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A Review on *Kushthaghna Mahakashaya*

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ABSTRACT:

The broad term used in Ayurveda for all types of skin disorders is *Kushtha*, depending on the severity of the disease *Kushtha* is further classified as *Mahakushtha* and *Kshudrakushtha*. According to the Acharyas, *Kushtha* arises due to the vitiation of seven factors, of which three are *doshas* (*Vata*, *Pitta* and *Kapha*) and four are *Dushyas* (*Tvaka*, *Mamasa*, *Shonita* and *laseeka*). Acharyas have classified eighteen types of *Kushtha* on the basis of the predominance of seven factors, out of which seven are *Mahakushtha* and eleven are *Kshudrakushtha*. The Ayurvedic classics attach great importance to *Kushtha* which is evident from the fact that the treatment of *Kushtha* is described in the third chapter of *Charaka Samhita* where external therapeutics for the disease are explained. In the fourth chapter of *Sutrasthan* of *Charaka Samhita*, Acharya *Charaka* has described a group of ten medicines for skin diseases under *Kushthaghna mahakashaya*. Most skin diseases have a close link to psychological stress, and stress is responsible for the onset and worsening of several skin problems. *Rasayan* (rejuvenation) qualities were recorded in the majority of the medications in the *Kushthaghna Mahakashaya*. As a result, these medications aid in lowering the adverse effects of stress and thus aid in the management of chronic skin problems. In this paper drugs of *Kushthaghna mahakashaya* has been reviewed on scientific lines through published work and it is observed that the drugs have various related activity.

Keywords: *Kushtha*, *Kushthaghna mahakashaya*, *doshas*, *Dushyas*

INTRODUCTION

The skin is the largest organ of the body as well as a metabolically active organ that provides a protective barrier against mechanical, thermal and physical injury and against hazardous substances, prevents the loss of moisture in the body, and reduces the harmful effects of ultraviolet radiation. It also provides a friction surface to grip and

synthesizes Vitamin D etc.¹ In addition to these functions, the depiction of the skin also refers to the notion of health, well-being, beauty and youth, which are associated with a person's self-esteem and mental health. Patients suffering from skin diseases often experience emotional and social betrayal in society. In Ayurvedic classics all skin disorders



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come under the name of *kushtha* (skin diseases). The word *kushtha* (skin diseases) is derived from the word *kushkatana*,² which means deformity of the skin, variation in skin color and loss of integrity of the skin. Acharya Charaka has described fifty *Mahakashyas* also known as *Dashemanis*, in the fourth chapter of the *Sutrasthan* of *Charaka Samhita*. *Kushthaghna Mahakashya* is one of them which contains a group of ten drugs which are used in *kushtha roga*.³ The main aim of this article is to study the scientific basis of *Kushthaghna Mahakashaya* in skin diseases and to study the properties and therapeutics of drugs of *Kushthaghna Mahakashaya*.

MATERIAL & METHODS

Material related to *Kushthaghna Mahakashya* is collected from classical Ayurvedic literatures, textbooks and from various scientific published journals. The available commentaries of Ayurvedic *samhitas* has also referred to collect relevant matter.

Review of Literature

Table no. 1: Botanical details of all the Plants of *Kushtaghna Mahakashaya*^[4-13]

Table no. 2: Ayurvedic properties & *doshik* action of the drugs of *Kushtaghna Mahakashaya*

Table no. 3: Medicinal Use of Drugs of *Kusthagna Mahakashaya*

Table no.4: Chemical constituents

Pharmacological Activities

Several pharmacological-activities are reported on these plants and it is also observed that they have potent medicinal efficacies against various skin disorders. Beside their anti-dermatosis properties, they also exhibit significant related activities.

Table no. 5: Pharmacological Activities Reported

DISCUSSION

Based on the analysis of various ayurvedic literature it is observed that the most of the drugs of *Kushtghna Mahakasaya* are bitter in taste and it is quite evident that bitter drugs are very good blood purifier hence these drugs are effective in skin diseases as it is shown in table no. 3. The drugs of *Kushtghna Mahakasaya* were also reviewed on scientific lines through published research work and it is noticed that *Acacia catechu* Willd; *Curcuma longa* Linn; *Semecarpus anacardium* Linn; *Alstonia scholaris* R.Br and *Embelia ribes* Burm.f have anti- microbial activities,

Terminalia chebula Retz; *Nerium indicum* Mill. *Casia fistula* Linn. and *Jasminum officinale* Linn. have anti-bacterial activities, *Casia fistula* Linn and *Terminalia chebula* Retz have antifungal activities, *Embellica officinalis* Gaertn and *Curcuma longa* Linn have protective role in skin and *Acacia catechu* Willd; *Terminalia chebula* Retz; *Embellica officinalis* Gaertn; *Curcuma longa* Linn; *Semecarpus anacardium* Linn; *Alstonia scholaris* R.Br and *Embelia ribes* Burm.f have anti-oxidant activities.

CONCLUSION

Kushtha is described as the most chronic disease in ayurvedic literature and mentioned under *maha gada*. In the fourth chapter of *Sutrasthan of Charaka Samhita*, Acharya Charaka has described a group of ten medicines under *Kushthagan Mahakasaya* and many other Acharayas also indicate the same drugs for the *kushtha roga*. The findings of several research studies prove that the medicines mentioned under *Kushthagan Mahakashaya* contain several potent phytoconstituents that exhibit anti-dermatosis and related properties. Along with anti-dermatosis properties, these plants also have many other activities and can be used for other ailments as well.

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REFERENCES

1. Structure and functions of the skin, Health and safety executive(HSE), <https://www.hse.gov.uk/skin/professional/causes/structure.htm>
2. D.V.Pandit Rao Acharya Vruddha Vagbhata, Ashtanga Sangraha, Nidana sthana, Chapter 14.Shloka no. 3-4, edited Vaidhya Ayodhya Pandeya, Kendreeya Ayurveda evam Siddha Anusadhma parishad, S-10, Green park extension, New Delhi- 110016, 1991.pp.109.
3. Acharya YT, Agnivesha, Charaka Samhita, Sootraa sthana, Chapter 4, shloka no. 8/13-14, Chawkambha Sanskrit Sansthan, P.B no.1139, K.37/16, Gopal mandir lane, Varanasi(UP), reprint, 2004, p.33.

4. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.159-161.
5. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.753-755.
6. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.758-760.
7. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.162-164.
8. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.166-170.
9. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.702-704.
10. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.170-173.
11. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.211-213.
12. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.503-506.
13. Sharma P.V., Dravyaguna vijnana Vol.2, Delhi, Chaukhamba Sanskrit Pratishthan;2006, p.178-180.
14. Guleria S, Tiku A, Singh G, Vyas D, & Bhardwaj A. Antioxidant Activity and Protective Effect against Plasmid DNA Strand Scission of Leaf, Bark, and Heartwood Extracts from Acacia catechu. *Journal of Food Science*, 2011;76(7):C 959-64.
15. Singh KN, Mittal RK, Barthwal KC. Hypoglycemic activity of Acacia catechu, Acacia summa, and Albizzia odoratissima seed diets in normal albino rats. *Indian J Med Res*, 1976; 64(5): 754–757.
16. Sham JS, Chiu KW, Pang PK. Hypotensive action of Acacia catechu. *Planta Med*, 1984; 50(2):177–180.
17. Patel Jayshree, Kumar Vipin, Bhatt Shreyas. Antimicrobial screening and phytochemical analysis of the resin part of Acacia catechu. *Pharmaceutical biology journal*, 2009; 47 (1):34-37.
18. TG N, Sarang S, & Jambhale D. Evaluation of antimycotic activity of Acacia catechu Willd. *Journal of Biopesticides*, 2008; 1(2):197-8.
19. Negi BS & Dave BP. In Vitro Antimicrobial Activity of Acacia catechu and Its Phytochemical Analysis. *Indian J Microbiol*, 2010; 50(4):369-74.
20. Lakshmi T, Geetha R. V. & Roy Anitha (2011). In vitro evaluation of antibacterial activity of heartwood extract of acacia catechu willd. *International Journal of Pharma & Bio Sciences*, 2011; 2(2): p.188.
21. Pramod Kumar, Shahid H, Ansari and Javed Ali. Herbal Remedies for the Treatment of Periodontal Disease - A Patent Review. *Recent Patents on Drug Delivery & Formulation*, 2009; 3: p.221-228.
22. Ray D, Sharatchandra K & Thokchom, I. Antipyretic, antidiarrhoeal, hypoglycaemic and hepatoprotective activities of ethyl acetate extract of *Acacia catechu* Willd. in albino rats. *Indian journal of pharmacology*, 2006; 38(6):p.408-13.
23. Alam G, Singh M P & Singh A. Wound healing potential of some medicinal plants. *International Journal of Pharmaceutical Sciences and Research*, 2011; 9(1):p.136-45.
24. Ismail S & Asad M. Immunomodulatory activity of acacia catechu. *Indain Journal of physiol pharmacol*, 2009; 53(1):p.25-33.
25. Chang CL, Lin CS. Development of antioxidant activity and pattern recognition of *Terminalia chebula* Retzius extracts and its fermented products. *HungKuang J*, 2010; 61: p.115-129.
26. Mahesh R, Bhuvana S, Begum VM. Effect of *Terminalia chebula* aqueous extract on oxidative stress and antioxidant status in the liver and kidney of young and aged rats. *Cell Biochem Funct*, 2009; 27(6): p.358-363.
27. Chen X, Sun F, Ma L, Wang J, Qin H, Du G. In vitro evaluation on the antioxidant capacity of triethylchebulate, an aglycone from *Terminalia chebula* Retz fruit. *Indian J Pharmacol*, 2011; 43(3): p.320-323.
28. Sugun L, Sing S, Sivakuma P, Sampat P, Chandrakasa G. Influence of *Terminalia chebula* on dermal wound healing in rats. *Phytotherapy Res*, 2002; 16(3): p.227-31.
29. Singh MP, Sharma CS. Wound healing activity of *Terminalia chebula* in experimentally induced diabetic rats. *Int J Pharma Tech Res*, 2009; 1(4): p.1267-70.
30. Na MK, Bae KH, Kang SS, Min BS, Yoo JK, Kamiryo Y, Senoo YI, Yokoo S, Miwa N. Cytoprotective effect on oxidative stress and inhibitory effect on cellular aging of *Terminalia chebula* fruit. *Phytotherapy Res*, 2004;18(9): p.737–41.
31. Li K, Diao Y, Zhang H, Wang S, Zhang Z, Yu B, et al. Tannin extracts from immature fruits of *Terminalia chebula* Fructus Retz. promote cutaneous wound healing in rats. *BMC Comp Alter Med*, 2011; 11: p.1-9.
32. Kannan VR, Rajasekar GS, Rajesh P, Balasubramanian V, Ramesh N, Solomon EK, et al. Anti-diabetic activity on ethanolic extracts of fruits of *Terminalia chebula* Retz. Alloxan induced diabetic rats. *Am J Drug Discov Dev*, 2012; 2: p.135-142.
33. Senthilkumar GP, Subramanian SP. Biochemical studies on the effect of *Terminalia chebula* on the levels of glycoproteins in streptozotocin induced experimental diabetes in rats. *J Appl Biomed*, 2008; 6: p.105-115.

