International Journal of Botany Studies
www.botanyjournals.com
ISSN: 2455-541X
Received: 23-01-2022, Accepted: 07-02-2022, Published: 23-02-2022
Volume 7, Issue 2, 2022, Page No. 507-514

A review on ethno medicinal values and recent researchers on plant *Lavandula bipinnata* Roth

Narendra Singh Dhaked[1], Rabinarayan Acharya[2]
[1] P. G. Scholar, Department of Dravyaguna, ITRA, Jamnagar, Gujarat, India
[2] Professor, HOD, Department of Dravyaguna, ITRA, Jamnagar, Gujarat, India

Abstract
Aim: *Lavandula bipinnata* Roth. family Lamiaceae is one among the traditionally used medicinal plant being used by the local healers for its multiple therapeutic claims. Present review aims to collect all available ethnomedicinal information and research updates on *L. bipinnata*.
Material and Methods: Ethnomedicinal uses of *L. bipinnata* were searched from available books related to medicinal plants and published research articles. Name of reporting tribe using the plant and their place of reporting, vernacular names, parts used along with the therapeutic uses with specific methods of administration were noted.
Results: *L. bipinnata* has been reported for its traditional therapeutic uses in 2 countries across the globe and in 6 states of India. It was observed that either various parts like root, stem, leaf, fruit, flowers and whole plant used as individually in the management of 31 diseases conditions. Among these are most common use in the treatment of antidote of snake bite, sting of wild animals, anti- poisons and tooth reduce pain etc. Its leaf has maximum application in 13 disease conditions, followed by root in 7, whole plant in 4, stem and flowers in 3, and fruit in 1 diseases condition. Pharmacological studies report anti-inflammatory, anti-bacterial, anti-microbial and antioxidant activities of its various parts.
Conclusion: *L. bipinnata* is having multifaceted ethno medicinal uses. Its use as antidote of snake bite, sting of wild animals, anti- poisons, tooth reduce pain etc. should be scientifically evaluated through pharmacological (Preclinical and clinical research).

Keywords: ethno medicine, folklore, Gandhamardhan Hill, *Kamaraja*, *L. bipinnata*, lamiaceae

Introduction
The traditional health-related practice known as ethno medicine, owns considerable amount of information on plants and is still available with the tribes. Many new drug researchers here come up from its vast knowledge. The popularity of ethno medicinal plants all over the world in recent years is growing now a days for search for new drugs [1].
About 80% of the global populations rely on traditional medicine [2], and in India, 70 % of the population relies on ethno medicine which is the major source of their primary health care needs [1]. India has more than 550 tribal communities which have acquired considerable knowledge on uses of plants for their livelihood, healthcare and other purposes through their long association with the forest, inheritance, practices and experiences. Many of these experiences have proven to be evidence-based medicine like andrographolide (*Andrographis paniculata*), morphine (*Papaver somniferum*), picroside (*Picrorrhiza kurroa*), artemisinin (*Artemesia alba*), etc. It is necessary to collect all information from the tribe for the use of human kind [1].
Lavandula bipinnata (Roth.) of Lamiaceae family is a traditional and folklore medicinal plant with many ethno medicinal claims. Information about the ethno medicinal uses of the *L. bipinnata* is scattered available in different journals, reports, book and web-based sources. Hence, a complete exploitation of this species for its pharmaceuticals leads near impossible. In the present article, an attempt has been made to congregate the currently available data in one place.

Materials and Methods
Data Collection
Available literature pertaining the plant *Lavandula bipinnata* Roth. were compiled from different 6 floras in printed format (Flora of Orissa [3], Flora of Presidency of Madras [4], Flora of British India [5], Flora of Gujarat state [6], Flora of Saurashtra [7], Flora of Marathwada region of Maharashtra, India [8]) and flora in e version, 18 books on ethnobotany and 35 ethno medicinal research articles from library source as well as from Google scholar, Shodhganga and Researchgate web-based search engines, journal and presented in systematic manner during March 2019 to September 2020.

