



## Review Article

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## A REVIEW STUDY ON THERAPEUTIC POTENTIAL OF SOME FLOWERS OF AYURVEDA

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## ABSTRACT

The present paper aims to highlight the therapeutic potential of some flowers described in the classical text of Ayurveda. Till date, less works is available on the medicinal flowers. Therapeutics of the Ayurvedic floral part is quite different from the other parts. Another difficulty with the flower is their season to season availability. The present study emphasized that therapeutic uses of medicinal flowers of 30 species, 28 genera, belongs to 19 families and are both wild and cultivated. Among them, 15 are trees, 4 herbs, and 11 shrubs. It is observed that out of 30 flowering plants, 19 flowers find mention in skin diseases, 9 for fever, 3 for respiratory diseases, 3 for diabetes, 10 for gynecological ailments, 5 for bleeding hemorrhoids (piles), 14 for Gastrointestinal disorders, 7 for urinary disorders.

**Keywords:** Ayurveda, Therapeutic potential, Medicinal Flowers.

## INTRODUCTION

Flowers are the signature of nature's beauty. They have been an intimate part of our social and personal life since immemorial time. Without their presence, many occasions such as worship, rituals, religious ceremony and even marriage ceremonies cannot be successfully accomplished. They have not been used only for happiness but for nutritional as well as medicinal purposes. There is little work available on medicinal flowers instead of medicinal plants. There are eighteen parts of the plant, which have been used in therapeutics. In Indian pharmacopeia for Ayurveda (API and

AFI) only 42 types of medicinal flowers have been described till date. Tribal and folklore uses are not documented at present due to lack of proper functioning of regulatory bodies. Like as main medicinal plant parts, flowers are also used in various forms such as vegetables, juice, paste, powder, decoction, distilled extract, essence, and others. *Dhataki* (*Woodfordia fruticosa*) is the most popular medicinal flower in Ayurveda used for the fermentation of *Aasav*, *Arista* and *Sandhan Dravays* (fermented liquids). A more interesting but less explored part of Ayurveda that is *Pushpayurveda* (Floral medicine in Ayurveda) based on a description of a medicinal aspect of flowers<sup>1</sup>.

Table 1: Details of flowers used in various systems of Indian Medicine

Sl. No	Classical/ Regional names	Botanical Name/ family	Chemical Constituents	Ayurvedic Uses <sup>2-4</sup>
1.	Atibala	<i>Abutilon indicum</i> (L.) / Malvaceae	luteolin, chrysoeriol, uteolin 7-O-beta-glucopyranoside, chrysoeriol 7-O-beta-glucopyranoside, apigenin luteolin, chrysoeriol, luteolin 7-O-beta-glucopyranoside, chrysoeriol 7-O-beta-glucopyranoside, apigenin flavones, gossypetin-8 and 7-glucoside and cyanidine-3 rutinoside. Seeds contain asparagin, raffinose, linoleic, linolenic, oleic, palmitic and stearic acid, $\beta$ -sitosterol. Aerial parts contain n-alkane mixture, vanillic, p-coumaric, p-hydroxybenzoic, caffeic and fumaric acids, p- $\beta$ -D-glucosyloxybenzoic acid <sup>5-8</sup>	Disorders of Nervous system, pain due to Vata, internal injury of chest
2.	Vasa	<i>Adhatoda zeylanica</i> Medic./ Acanthaceae	Vasconine in all parts, arachidic, behenic, cerotic, lignoceric, linoleic and oleic acids, vasicol, adhatodine, vasicinone, vasicinol, vasicinolone, luteolin, quercetin, kaempferol, $\alpha$ -amyrin and $\alpha$ -sitosterol, quinazoline alkaloid, vasicine (1, 2, 3, 9-tetrahydropyrrole (2, 1-b) quinoxalin-3-ol <sup>9-12</sup>	Bronchial asthma, hemorrhage, wasting diseases, fever, delirium, skin disease piles, vomiting
3.	Shirisha	<i>Albizia lebbek</i> (L.) Willd./ Mimosaceae	Triterpenoids, melanoxetin, okanin, albizzigenin, saponin labbekanin A-D and four saponin glycosides, lebbekanins D, F, G and H, chinocystic acid, caffeic acid, kaempferol, myricitrin, quercetin, reynoutrin, robin, rutin,	Skin disease erysipelas, wounds, cough, dyspnoea, the antidote for snake bite, food and other poisonings