34. Sabu MC, Kuttan R. Anti-diabetic activity of medicinal plants and its relationship with their antioxidant property. *J Ethnopharmacol*, 2002; 81: p.155-60.
35. Maruthappan V, Shree KS. Hypolipidemic activity of Haritaki (*Terminalia chebula*) in atherogenic diet induced hyperlipidemic rats. *J Adv Pharm Tech Res*, 2010; 1: p.229-235.
36. Israni DA, Patel KV, Gandhi TR. Anti-hyperlipidemic activity of aqueous extract of *Terminalia chebula* and Gaumutra in high cholesterol diet fed rats. *Int J Pharm Sci*, 2010; 1: p.48-59.
37. Khan KH, Jain SK. Regular intake of *Terminalia chebula* can reduce the risk of getting typhoid fever. *Adv Biotech*, 2009; 8 (9): p.10-15.
38. Kim HG, Cho JH, Jeong EY, Lim JH, Lee SH, Lee HS. Growth inhibitory activity of active component from *Terminalia chebula* fruits against intestinal bacteria. *J Food Prot*, 2006; 69(9): p.2205-2209.
39. Sato Y, Oketani H, Singyouchi K, Ohtsubo T, Kihara M, Shibata H, et al. Extraction and purification of effective antimicrobial constituents of *Terminalia chebula* Retz. against methicillin-resistant *Staphylococcus aureus*. *Bull Pharm Bull*, 1997; 20(4): p.401-404.
40. Aneja KR, Joshi R. Evaluation of antimicrobial properties of fruit extracts of *Terminalia chebula* against dental caries pathogens. *Jundishapur J Microbiol*, 2009; (3): p.105-111.
41. Kannan P, Ramadevi SR, Hopper W. Antibacterial activity of *Terminalia chebula* fruit extract. *Afr J Microbiol, Res* 2009; 3(4): p.180-184.
42. Dutta BK, Rahman I, Das TK. Antifungal activity of Indian plant extracts. *Mycoses* 1998; 41(11-12): p.535-536.
43. Jeong AHN, Kim CY, Lee JS, Kim TG, Kim SH, Lee CK, et al. Inhibition of HIV-1 integrase by galloyl glucoses from *Terminalia chebula* and flovonol glycoside gallates from *Euphorbia pekinensis*. *Plant Med*, 2002; 68: p.457-459.
44. Kurowa M, Nagasaka K, Hirabayashi T, Uyama S, Sato H, Kagiya T, et al. Efficacy of traditional herbal medicines in combination with acyclovir against Herpes Simplex Virus-1 infection in vitro and in vivo. *Antiviral Res*, 1995; 27(1-2): p.19-37.
45. Rege NN, Thatte UM, Dahanukar SA. Adaptogenic properties of six Rasayana herbs used in Ayurvedic medicines. *Phytother Res*, 1999; 13: p.275-291.
46. Moeslinger T , Friedl R, Volf I, Brunner M, Koller E, Spieckermann PG. Inhibition of inducible nitric oxide synthesis by the herbal preparation Padma 28 in macrophage cell line. *Can J Physiol Pharmacol*, 2000; 78(11): p.861-866.
47. Nair V, Singh S, Gupta YK. Anti-arthritic and disease modifying activity of *Terminalia chebula* Retz. in experimental models. *JPharm Pharmacol*, 2010; 62(12): p.1801-1806.
48. Aher VD. Immunomodulatory effect of alcoholic extract of *Terminalia chebula* ripe fruits. *J Pharm Sci Res*, 2010; 2(9): p.539-544.
49. Sohni YR, Bhatt RM. Activity of a crude extract formulation in experimental hepatic amoebiasis and in immunomodulation studies. *J Ethnopharmacol*, 1996; 54 (2-3): p.119-24.
50. Bhattacharya A, Chatterjee A, Ghosal S, Bhattacharya SK. Antioxidant activity of active tannoid principles of *Emblica officinalis* (amla). *Indian Journal of Experimental Biology*, 1999; 37(7): p.676-680.
51. Ghosal S, V.K. Tripathi and S. Chauhan. Active constituents of *emblica officinalis*.part 1. The chemistry and antioxidant effect of two new hydrolysable tannins, emblicanin A & B. *Indian. J. Chem.*, 1996; 35: p.941-948.
52. V. Kasabri P. R. Flatt and Y. H. A. Abdel-Wahab. *Emblica officinalis* stimulates the Secretion and action of Insulin and Inhibits Starch Digestion and Protein Glycation In vitro. *European Journal of Medicinal Plants*, 2014; 4(6): p.753-770.
53. Sabu. M.C., R. Kuttan. 2002. Antidiabetic activity of medicinal plants and its relationship with their antioxidant property.J. Ethanopharmacol., 2002; 81: p.155-160.
54. Singh et al. Immunomodulatory role of *Emblica officinalis* in arsenic induced oxidative damage and apoptosis in thymocytes of mice BMC two. Complementary and Alternative Medicine, 2013; 13(193): p.1-13.
55. Sai Ram. M, Neetu D, Yogesh B, Anju B, Dipti P, Pauline T, Sharma S.K, Sarada S.K.S., Ilavazhagan, G, Devendra Kumar, Selvamurthy.W. Cyto-protective and immunomodulating properties of Amla (*Emblica officinalis*) on lymphocytes: an in-vitro study. *Journal Of Ethnopharmacology*, 2001; 81: p.5-10.
56. Rege NN, Thatte UM, Dahanukar SA. Adaptogenic properties of six Rasayana herbs used in Ayurvedic medicines. *Phytother Res*, 1999; 13: p.275-291.
57. Kim H.J.T., H.Y. Kim, CT ohada, T.P. Rao and L.R. Juneja. Influence of Amla (*Emblica officinalis* Gaertn.) on hypercholesterolaemia and lipid peroxidation in cholesterol – feed rats. *J. Nutr. Sci.Vitaminol Tokyo*, 2005; 51: p.413-418.
58. Mathur R.A., A. Sharma, V. P. Dixit and M varma. Hypolipidaemic effects of fruit juice of *emblica officinalis*