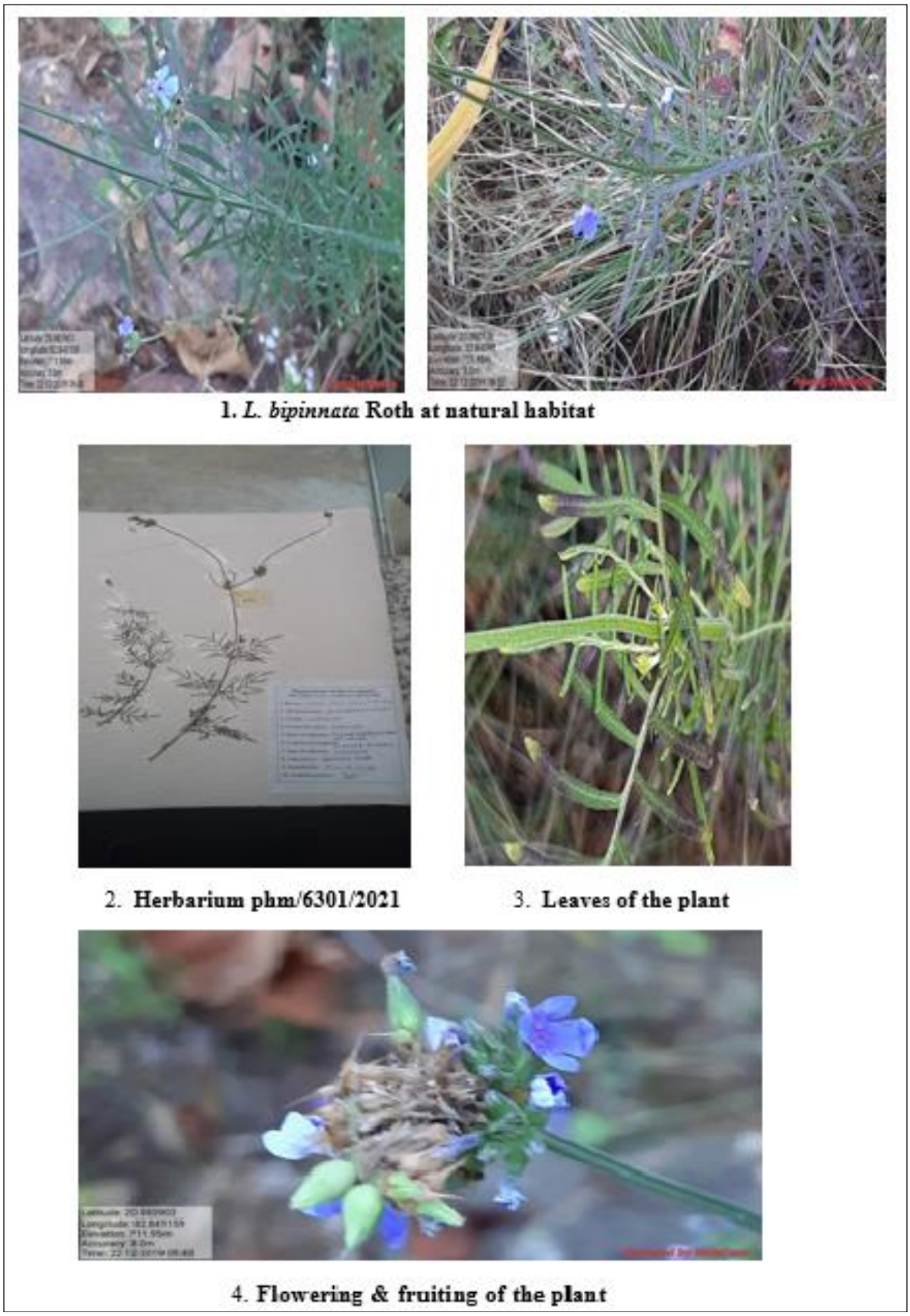


Fig 1-4: General plant morphology of *L. bipinnata* Roth.

Study selection

Inclusion criteria

Publication that described the use of *L. bipinnata* (alone or with any combination of other herbs) to treat any diseases condition either human or animal or used as food i.e. having any economic value were included in the review. This includes both external and internal application with no language restriction and date limitation.

Exclusion criteria

Other species of *Lavandula* were excluded from the present review.

The obtained data are arranged in a tabular form, with regard to various local names, as known by different tribes across India, name of the tribe and their area of presence, part used, therapeutic indication, external (E) and internal (I) usage of the drug are also noted in a separate column with individual references.

Result and Discussion

Literature acquired

In present study, a total of 52, abstracts were identified from electronic searches. The search identified 39 articles, 37 with from Google scholar, and 2 from Shodhganga. After the removal of duplicates, as well as screening from relevant titles and abstracts, a total of 35 articles underwent a full text review.