			echinocystic acid, p-nitro benzoate, Benzyl alcohol and Benzoic acid <sup>13-14</sup>	
4.	Shatapushpa	<i>Anethum graveolens</i> L./ Apiaceae	$\alpha$ -phellandrene and limonene, essential oils, carvone, d-limonene, $\alpha$ -phellandrene, eugenol, anethole, flavonoids, coumarins, triterpenes, phenolic acids, umbelliferones, cardiac glycosides <sup>15-16</sup>	Lactagogue, hemiplegia, earache, indigestion, heart weakness
5.	Kadamba	<i>Anthocephalous cadamba</i> (Roxb.) Miq./ Rubiaceae	saponins, terpenes, sesquiterpenes glycosides, alkaloids essential oil as linalool, geraniol, geranyl acetate, linalyl acetate, $\alpha$ -selinene, 2-nonanol, $\beta$ -phellandrene, $\alpha$ -bergamottin, p-cymol, curcumene, terpinolene, camphene and myrcene <sup>17-18</sup>	Induces lactation.
6.	Rakta pushpa Kovidara	<i>Bauhinia purpurea</i> L./ Caesalpiniaceae	anthocyanins, astragalins, essential oil, isoquercetin, pelargonidin-3-glycoside, quercetin <sup>19</sup>	Useful in cough, glandular swellings, goiter, gout, hemorrhage, skin disease, scrofula, menorrhagia, piles, urinary disorders and wounds
7.	Dadrughna	<i>Cassia alata</i> L./ Caesalpiniaceae	steroids, anthraquinone glycosides, volatile oils, tannins, chrysoeriol, kaempferol, quercetin, 5,7,4'-trihydro flavanone, kaempferol-3-O-beta-D-glucopyranoside, kaempferol-3-O-beta-D-glucopyranosyl-(1-->6)-beta-D-glucopyranoside, 17-hydro tetratriacontane, palmitic acid, n-dotriacontanol, n-triacontanol, , stearic acid, palmitic acid <sup>20-21</sup>	Skin disorders. Strong decoctions good for eczema, herpes and a lotion for ringworm, extracts used internally in cases of bronchitis, purgative.
8.	Avartaki	<i>Cassia auriculata</i> L./ Caesalpiniaceae	$\alpha$ -Sitosterol, Kaempferol, 3-O-Methyl-dglucose, $\alpha$ - Tocopherol- $\beta$ -D-mannoside, Resorcinol, n-Hexadecanoic acid, 13-Octadecenal, and 1,2,3,4-Tetrahydroisoquinolin-6-ol-1-carboxylic acid <sup>22</sup>	Poly urea, skin diseases, worm infestation, diarrhoea, Ophthalmic disorders, hemorrhage
9.	Aragvadha	<i>Cassia fistula</i> L./ Caesalpiniaceae	aurantiamide acetate, $\alpha$ - Sitosterol and its $\alpha$ -D – glucoside, epiafzelechin 3-O-B-D-glucopyranoside, 7-biflavonoids and two triflavonoids, epicatechin, procyanidin, Proanthocyanidins, aspartic acid, glutamic acid, lysine, 5-nonatetracontanone, 2-hentriacontanone, triacontane, 16-hentriacontanol and $\beta$ - sitosterol <sup>23-26</sup>	Skin disease, fever, Cardiac diseases, jaundice, polyurea, urticaria
10.	Jambir	<i>Citrus aurantium</i> L./ Rutaceae	neohesperidin(I), synephrin (II), 5,8-epidioxystergosta-6,22-dien-3 $\beta$ -ol(III), adenosine(IV), asparagines(V), tyrosine(VI), Valine(VI), Isoleucine(VIII), Alanine(IX), $\beta$ -sitosterol (X) and $\beta$ -daucosterol (XI) <sup>27</sup>	Pittahara, Vatahara, improves appetite, aqueous extract is a stimulant and refreshing drink usually employed in fever, inflammation, nervous and in hysterical conditions
11.	Narikela	<i>Cocos nucifera</i> L./ Arecaceae	alkaloids, flavonoids, phenol, phytosterols, tannins, amino acids carbohydrates, , phytosterols <sup>28-29</sup>	Urinary disorders, thirst, gastritis, diseases of Pitta, fever, polyurea, leucorrhoea, hemorrhage
12.	Kumkuma	<i>Crocus sativus</i> L./ Iridaceae	safranal, isophorene, glucoside, corcin, crocetin, picrocrocin, lycopene, $\alpha$ -carotene, $\beta$ -carotene, zeaxanthin trimethyl hydroxy carboxaldehyde cyclohexene, kaempferol, cis/trans-crocins, 2-nitroaniline <sup>30</sup>	bronchitis, anemia, asthma, leucorrhoea, coughs, sexual debility, nephropathy and skin diseases
13.	Dhattura	<i>Datura metel</i> L. ( <i>D.fastuosa</i> L.)/ Solanaceae	hyoscine, scopalamine, atropine, meteo Iodine, norhyoscyamine, hyoscyamine Isofraxidin, Scopatone, Daturadiol, 1,4-Benzenediol, Arenarine D, Vanillin, N-trans-Feruloyl-tyramine, Scopoletin, G-Sitosterol, Hyoscyamilactol <sup>31-32</sup>	Eye diseases, scorpion sting poisoning, psychosis, epilepsy, fever, delirium, burning sensation, dyspnoea, skin disease, boils, dysuria, dog bite, poisoning
14.	Paribhadra	<i>Erythrina variegata</i> L./ Fabaceae	erythratine, ferulic, caffeic acids, rutin, quercetin, Demethoxyerythratidinone, erythraline, erythramine, erythrine, erythratidinone, erysonine, erysotone, erysodine, erysovine, 11-hydroxy- epi- erythratidine, erythratidine, epi-erythratidine, erysodienone, erysotrine, erysopitine, 11- $\beta$ -hydroxyerysotrine, scoulerine, coreximine, 1-reticuline, and erybidine <sup>33</sup>	biliousness and ear troubles
15.	Japa	<i>Hibiscus rosasinensis</i> L./ Malvaceae	anthocyanin pigment, cyaniding, diglucoside <sup>34</sup>	Diarrhoea, piles, hemorrhage, hair fall, menorrhagia*, contraceptive

