramandeep Singh Gambhir2, Dr Sachinjeet Kaur Sodhi3, Dr Gursanjyot Shaheed4, DK Dr Nurolaini Binti Pg Haji Muhammad K

6. Plants against Helicobacter pylori to combat resistance: An ethnopharmacological review Doha Abou Baker

7. Current herbal medicine as an alternative treatment in dentistry: In vitro, in vivo and clinical studies Ehsan Tafazoli Moghadam a,1, Mohsen Yazdanian a,1, Elahe Tahmasebi a,* , Hamid Tebyanian a,**, Reza Ranjbar a, Alireza Yazdanian b, Alexander Seifalian c, Ali Tafazoli d

8. Herbal extracts in oral health care - A review of the current scenario and its future needs

9. Herbal Medicine and Oral Health: A Review Soussan Irani1,2

10. Effect of coconut oil in plaque related gingivitis — A preliminary report Faizal C. Peedikayil, Prathima Sreenivasan,1 and Arun Narayanan2

11. Clove (Syzygium aromaticum): a precious spice


13. Review on lemongrass (cymbopogon citratus) oil extraction and its applications

14. Cardia Papaya Mouthwash for Reducing Dental Plaque Méndez J, DDs, Msc1, and VillasantiU, DDs, Msc2


16. Psidium guajava: A review on its potential as an adjunct in treating periodontal disease
K. Ravi and P. Divyashree

17. Effects of Cinnamon (Cinnamomum spp.) in Dentistry: A Review, Spartak Yanakiev

18. Extraction of Cuminum cyminum and Foeniculum vulgare Essential Oils and Their Antibacterial and Antifilm Activity against Clinically Isolated Porphyromonas gingivalis and Prevotella intermedia: An In Vitro Study, by Ayub Hussein Rashid, Sarhang Sarwat Gul, Hoshyar Abdullah Azeez and Shokhan Hamaali Azeez


20. Original Article ACHIEVABLE THERAPEUTIC EFFECTS OF MYRISTICA FRAGRANS (NUTMEG) ON PERIODONTITIS A SHORT REVIEW KRITIKA JANGID1, ND JAYAKUMAR2, SHEEJA S VARGHESE3

21. ROLE OF POMEGRANATE IN PREVENTIVE DENTISTRY, Karkare Swati Ramesh, Siddiqui Fawaz Shamim

22. Efficacy Study of whitening Toothpaste containing Lemon (Citrus Limon (L) anu Salt (Sodium Carbonate), Sudhir Savkar*, Jayaganesh Sankar and Furtado Mellissa Andrea

23. Heba Sayed Mostafa

24. Effect of Mangifera indica (Mango) on Dental Caries: A Systematic Review, Yasaman Salimi, 1, * Narges Tavahodi, 2, * Hamed Taheri, 3,

25. Role of curcumin in systemic and oral health: An overview, Monika Nagpal and Shaveta Sood

26. MENTHA PIPERITA L. - A PROMISING DENTAL CARE HERB MAINLY AGAINST CARIOGENIC BACTERIA Marwa AA Fayed

27. Azadirachta indica: A herbal panacea in dentistry – An update, T. Lakshmi, Vidya Krishnan, IR Rajendran, 2 and N. Madhusudhanan 3

28. TULSI-A PROMISING HERB IN DENTISTRY, Akhilanand Chaurasia