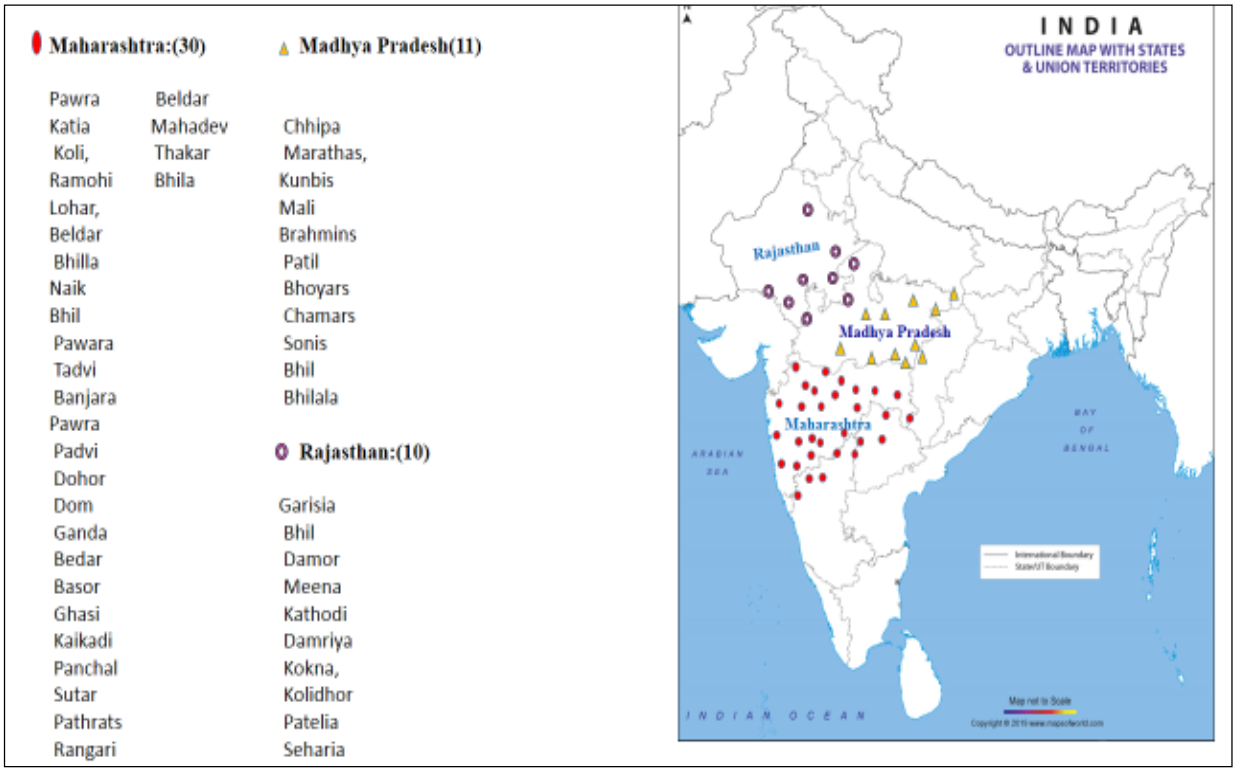
Availability

It is very common in open areas esp. hills surrounding the city. Throughout India, especially found in Kathiawar (Gujarat) Dang, Chhota Nagpur Saurashtra, Bihar, Kalahandi district, Cuttack district, Gandamardhan Hills Bargarh district (Orissa), Madhya Pradesh, Rajasthan (Mt Abu), Maharashtra, Decan Peninsula & Kokan Southward to Kerala, Bellary district (Karnataka State), Kurnool district (Andhra Pradesh), Bangladesh [9, 10].