- in cholesterol feed- rabbits.J. Ethanopharmacol, 1996; 50: p.61-68.
59. Thakur C.P, B. Thakur, S Singh, P.K. Sinha and S.K. Sinha. The ayurvedic medicine haritaki,amla and bahira reduces cholesterol induced atherosclerosis in rabbits. Int. J. Cardiol., 1988; 21: p.167-175.
 60. Chaudhari RK. Emblica cascading antioxidant: A novel natural skin care ingredient. Skin pharmacology and applied skin physiology, 2002; 15(5): p.374-380.
 61. Pramyothin, P., P. Samosorn, S. Poungshompoon and C. Chaichantipyuth. The protective effects of *Phyllanthus emblica* Linn. extract on ethanol induced rat hepatic injury. J Ethnopharmacol., 2006; 107(3): p.361-4.
 62. Sancheti, G., A. Jindal, R. Kumari and P.K. Goyal. Chemopreventive action of *emblica officinalis* on skin carcinogenesis in mice. Asian Pac J Cancer Prev., 2005; 6(2): p.197-201.
 63. Arora R, Basu N, Kapoor V, et al. Anti-inflammatory studies on *Curcuma longa* (turmeric). Indian J Med Res, 1971; 59: p.1289-1295.
 64. S.Wessler, P. Muenzner, T. F. Meyer, and M. Naumann .The anti-inflammatory compound curcumin inhibits *Neisseria gonorrhoeae*-induced NF-kappa-B signaling, release of pro-inflammatory cytokines/chemokines and attenuates adhesion in late infection. Biol Chem, 2005; 386: p.481-490.
 65. Thong-Ngam D, Choochuai S, Patumraj S, Chayanupatkul M, Klaikeaw N. Curcumin prevents indomethacin-induced gastropathy in rats. World J Gastroenterol, 2012; 18: p.1479-1484.
 66. G. Y. Kim, K. H. Kim, S. H. Lee, M. S. Yoon, H. J. Lee, D. O. Moon, C. M. Lee, S. C. Ahn, Y. C. Park, and Y. M. Park. Curcumin inhibits immunostimulatory function of dendritic cells: MAPKs and translocation of NF-kappa B as potential targets. J Immunol, 2005; 174: p.8116-8124.
 67. Yadav VS, Mishra KP, Singh DP, Mehrotra S, Singh VK. Immunomodulatory effects of curcumin. Immunopharmacol Immunotoxicol, 2005; 27: p.485-497.
 68. Antony S, Kuttan R, Kuttan G (1999). Immunomodulatory activity of curcumin. Immunol Invest, 1999; 28(5-6): p.291-303.
 69. Deshpande UR, Gadre SG, Raste AS, et al. Protective effect of turmeric (*Curcuma longa*L.) extract on carbon tetrachloride-induced liver damage in rats. Indian J Exp Biol, 1998; 36: p.573-577.
 70. Park EJ, Jeon CH, Ko G, et al. Protective effect of curcumin in rat liver injury induced by carbon tetrachloride. J Pharm Pharmacol, 2000; 52: p.437-440.
 71. Donatus IA, Sardjoko, Vermeulen NP. Cytotoxic and cytoprotective activities of curcumin. Effects on paracetamol-induced cytotoxicity, lipid peroxidation and glutathione depletion in rat hepatocytes. Biochem Pharmacol, 1990; 39: p.1869-1875.
 72. Wickenberg J, Ingemansson S, Hlebowicz J (2010).Effects of *Curcuma longa* (turmeric) on postprandial plasma glucose and insulin in healthy subjects. Nutr J, 2010; 9: p.43.
 73. Faizal IP, Suresh S, Satheesh Kumar R, Augusti KT. A study on the hypoglycemic and hypolipidemic effects of an Ayurvedic drug rajanyamalakadi in diabetic patients. Indian Journal of Clinical Biochemistry, 2009; 24: p.82-87.
 74. Abida Y, Tabassum F, Zaman S, Chhabri SB, Islam N. Biological screening of *Curcuma longa* L. for insecticidal and repellent potentials against *Tribolium castaneum*(Herbst) adults. Univ J Zool Rajshahi Univ, 2010; 28: p.69-71.
 75. Kim MK, Choi GJ, Lee HS. Fungicidal property of *Curcuma longa* L. Rhizome-derived curcumin against phytopathogenic fungi in a greenhouse. J Agr Food Chem, 2003; 51: p.1578-1581.
 76. Saju KA, Venugopal MN, Mathew MJ. Antifungal and insect-repellent activities of essential oil of turmeric (*Curcuma longa* L.). Curr Sci India, 1998; 75: p.660-662.
 77. Apisariyakul A, Vanittanakom N, Buddhasukh D. Antifungal activity of turmeric oil extracted from *Curcuma longa* (Zingiberaceae).J Ethnopharmacol, 1995; 49: p.163-169.
 78. H. Ahsan, N. Parveen, N. U. Khan, and S. M. Hadi. Pro-oxidant, anti-oxidant and cleavage activities on DNA of curcumin and its derivatives demethoxycurcumin and bisdemethoxycurcumin. Chem Biol Interact, 1999; 12: p.161-175.
 79. Toda S, Miyase T, Arich H, et al. Natural antioxidants. Antioxidative compounds isolated from rhizome of *Curcuma longa*L. Chem Pharmacol Bull, 1985; 33: p.1725-1728.
 80. Khan, N. Afaf, F. Mukhtar, H. Cancer chemoprevention through dietary antioxidants: Progress and promise. Antioxid. Redox Sign. , 2008; 10: p.475-510.
 81. Ahsan, H. Parveen, N. Khan, N.U. Hadi, S.M. Pro-oxidant, anti-oxidant and cleavage activities on DNA of curcumin and its deriVatives, demethoxycurcumin and bisdemethoxycurcumin. Chem.Biol. Interact., 1999; 121:p.161-175.
 82. Yun-Ho C, Guang-Hai Y, Ok Hee C, Chang Ho S. Inhibitory effects of curcumin on passive cutaneous