16.	Mallika	<i>Jasminium sambac</i> (L.) Ait./ Oleaceae	triterpenes, sesquiterpenes, linallol, ciscaryophyllene, indole, cis-3-hexenyl benzoate and methyl anthranilate <sup>34</sup>	Diseases of nervous systems, hemorrhage eye diseases, skin diseases, poisoning, wounds and diseases of pitta
17.	Madhuka	<i>Madhuca longifolia</i> (Koen.) Macbr./ Sapotaceae	glucose, invert sugar, cellulose, albuminosides, Vitamins A and C, $\alpha$ - and $\beta$ -amyrin acetates, Arachidic, linoleic, oleic, myristic, palmitic and stearic acids, $\alpha$ -alanine, aspartic acid, cystine, glycine, isoleucine and leucine, lysine, methionine, proline, serine, threonine, myricetin, quercetin, Misaponin A and B <sup>35</sup>	Sprue, edema, skin disease, polyurea, diarrhea, fever*, gout, wasting diseases
18.	Naagakesar	<i>Mesua nagassarium</i> (Burm.f.) Kosterm ( <i>M. ferrea</i> auct non. L.)/ Clusiaceae	Essential oil, mesuol, mesuone, palmitosrearo-olein, dipalmito-olein, stearo diolein, palmito-diolein, linoleodiolein and triolein <sup>34</sup>	Throat disorders, urinary complaints, poisoning, nausea, vomiting, skin diseases, erysipelas, thirst, piles
19.	Champaka	<i>Michelia champaca</i> L./ Magnoliaceae	Palmitic acid, oleic acid, carbonyl acid, Anonaine, asimilobine, nuciferine, anolobine, romerine, N-acetylanonaine, liriodenine, syringaresinol, N-trans-feruloyltyramine, N-cis-feruloyltyramine, scopoletin, 4-acetonil-3,5-dimethoxy-p-quinol, vanillin, vanillic acid, syringic acid, beta-sitosterol, stigmasterol <sup>36</sup>	Dyspepsia, nausea, vitiated conditions of Vata and Pitta, burning sensation, hemoptysis, pruritis, skin diseases, skin disease, wounds and ulcers, anorexia, colic flatulence, helminthiasis, vertigo, gout, cough, bronchitis, strangury and malarial fever
20.	Bakula	<i>Mimusops elengi</i> L./ Sapotaceae	contain volatile oil, D-mannitol, $\beta$ -sitosterol quercitol, ursolic acid, lupeol, dihydroquercetin, quercetin, fatty oil-capric, lauric, myristic, palmitic, stearic, arachidic, Oleic, linoleic acids <sup>37</sup>	Dental diseases, burning sensation, thirst, skin diseases, uterine disorders, cardiac & eye diseases, fever and aphrodisiac