Plant description

Lavandula bipinnata Roth. is erect herb, 30-50(90) cm; an erect stout or slender herb, Leaves: sessile or sub-sessile, pinnatisect, and 3-10cm long segment linear, entire or cut, obtuse, minutely pubescent lobes 2.5-4mm broad, deep green and pale beneath. Stem: simple or branched, quadrangular, white-pubescent, 2-3 ft. stout or slender, irregular lobed covered with velvety hairs. Flowers & fruits: pale white or blue, Spike: which are solitary or few or subum-bellate, white pubescent or spike o.7-3cm long terminal solitary or sometimes panicled; bracts 1-flowered, ovate, acuminate; shorter than calyx Calyx: tubular, 5mm long, 15- nerved, pubescent, teeth setaceous and lanceolate Corolla: blue or sometimes white, 1-1.2cm long, tube slightly dilated above, throat hairy Stamens: with lower pair longer Anthers: rounded, pubescent Fruits: Nutlets: 2mm long ellipsoid smooth black with large oblong areole on dorsal side mucilaginous or oblong, 1.5 mm long, with a broad dorsal groove in continuation of the oblique basal scar, not quite reaching the rounded apex. Flowering time of the *Lavandula bipinnata* is from Oct- Dec and fruiting time is from Nov- Feb [4].

Tribes



L. bipinnata is used in 3 states of India across the globe by 51 different tribes/communities to combat various diseases or disorder condition. (Table 1 & Fig 5)

Fig 5: Use of *L. bipinnata* by different tribes in various States at India & other countries

Local name

L. bipinnata is known by 15 names in 7 language. It is known as *Sarpnocharo, Asamanigalgoto, Shankhpushpi* (Gujarati), *Gond* (Rajasthan), *Ghodeghui*, *Gorea*, *Gorea asamani* (Marathi), *Ghogai* (Western Madhya Pradesh), *Jangu ganja* (Virwade Maharashtra), *Deepmal* (Akole tehsil, Ahmednagar), *Rang- bhang* (Buldhana Maharashtra), *Pokhhari* (Ambegaon tehsil Pune), *Bhutmanjri* (k) (Betul district Madhya Pradesh), *Gunmahar* (Khandesh region of Maharashtra).

Feather Leaved Lavender (Common Name)

Area of reporting

L. bipinnata is available in 2 countries (i.e. India and Bangladesh) and used as medicine in various disease condition. It is observed that *L. bipinnata* is being used as medicine in 6 states of India, namely, Gujarat, Maharashtra, Madhya Pradesh, Rajasthan, Orissa, Karnataka. (Table 1.).

Therapeutic uses

Various part of *L. bipinnata* Roth. root, stem, leaf, whole plant, panchanga, fruit and flowers, are observed to be used in 31 different disease conditions i.e. antidote of snake bite, sting of wild animals, anti- poisons, anti-pyretic, kills stomach germs, tooth ache, anxiety depression headache cold and breath freshener and mouth wash, gum pain, fever, diarrhoea, in soaps toil1etries, To yield the milk or to promote secretion of milk, poisonous stings, decayed tooth to reduce pain, septic wounds, falling in to sleep, anti-septic, hypoglycaemic activity, anti-microbial, to remove skin outgrowth, dermatological disorder, rheumatism, malaria, (Table1.).

Parts used

It is observed that various parts of *L. bipinnata* are used in the management of 31 disease conditions. About 21 external application and 10 internal administration are reported. Leaves is being used in 13, root in 7, whole plant in 4, stem in 3, flowers in 3 and fruits in 1 disease condition. There were variations observed in the external and internal applications and part used, as in some claims the mode of administration and part used was not vividly explained (Table 1.).

Dosage form

Root, stem, leaf, fruit, flower, whole plant of *L. bipinnata* are used in 6 dosage form i.e. paste (12), powder (5), inhalation (3), oil (3), decoction (1), extract (2) (Table 1.).

Table 1: Ethno-medicinal claims of *Lavandula bipinnata* Roth.

Sr. No.	Local names	Tribes/Areas	Dosage form	Int/ext.	Therapeutic claims	Ref.
Flowers						
1.	Feather leaved lavender, Ghodegui, Ashmanigalgoto	-	Oil	I	Balms, perfume, anxiety, headaches, depression, cold	12
2.	-	Panchmal, district (Gujarat)	Essential oil-	E	Antiseptic	13
3.	-	-	Extract	I	Hypoglycaemic activity	14
Fruit						
4.	Gayanda	Pawra, Bhilla, Padvi Naik Nandubar district (Maharashtra)	Balm oil	E	Headache	15
Leaves						
5.	-		Powder (Inhalation)	E	Antidote of Snake bite	16
6.	-	Tribals of Similipal Bioreserve, Orissa	Paste	E	Tooth ache	17
7.	-		-	I	Anxiety, headache, depression, cold and breath freshener and mouth wash	18
8.	-	Bhil, Pawara, Tadvi, Banjara, Jalgaon district Maharashtra	Paste	E	Gum Pain	19
9.	-	-	Inhalation	E	Fever	20
10.	-	-	Paste	E	Tooth reduce pain	21
11.	Ghode gui	Mumbai desha bar sarvtra, Maharashtra	Paste	E	Snake bite	22