- anaphylactoid response and compound 48/80-induced mast cell activation. *Anat Cell Biol.*, 2010; 43: p.36-43.
83. B. B. Aggarwal, S. Shishodia, Y. Takada, S. Banerjee, R. A. Newman, C. E. Bueso Ramos and J. E. Price. Curcumin suppresses the paclitaxel-induced nuclear factor kappa B pathway in breast cancer cells and inhibits lung metastasis of human breast cancer in nude mice. *Clin Cancer Res.*, 2005; 11: p.7490–7498.
 84. Cheng A.L., Hsu C.H., Lin J.K., Hsu M.M., Ho Y.F., Shen T.S., Ko, J.Y., Lin J.T., Lin B.R., Ming-Shiang, W. et al. Phase I clinical trial of curcumin, a chemopreventive agent, in patients with high-risk or pre-malignant lesions. *Anticancer Res.*, 2001; 21: p.2895-2900.
 85. Chan M.M., Huang H.I., Fenton M.R., Fong D. In vivo inhibition of nitric oxide synthase gene expression by curcumin: A cancer preventive natural product with anti-inflammatory properties. *Biochem. Pharmacol.*, 1998 ; 55: p.1955-1962.
 86. Su C.C., Chen G.W., Lin J.G., Wu L.T., Chung J.G. Curcumin inhibits cell migration of human colon cancer colo 205 cells through the inhibition of nuclear factor kappa B/p65 and down-regulates cyclooxygenase-2 and matrix metalloproteinase-2 expressions. *Anticancer Res.*, 2006; 26: p.1281-1288.
 87. Wilken R., Veena M.S., Wang M.B., Srivatsan E.S. Curcumin: A review of anti-cancer properties and therapeutic activity in head and neck squamous cell carcinoma. *Mol. Cancer.*, 2011; 10: p.1-19.
 88. M. Tomita, H. Kawakami, J. N. Uchihara, T. Okudaira, M. Masuda, N. Takasu, T. Matsuda, T. Ohta, Y. Tanaka, K. Ohshiro, N. Mori. Curcumin (diferuloylmethane) inhibits constitutive active NF-kappaB, leading to suppression of cell growth of human T-cell leukemia virus type I-infected T-cell lines and primary adult T-cell leukemia cells. *Int J Cancer*, 2006; 118: p.765–772.
 89. Ramirez-Tortosa MC, Mesa MD, Aguilera MC, et al. Oral administration of a turmeric extract inhibits LDL oxidation and has hypocholesterolemic effects in rabbits with experimental atherosclerosis. *Atherosclerosis*, 1999; 147: p.371-378.
 90. Srivastava R, Puri V, Srimal RC, Dhawan BN (1986)). Effect of curcumin on platelet aggregation and vascular prostacyclin synthesis. *Arzneimittelforschung*, 1986; 36: p.715- 717.
 91. Dikshit M, Rastogi L, Shukla R, Srimal RC. Prevention of ischaemia-induced biochemical changes by curcumin and quinidine in the cat heart. *Indian J Med Res*, 1995 ; 101: p.31-35.
 92. Heng M.C., M.K. Song, J. Harker, et al. Drug-induced suppression of phosphorylase kinase activity correlates with resolution of psoriasis as assessed by clinical, histological and immunohistochemical parameters. *Br. J. Dermatol.*, 2000; 143: p.937–949.
 93. Tourkina E., P. Gooz, J.C. Oates, et al. Curcumin-induced apoptosis in scleroderma lung fibroblasts: role of protein kinase cepsilon. *Am. J. Respir. Cell Mol.Biol.*, 2004; 31: p.28–35.
 94. Yang F., G.P. Lim, A.N. Begum, et al. Curcumin inhibits formation of amyloid beta oligomers and fibrils, binds plaques, and reduces amyloid in vivo. *J. Biol.Chem.*, 2005; 280: p.5892–5901.
 95. Rao R, Descamps O, John V, Bredesen DE. Ayurvedic medicinal plants for Alzheimer's disease: a review. *Alzheimer's Res Ther*, 2012; 4(3): p.22-29.
 96. Sahoo AK, Narayanan N, Sahanaa S, Rajanb SS, Mukherjee PK. In vitro antioxidant potential of *Semecarpus anacardium* L. *Pharmacology online*, 2008; 3: p.327-35.
 97. Ramprasad VR, Shanthi P, Sachdanandam P. Immunomodulatory and anti-inflammatory effects of *Semecarpus anacardium* LINN. Nut milk extract in experimental inflammatory conditions. *Biol Pharm Bull.*, 2006; 29: p.693-700.
 98. Singh D, Agarwal A, Mathias A, Naik S. Immunomodulatory activity of *Semecarpus anacardium* extract in mononuclear cells of normal individuals and rheumatoid arthritis patients. *J Ethnopharmacol.*, 2006;108: p.398-406.
 99. Tripathi Y.B., Pandey R.S. *Semecarpus anacardium* L, nuts inhibit lipopolysaccharide induced NO production in rat macrophages along with its hypolipidemic property. *Indian Journal of Experimental Biology*, 2004; 42(4): p.432-436.
 100. Bhitre MJ, Patil S, Kataria M, Anwika S, Kadri H. Anti-inflammatory activity of the fruits of *Semecarpus anacardium* Linn. *Asian J Chem*, 2008; 20: p.2047-50.
 101. Vijayalakshmi T., Muthulakshmi V., Sachdanandam P. Effect of the milk extract of *Semecarpus anacardium* nut on adjuvant arthritis - A dose dependent study in Wistar albino rats. *Genetical Pharmacology*, 1996; 27(7): p.1223- 1226.
 102. Nair A., Bhide S.V. Antimicrobial properties of different parts of *Semecarpus anacardium*. *Indian Drugs*, 1996; 33: p.323-8.
 103. Chakraborty S., Roy M., Amit K., Taraphdar A.K., Bhattacharya R.K. Cytotoxic effect of root extract of *Tiliacora racemosa* and oil of *Semecarpus anacardium* nut