21.	Padma Kamala	<i>Nelumbo nucifera</i> Gaertn./ Nelumbonaceae	lupeol, $\alpha$ -amyrin, lysine, $\alpha$ -sitosterol, ntriacontanol, amino acids, dauricine, lotusine, nuci-ferine, pronuciferine, liensinine, isoliensinine, roemerine, neferi ne, armepavine, Procyanidin, gallic acid, D(-)-30-bromo-O-ethylarmepavine, D-1,2,3,4-tetrahydro-6-methoxy-1-(p-ethoxybenzyl)-2-methyl-7-iso quino- linol, saponins and carbohydrates <sup>38</sup>	Thirst, burning sensation, boils sterility, skin diseases, diarrhea, menorrhagia, bleeding piles
22.	Kumuda	<i>Nymphaea alba</i> L./ Nymphaeaceae	Nyphalin- a glycoside, gallic acid, Numyphaeine-alkaloid, $\beta$ -Sitosterol <sup>39</sup>	Sedative, infusion of flowers is Diaphoretic and used in diarrhea
23.	Ketaki	<i>Pandanus odoratissimus</i> L.f./ Pandanaeae	kevda oil, methyl ether of phenyl ethyl alcohol, d-linalool, phenyl ethylacetate, Citral, phenyl ethyl alcohol, an ester of phthalic acid, fatty acids and stearoptene <sup>39</sup>	Rheumatism, headache, anorexia, indigestion, constipation, polyurea, skin diseases,
24.	Karanja	<i>Pongamia pinnata</i> (L.) Pierre./ Fabaceae	karanjin, kanjone, Ponga glabrone, kaempferol, quercetin, pongone, kanguin, $\alpha$ sitosterol, glucoside, neoglabrin, glabro saponin <sup>40</sup>	Thirst in diabetes and for alleviating vata and kapha
25.	Shatpatri	<i>Rosa centifolia</i> L./ Rosaceae	Tannin, Vitamin A, B and C, fatty oil and organic acids, pigments, lycopene, rubixanthin, zeaxanthin, xanthophylls, taraxanthin, oleum, rose oil, gallic acid, essential oil, Flavonoids and pectin <sup>34</sup>	Conditions of Vata and Pitta, inflammations, cough, asthma, bronchitis, wounds, ulcers, halitosis, dyspepsia, flatulence, colic, skin diseases, cardiac debility, fever constipation, toxemia, erysipelas, piles and general weakness
26.	Asoka	<i>Saraca asoca</i> (Roxb.) de Wide/ Caesalpiniaceae	Anthocyanins, $\alpha$ -sitosterol, quercetin, leucocyanidin, gallic acid, kaempferol, procyanidin, epicatechin, 11'-deoxyprocyanidin, catechin, leucopelargonidin and leucocyanidin, Oleic, linoleic, palmitic, stearic acid, apigenin- 7-0-p-D-glucoside, Pelargonidin-3,5-diglucoside, cyanidin-3, 5- diglucoside, palmitic, stearic, linolenic, leucocyanidin, catechol, (-) epicatechol, glycosides, lyoniside, nudiposide, 5-methoxy-9- $\beta$ -xylopyranosyl, isolariciresinol, and schizandriside, and three flavonoids, epiafzelechchin-(4 $\beta$ →8)-epicatechin <sup>41</sup>	Uterine tonic, used in the vitiated condition of Pitta, syphilis, cervical, adenitis, hyperdipsia, burning sensation, hemorrhoids, dysentery, and scabies. dried flowers used in diabetes and hemorrhagic dysentery