12.	Bhut manjri (k)	Chhipa, Marathas, Kunbis, Mali, Brahmins, Patil, Bhoyars, Chamars, and Sonis Betul district (MP) India	Crushed leaves powder	I	To yield the milk or to promote secretion of milk	23
13.	Ran-bhang	Dohor, Dom, Ganda, Bedar, Basor, Ghasi, Kaikadi, Panchal, Sutar, Pathrats, Rangari, Lohar, Beldar, Katia, Buldhana Maharashtra	Inhalation	E	Fever and cold	24
14.	Deepmal	Tribes Mahadev, Koli, Thakar, Ramohi, Bhils, Akole tehsil Ahmednagar, Maharashtra	Paste	E	Decayed tooth to reduce pain	25
15.	Ghogai	Bhil, Bhilala tribe,Western Madhya Pradesh	Decoction	E	Septic wounds	26
16.	Rann Bhang	Marathwada, Nanded, Maharashtra	Powder	I	Malaria falling into sleep	27
17.	Asmani galgota	Villagers of Nanded Maharashtra	Extract	E	Snake bite	28
Root						
18.	-	-	Paste	E	Antidote of Snake bite	29
19.	Asmanigalgoto	Barda hill, Gujarat	Paste	E	Sting of wild animals	30
20.	Asmani galgoto, surpano charo	Barda dugar (Gujarat)	Root are rubbed with water and solution of paste is applied	E	Sting of wild Animals	31
21.	Asmani galgoto	Gandhi nagar, Gujarat	Paste of the root is used	E	Anti-Poisonous	32
22.	Asmanigalgot	Barda hills, Gujarat	Paste	E	Poisonous stings (antd.)	33
23.	Jangu ganja	Grasses in Virwade forest, Maharashtra	Paste	E	Rheumatism	34
24.	-	Karnataka state,	Paste	E	Root are rubbed with water and solution is applied over the sting of wild animals, leaf paste is applied on decayed tooth to reduce pain	35
Stem						
25.	Gond /A	Garisia, Bhil, Damor, Meena, Kathodi, Damriya, Kokna, Kolidhor, Patelia, Seharia Sirohi, district Rajasthan	Powder	I	Kills Stomach germs	36
26.	Goad	Pawra, Bhilla, Padvi Naik tribe of Satpura hills, Maharashtra	Powder	I	Diarrhoea	37
27.	Gond	Taluka Purandhar, district Pune,	Powder	I	Diarrhoea	38
Whole plant						
28	Asmani galgoto	Gandhi nagar, Gujarat	-	I	Anti-pyretic	39
29	Gunmahar	Khandesh region of Maharashtra	Soaps	I	In soaps toil1etries	40
30.	Pokhhari	Ambegaon tehsil Pune		E	Anti-microbial	41
31.	Jaltai, sankhapuspi, sarpaari	-	Pounded plant	E	To remove skin outgrowth	42

"-"Not Reported; External application (E); internal administration (I)

Economical Uses

It was found that the plant is useful in stings or bites of poisonous animals act as antidote against poison [43].
The root are rubbed with water and the solution or the paste is applied over the sting of wild animals.
Stem powder internally used to kill the stomach germs [44].
Root paste applied daily on boils in combination with other herbs it is used internally in treatment of Rheumatism [45].

Recent Researches

Phytochemistry

A phytochemical screening examined by Vaidhya.V. Shinde. *et al* [46] reported that the ethanolic leaves extract of *L. bipinnata* shows the presence of Alkaloid, Carbohydrate and Glycosides in all extracts. Saponin, Phenol, Tannin, Gum and mucilage present except than Petroleum ether. Maximum presence shown by Saponin and Phenol.

Pharmacology study

Different parts of *L. bipinnata* has been reported for their anti-inflammatory, anti- bacterial, anti-microbial, antioxidant activities (Table 2.).

Table 2: Research updates of *Lavandula bipinnata* Roth.