- in human tumour cells. *Phytotherapy Research*, 2004; 18: p.595-600.
104. Patel SR, Suthan AP, Patel RM. In-vitro cytotoxicity activity of *Semecarpus anacardium* extract against Hep2 cell line and Vero cell line. *International Journal of Pharm Tech Research*, 2009; 1(4): p.1429-1433.
105. Narayan, J.P., John, M.S., Ghosh, P.K., Singh, J.N., Jha, O.P. and Jha, I.S. 1985. Screening of some medicinal plants for spermato-static and spermicidal properties. Delhi; CBS publishers and Distributors Pvt. Ltd.: 1985, p.211-216.
106. Deepak Ganjewala, Ashish Kumar Gupta. Study on Phytochemical Composition, Antibacterial and Antioxidant Properties of Different Parts of *Alstonia scholaris* Linn. *Advanced Pharmaceutical Bulletin*, 2013; 3(2): p.379-384.
107. Iwo M.I., Soemardji A.A., Retnoningru Sukrasno U.U.M. Immuno-stimulating effect of pule (Alstonia scholaris L. R.Br., Apocynaceae) bark extracts. *Clin. Hemorheol. Microcirc.*, 2000; 23(2-4): p.177-183.
108. Deepti B, Archana J, Manasi J. antidiabetic and anti-hyperlipidemic effect of *alstonia scholaris* Linn. Bark in streptozotocin induced diabetic rats. *Ind J Pharm Edu Res*, 2011; 45(2): p.114-20.
109. Akhtar MS, Bano H. Hypoglycemic effect of powdered *Alstonia scholaris* (Satona). *Prof Med J*, 2002; 9: p.268-271.
110. P. Versha, B. Ghosh, B. Anoop and M. Ramanjit. Antimicrobial activity of *Alstonia scholaris* leaf extracts. *Indian drugs*, 2003; 40(7): p.412-13.
111. M.R. Khan, A.D. Omoloso and M. Kihara. Antibacterial activity of *Alstonia scholaris* and *Leea tetramera*. *Fitoterapia*, 74(7-8): p.736-40.
112. S. Arulmozhi, V.P. Rasal, L. Sathiya Narayanan and Purnima Ashok. Screening of *Alstonia scholaris* Linn. R. Br., for wound healing activity. *Oriental Pharmacy and Experimental Medicine*, 2007; 7(3): p.254-260.
113. Jagetia G.C., Baliga M.S. Modulation of antineoplastic activity of cyclophosphamide by *Alstonia scholaris* in the Ehrlich ascites carcinoma-bearing mice. *J. Exp. Ther. Oncol.*, 2003a; 3(5): p.272-282.
114. Jagetia GC, Baliga MS. Evaluation of anticancer activity of the alkaloid fraction of *Alstonia scholaris* (Sapthaparna) in vitro and in vivo. *Phyto Res*, 2006; 20: p.103-109.
115. Jahan S, Chaudhary R, Goyal PK. Anticancer activity of an Indian medicinal plant, *Alstonia scholaris*, on skin carcinogenesis in mice. *Int Cancer Ther*, 2009; 8: p.273-279.
116. Lin SC, Lin CC, Lin YH, Supriyatna S, Pan SL. The protective effect of *Alstonia scholaris* R.Br. on hepatotoxin-induced acute liver damage. *Am J Chin Med*, 1996; 24: p.153-164.
117. Kulkarni MP, Juvekar AR. Effect of *Alstonia scholaris* (Linn.) R. Br. on stress and cognition in mice. *Ind J Exp Biol*, 2009; 47: p.47-52.
118. A. Vinayagam and P. N. Sudha. Antioxidant activity of methanolic extract of leaves and flowers of *Nerium indicum*. *International journal of Pharmaceutical science and research*, 2011; 2(6): p.1548-1553.
119. S. Mukesh Sikarwar and M. B. Patil. antihyperlipidemic activity of *Nerium indicum* leaves extracts in hyperlipidemic rats. *Plant Archives*, 2011; 11(1): p.5-10.
120. Patel Govind. Antiulcer activity of *Nerium indicum* in rats. *Research journal of pharmacology*, 2010; 4(3): p.66-68.
121. Shashi Chauhan, Manjeet Singh, Amit Thakur and Manjeet Singh Dogra. Antibacterial Activity of *Nerium Indicum* Against Some Grampositive Bacterial Species. *Int. J. Drug Res. Tech.*, 2013; 3 (1): p.8-11.
122. Erdemoglu N, Kupeli E, Yeşilada E. Anti-inflammatory and antinociceptive activity assessment of plants used as remedy in Turkish folk medicine. *J Ethnopharmacol*, 2003; 89: p.123-9.
123. Ahmed SU, Ali MS, Begum F, Alimuzzaman M. Analgesic activity of methanolic extracts of *Nerium indicum*. *Mill. J Pharm Sci*, 2006; 5: p.85-7.
124. Patel Govind, Protective Effect of *Nerium indicum* on ccl4 induced Hepatotoxicity in rat, *International journal of biomedical Research*, 2010; 1(4): p.147-152.
125. Bhandari U, Ansari MN. Antihyperglycaemic activity of aqueous extract of *Embelia ribes* Burm in streptozotocin-induced diabetic rats. *Indian Journal of Experimental Biology*, 2008; 46(8): p.607-13.
126. Tripathi SN. Screening of hypoglycemic action in certain indigenous drugs. *J Res Ind Med Yoga & Homeo*, 1979; 4: p.159–169.
127. Uma B, Nazam Ansari M. Antihyperglycaemic activity of aqueous extract of *Embelia ribes* Burm. in streptozotocin-induced diabetic rats. *Indian J Exp Biol*, 2008; 46(8): p.607- 613.
128. Ansari MN, Bhandari U. Protective effect of *Embelia ribes* Burm. on methionine induced hyperhomocysteinemia and oxidative stress in rat brain. *Indian Journal of Experimental Biology*, 2008; 46(7): p.521-7.
129. Ravi Joshi, Kamat JP and Tulsi Mukherjee. Free radical scavenging reactions and antioxidant activity of embelin: biochemical and pulse radiolytic studies. *Chemico-Biological Interactions*, 2007; 167(2): p.125-134.
130. Bhandari U, Ansari MN, Islam F. Cardioprotective effect of aqueous extract of *Embelia ribes* Burm fruits against

- isoproterenol-induced myocardial infarction in albino rats. Indian Journal of Experimental Biology, 2008; 46(1): p.35-40.
131. Kumara Swamy HM, Krishna V, Shankarmurthy K, Abdul Rahiman B, Mankani KL, Mahadevan KM, Harish BG, Raja Naika H. Wound healing activity of embelin isolated from the ethanol extract of leaves of *Embelia ribes* Burm. Journal of Ethnopharmacology, 2007; 109: p.529–534.
132. Rajput MKS, Mahesh Kumar, Pritee Gangwar and Nidhi-Singh. Anthelmintic efficacy of the seed of *Embelia ribes* against *Haemonchus contortus*. Animal Science Reporter, 2008; 2(3): p.113-115.
133. Mojumder V, Mishra, SD. In vitro studies on toxicity of embelin and its haloderivatives to *Meloidogyne incognita* juveniles. Curr Nematol, 1990; 1: p.47-48.
134. Ved Prakash, Mehrotra BN. Anthelmintic plants in traditional remedies in India. Indian J Hist Sci, 1987; 22(4): p.332-340.
135. Prabakaran G and Vijayalakshmi P. Antibacterial activity of traditional medicinal plant extracts against dental caries isolate *Streptococcus mutans*. Journal of Ecotoxicology and Environmental Monitoring, 2005; 15(3): p.223-227.
136. Chitra M, Devi CS, Sukumar E. Antibacterial activity of embelin. Fitoterap, 2003; 74(4): p.401-403.
137. Rathi SG, Bhaskar VH, Raval BP, Maulik, Suthar MP, Patel PG. Antifungal Activity of *Embelia ribes* plant extracts. Der Pharmacia Lettre, 2009; 1(2): p.115-120.
138. Suthar M, Patel R, Hapani K, Patel A (2009). Screening of *Embelia ribes* for antifungal activity. Int J Pharma Sci Drug Res, 2009; 1(1): p 203-206.
139. Radhakrishnan N, Gnanamani A, Mandal AB (2011). A potential antibacterial agent Embelin, a natural benzoquinone extracted from *Embelia ribes*. Biol Med, 2011; 3(2): p.1- 7.
140. Seth SD, Johri N, Sundaram KR. Antispermatogenic effect of Embelin from *Embelia ribes*. Ind J Pharmacol, 1982; 14(2): p.207-211.
141. Gupta S, Sanyal SN, Kanwar U (1989). Antispermatogenic effect of embelin, a plant benzoquinone, on male albino rats in vivo and in vitro. Contracept, 1989; 39(3): p.307-320.
142. Mahendran S, Thippeswamy BS, Veerapur VP, Badami S. Anticonvulsant activity of embelin isolated from *Embelia ribes*. Phytomed, 2011; 18(2-3): p.186-188.
143. Ganta Rama and Srinivas Ampati. Evaluation of Flowers of *Jasminum Officinale* for Antibacterial Activity. JAPS, 2013; 3(1): p.428-431.
144. Iqbal M., Ghosh A.K.M., Saluja A.K. Antifertility activity of the floral buds of *Jasminum officinale* Var. *grandiflorum* in rats. Phytotherapy Research, 1993; 7: p.15-8
145. Zhao G., Yin Z., Dong J. Antiviral efficacy against hepatitis B virus replication of oleuropein isolated from *Jasminum officinale* L. var. *grandiflorum* Journal of Ethnopharmacology, 2009; 125(2): p.265-268.
146. *Jasminum officinale* – Linn.
<http://www.pfaf.org/user/Plant.aspx?LatinName=Jasminum+officinale>.
147. N. Bhalodia, R. Acharya, P. Nariya, V. Shukla. In Vitro antibacterial and antifungal activities of *Cassia fistula* Linn. fruit pulp extracts, AYU (Int. Q. J. Res. Ayurveda), 33 (1) 2012, pp. 123-130.
148. S. Thabit, H. Handoussa, M. Roxo, N.S. El Sayed, B.C. de Azevedo, M. Wink Evaluation of antioxidant and neuroprotective activities of *Cassia fistula* (L.) using the *Caenorhabditis elegans* model PeerJ, 7 (2018) (2018), pp. 1-33