27.	Agastya	<i>Sesbania grandiflora</i> (L.) Poir./ Fabaceae	Vitamin B and C, protein, Leucocyanidin, cyaniding, oleanolic acid and its methyl ester, kaempferol-3-rutinoside, tannin, Saponin, Sesbanimide isoflavanoids, isovestitol, medicarpin, and sativan, betulinic acid <sup>42-43</sup>	for night blindness and is used for intermittent fevers, leucorrhoea, gout, strangury, flowers are cooling, bitter, astringent, acrid and antipyretic, Juice is used for eye diseases/pain, cold and cools, down the body, curry is rich in calcium strengthens the bone
28.	Patala	<i>Stereospermum suaveolens</i> DC./ Bignoniaceae	albumin, mucilage, sugar, resin, 1,3,7-trimethylguanin-1/3-ium, 3,7-dimethylguanin-1/3-ium, 2-(4-hydroxyphenyl)ethyl hentriacetate, sterequinones A, F, and H, zenkequinones A-B, p-coumaric acid, methyl caffeate, caffeic acid, psilalic acid, syringaldehyde, norviburtinal, specioside, verminoside, tyrosol, eutigoside A, ellagic acid, atranorin, and ursolic acid <sup>44</sup>	Hiccup, vomiting, edema, burning, sensation, wounds, hyperacidity, thirst, dyspnoea
29.	Aamlika	<i>Tamarindus indica</i> L./ Caesalpinjiace	hordenine, $\alpha$ -carotene, calcium, iron, riboflavin, phosphorus, thiamine, niacin, ascorbic acid, n-Hepta-decanoate, Hexadecanoic acid, n-Nonadecanoate, n-Octadecanoic, Methyl-n-Pentacosanoic, n-Tetra decanoate, n-Heptacosanoate, n-Nnacosanate, Methyl pentadecanoic, Nonanoic acid, Nonacosatrienoic acid, n-Nonanoate, n-Hxocosa noate, n-Tridecanoic, Methyl-n-tricosanoate, nDocosanoate, n-Eicosenoate, Detricasonic, 1-Octanoate, Nenodecenoic <sup>45-46</sup>	Hyperacidity, pain, antibilious, appetizer, cooling, leucorrhoea, edema, diseases of Kapha and Pitta, the infusion is useful in conjunctivitis
30.	Parisha/ Paaras peepal	<i>Thespesia populnea</i> (L.) Sol. ex Corr./ Malvaceae	kaempferol, $\beta$ -sitosterol, gossypetin, quercetin, and a mixture of kaempferol 3-glucoside, quercetin 3-glucoside, kaempferol 5-glucoside separated, rutin, kaempferol 3-rutinoside, and kaempferol 7-glucoside <sup>47-48</sup>	Shukraprada, Induces Kapha and reduces Itching

## DISCUSSION

The present study emphasized that therapeutic uses of medicinal flowers of 30 species, 28 genera, belongs to 19 families and are collected from both wild and cultivated. Among them, 15 are trees, 4 herbs and 11 shrubs. It is observed that out of 30 flowering plants, 19 flowers find mention in skin diseases, 9 for fever, 3 for respiratory diseases, 3 for diabetes, 10 for gynecological ailments, 5 for bleeding hemorrhoids (piles), 14 for Gastrointestinal disorders, 7 for urinary disorders. Some flowers showed important potential for some diseases than other parts of plants.

## CONCLUSION

Flowers, apart from its beauty of form, colour, fragrance, and texture contained something more as indefinable, subtle and mysterious quality. Ayurveda has described the potential of flowers in Pushpayurveda, a special sub-branch in Ayurveda. After a thorough review of Ayurvedic texts and considering the importance of flowers in therapeutics, it is an attempt to highlight the medicinal uses of flowers. There is a further need for an extensive study to elaborate the more therapeutic potential.

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