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Table no. 1: Botanical details of all the Plants of *Kushtaghna Mahakashaya* ⁴⁻¹³

Classical name	Local/ Hindi name	Botanical Name	Family	Part used
<i>Khadir</i>	Katha	<i>Acacia catechu</i> Willd.	Mimosoidaeae	Root, Heart-wood, Flowers
<i>Abhaya</i>	Hare	<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit
<i>Amalka</i>	Amla	<i>Embellica officinalis</i> Gaertn.	Euphorbiaceae	Fruit, Seeds
<i>Haridra</i>	Haldi	<i>Curcuma longa</i> Linn.	Zingiberaceae	Rhizome
<i>Arushkara</i>	Bhallatak	<i>Semecarpus anacardium</i> Linn.	Anacardaceae	Nuts, Oil, Flowers
<i>Saptaparna</i>	Chitvan	<i>Alstonia scholaris</i> R.Br.	Apocynaceae	Bark, Latex, Flower
<i>Aaragwadha</i>	Amaltasa	<i>Casia fistula</i> Linn.	Fabaceae	Fruit-Pulp, Root- bark, leaves
<i>Karvira</i>	Kaner	<i>Nerium indicum</i> Mill.	Apocynaceae	Leaves, Root
<i>Vidanga</i>	Vaividanga	<i>Embelia ribes</i> Burm.f.	Myrsinaceae	Fruit, root
<i>Jatipravala</i>	Chameli	<i>Jasminum officinale</i> Linn.	Oleaceae	Leaves, Flower, Root

Table no. 2: Ayurvedic properties & doshik action of the drugs of *Kusthaghna Mahakashaya*

Drugs	Rasa	Guna	Veerya	Vipaka	Action and use	Reference
<i>Khadir</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kapha-pitta shamak</i>	4
<i>Abhaya</i>	<i>Kashaya, Madhur, Amla, Katu, Tikta</i>	<i>Ruksha, Laghu</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Tridosha shamak</i>	5
<i>Amalka</i>	<i>Kashaya, Madhur, Amla, Katu, Tikta</i>	<i>Guru, Sheeta, ruksha</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosh shamak</i>	6
<i>Haridra</i>	<i>Tikta, Katu</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-vata shamak</i>	7
<i>Arushkara</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu, Tikshna, Snigdh</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Kapha-vata shamak</i>	8
<i>Saptaparni</i>	<i>Tikta, Kashaya</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-pitta shamak</i>	9
<i>Aaragvadha</i>	<i>Madhur</i>	<i>Mridu, Guru, Snigdha</i>	<i>Sheet</i>	<i>Madhura</i>	<i>Pitta- kapha shamak</i>	10
<i>Karvira</i>	<i>Katu, Tikta</i>	<i>Laghu, Ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha- vata shamak</i>	11
<i>Vidanga</i>	<i>Kashaya, Katu</i>	<i>Laghu, Ruksha, tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-vata shamak</i>	12
<i>Jatipravala</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Tridosh shamak</i>	13

Table no. 3: Medicinal Use of Drugs of *Kusthagna Mahakashaya*²⁻³

Drug	Uses
<i>Khadir</i>	Skin disease (Agrya prakarna, Charaka samhita sutrasthana.25), Vitiligo (Charaka samhita chikitsasthana. 7/166), Pox (Vrinda madhav.56/30), Rasayana (Ashtangahridaya uttarantra. 39/153), Filaria (Gada nigraha. 4/2/42), Intrinsic haemorrhage (Charaka samhitachikitsasthana.4/70)
<i>Abhaya</i>	Vata-kapha disorder (Ashtangahridaya uttarantra.40/48), Piles (Charaka samhita chikitsasthana.14/67), intrinsic haemorrhage (Gada nigraha.2/8/63), Oedema (Charaka samhita chikitsasthana.12/27), Skin disease (Ashtangahridaya. chikitsasthana. 19/47 and Vrinda madhav.51/42)
<i>Amalka</i>	Piles (Charaka samhita chiktsasthana.14/148-52), Worms (Sushruta samhita uttarantra.54/31), Anaemia (Sushruta samhita uttarantra.44/8), Skin disease (Rajamartanda.8/1), Vitiligo (Vrinda madhav.51/34), Pox (Bhaav prakash. chikitsasthana.60/50), Vyanga (Ashtangahridaya uttarantra.37/24), Rasayana (Charaka samhita chiktsasthana.1/2/8)
<i>Haldi</i>	Skin disease (Sushruta samhita.chiktsasthana.9.45), Pox (Chakrapani datta.54/9), Erysipelas (Vrinda madhav.57/97)
<i>Arushkara</i>	Kushtha (Charaka samhita.chiktsasthana.7/82 and Sushruta samhita.chiktsasthana. 9/6), Vitiligo (Ashtangahridaya chiktsasthana.20/11), Piles (Charaka samhita.chiktsasthana.14/70), Rasayana (Charaka samhita.chiktsasthana.1/2/13-19), Alopecia (Ashtangahridaya.utttarantra.28/30)
<i>Saptaparni</i>	Bronchial asthma (Charaka samhita chiktsasthana.17/114), Prameha (Sushruta samhita chiktsasthana.11/9), Skin disease (Charaka samhita.chiktsasthana.7/97-99), Caries (Ashtangahridaya uttarantra.22/20)
<i>Aaragvadha</i>	Fever (Charaka samhita chiktsasthana.3/232), Jaundice (Ashtangahridaya chiktsasthana.16/41), Kushtha (Charaka samhita.sutrasthana.3/17and Ashtangahridayachiktsasthana.19/13), Wounds (Sushruta samhita chiktsasthana.8/30), Erysipelas (Charaka samhitachiktsasthana.21/89-92)
<i>Karvir</i>	Skin disease (Charaka samhitasutrasthana.3/17, Charaka samhita chiktsasthana.7/97-99 and Charaka samhita.chiktsasthana.7/105-7), <i>Sidhma</i> (VM.51.127), <i>Kitibha</i> (Vrinda madhav.51/127), Baldness (Ashtangahridaya uttarantra .24/29), Eczema (Chakrapani datta.50.49), <i>Upadamsa</i> (Sushruta samhita.chiktsasthana.19/39)
<i>Vidanga</i>	Skin disease (Sushruta samhita chiktsasthana. 9/52-53 and Sharangdhar samhita .12.33), Rasayana (Sushruta samhita chiktsasthana.27/7 and Sushruta samhita chiktsasthana.27.8 and Ashtangahridaya uttarantra.39/151-52)
<i>Jatipravala</i>	Wound (Sushruta samhita chiktsasthana.19/14), Foetid ear (Vrinda madhav .59/41), Stomatitis(Charaka samhita chiktsasthana.26/198), Freckles (Gada nigraha.3/5/149)

Table no.4: Chemical constituents

Drugs	Chemical Composition
<i>Khadir</i> ⁴	Catechin, Catechu tannic acid ⁴
<i>Abhaya</i>	Tannin, Chebulagic acid, carbohydrates, gum ⁵
<i>Amalaka</i>	Tannin, Vit. C, fat, Carbohydrates ⁶
<i>Haridra</i>	Curcumin, Vit.A, Carbohydrates ⁷
<i>Arushkara</i>	Semecarpol, Bhilwanol ⁸
<i>Saptaparni</i>	Ditamine, echitamine, Echitanine ⁹
<i>Aragvadha</i>	Anthraquinone, Gluten, Tannins ¹⁰
<i>Karivira</i>	Scopoletin, Scopolin, karabin, oil, wax ¹¹
<i>Vidanga</i>	Embelin, christembine, volatile oil, tannin, Fixed oil ¹²
<i>Jatipravala</i>	Salicylic acid, Jasminine ¹³

Table no. 5: Pharmacological Activities Reported

Plants	Pharmacological activities
<i>Acacia catechu</i>	Antioxidant ¹⁴ , Antidiabetic ¹⁵ , Antihypertensive ¹⁶ , Anti-microbial ^[17-21] , Hepatoprotective ²² , Wound healing ²³ , Immunomodulatory ²⁴ .
<i>Terminalia chebula</i>	Antioxidant ^[25-27] , Wound healing ^[28-31] , Antidiabetic ^[32-34] , Hypolipidemic ^[35-36] , Antibacterial ^[37-41] , Antifungal ⁴² , Antiviral ^[43,44] , Adaptogenic ⁴⁵ , Anti-inflammatory ^[46,47] , Immunomodulatory ^[48,49] .
<i>Embellica officinalis</i>	Antioxidant ^[50,51] , Antidiabetic ^[52,53] , Immunomodulatory ^[54,55] , Adaptogenic ⁵⁶ , Hypolipidemic ^[57,58] , Cardioprotective role ⁵⁹ , Protective role for skin ⁶⁰ , Hepatoprotective ⁶¹ , Chemoprotective role ⁶² .
<i>Curcuma longa</i>	Anti-inflammatory effect ^[63-65] , Immunomodulatory effect ^[66-68] , Hepatoprotective effect ^[69,71] , Antidiabetic effect ^[72,73] , Antimicrobial effect ^[74-77] , Antioxidant effect ^[78-81] , Antiallergic effect ⁸² , Anti-carcinogenic property ^[83-88] , Cardioprotective role ^[89-91] , Protective role in skin diseases ^[92-94] , Protective role in Alzheimer's disease ^[95] .
<i>Semecarpus anacardium</i>	Antioxidant ⁹⁶ , Immunomodulatory ^[97,98] , Hypolipidemic ⁹⁹ , Anti-inflammatory ¹⁰⁰ , Anti-arthritis ¹⁰¹ , Antimicrobial ¹⁰² , Anti-carcinogenic ^[103,104] , Spermicidal ¹⁰⁵ .
<i>Alstonia scholaris</i>	Antioxidant ¹⁰⁶ , Immunomodulatory ¹⁰⁷ , Antidiabetic ^[108,109] , Antimicrobial ^[110,111] , Wound healing ¹¹² , Anticarcinogenic ^[113-115] , Hepatoprotective ¹¹⁶ , Antistress ¹¹⁷ .
<i>Nerium indicum</i>	Antioxidant ¹¹⁸ , Antihyperlipidemic ¹¹⁹ , Antiulcer ¹²⁰ , Antibacterial ¹²¹ , Anti-inflammatory ¹²² , Analgesic ¹²³ , Hepatoprotective ¹²⁴ .
<i>Embelia ribes</i>	Antidiabetic effect ^[125-127] , Antioxidant effect ^[128,129] , Cardioprotective effect ¹³⁰ , Wound healing property ¹³¹ , Anthelmintic activity ^[132-134] , Antimicrobial effect ^[135-139] , Antispermatzoal activity ^[140,141] , Anticonvulsant activity ¹⁴² .
<i>Jasminum officinale</i>	Used in aromatherapy ¹⁴⁶ , Antibacterial ¹⁴³ , Antifertility ¹⁴⁴ , Anti-viral ¹⁴⁵ , Analgesic & antispasmodic ¹⁴⁶ .
<i>Casia fistula</i>	Antifungal ¹⁴⁷ , Antibacterial ¹⁴⁷ Antioxidant ¹⁴⁸