Sr. No	Part Used	Ethnomedicinal claims	Extraction medium/ chemical moiety	Activity reported
1.	Leaf	Depression, anxiety	Alkaloid, carbohydrate, and glycosides	Anti-oxidant [18]
2.	Dried Leaf	Fever,	Distilled water methanol ethanol acetone chloroform	Anti-bacterial [18]
3.	Leaf	Cold	Soxhlet extract gas GC&MS	Anti- microbial [18]
4.	Leaf	Toothache, gum pain, tooth reducing pain	Ethanol	Anti- inflammatory [17],[19],[21]
5.	Leaf	Dermatological disorder	Soxhlet extract gas GC&MS	Anti –microbial [25]
6.	Root	Burn	Ethanol	Anti- inflammatory[43]
7.	Root	Rheumatism	-	Anti –oxidant [34]
8.	Whole plant	-	Ethanol	Anti-cancer [47]
9.	Whole plant &Leaf	Malaria	Soxhlet extract gas GC&MS	Anti –microbial [35]
10.	Whole plant	Anti-pyretic	Distilled water methanol ethanol acetone chloroform	Anti- bacterial [32]
11.	Fruit & flowers	Headache -	Ethanol	Anti-inflammatory [15]
12.	seed oil	-	Fatty acid, oleic linoleic	Anti –oxidant [48]

Conclusion

L. bipinnata is one among the few traditionally used medicinal plant found in 6 states of India used by 51 tribes to combat 31 disease condition. Among the various parts of the plant, leaf, root or plant as whole are being the most commonly used through 21 external application and 10 internal administration. Some of the special folklore claims including it's used in antidote of snake bite, stung of wild animals, anti- poisons, anti-pyretic, headache, killing stomach germs, reducing tooth ache, anxiety, depression, cold and breath freshener and mouth wash, gum pain, fever, diarrhoea, in soaps toiletries etc. can be taken as leads for future research and further studies. The multifaceted ethno-medicinal claims of the plant need scientific evaluation through pharmacological and clinical studies to establish its ethnic claims.

Consent

It is not applicable.

Ethical Approval

It is not applicable.

Acknowledgements

The authors are thankful to the Director, ITRA, Jamnagar for providing facilities to carry out the research work in the college.

Competing Interest

Authors have declared that no competing interest exist.

References

1. Raveendra Retnam K, Martin DP. Ethnomedicinal plants, Published by Dr Updesh purohit for Agrobios, Jodhpur, India, 2006, 1.
2. Murthy EN. Ethnomedicinal plants used by Gonds of Adilabad district, Andhra Pradesh, India; Int. J. of Pharm. & Life Sci,2012:3(10):2034-2043.
3. Saxena HO, Brahman M. The Flora of Orissa, Regional Research Laboratory & Orissa Forest Development Corporation Ltd.: Printed at Capuial Business Service & Consultancy, Bhubaneshwar,1994:3:1452-1453.
4. Gamble JS. Flora of the presidency of Madras, Printed at Shiva Offset press, 14, old Connaught Place, Dehradun, India,2011:2:1106-1107.
5. Hooker JD, CB. The Flora of British India, printed at L. Reeve & Co., 5, Henrietta Street, Covent Garden, London,1872:4:631.
6. Shah GL. Flora of Gujarat state part 1, printed by Sardar patel university vallabh vidyanagar, first edition, 1978, 570.
7. Bole PV, Pathak JM. Flora of Saurashtra part 2, printed by botanical survey of India, 1988, 216.
8. Gaikwad SP, Gore RD, Garad KU. Additions to the flora of Marathwada region of Maharashtra, India, Journal of Threatened Taxa April,2012:4(4):2515-2523.
9. Khare CP. Indian Medicinal Plants, An Illustrated Dictionary, Printed by Rajkamal Electric Press, First Reprint, 2007, 365.
10. http://flora-peninsula-indica.ces.iisc.ac.in/herbsheet.php?id=4979&cat=7 [Accession 12 may 2021].
11. Saxena HO, Brahman M. The Flora of Orissa, Regional Laboratory & Orissa Forest Development Corporation Ltd.: Printed at Capuial Business Service & Consultancy, Bhubaneshwar,1994:3:1452-1453.
12. https://www.dineshkhedkar.co.in/mpdb/record.php?act=view&id=MH220[Accession 4/10/2020.
13. Qureshimatva UM *et al*, Forest Res,2016:5:3. DOI: 10.4172/2168-9776, 1000176.
14. Amala Soumyanath. Traditional Medicines for modern times Antidiabetics plants, published in 2006 by CRC press Taylor & Francis group 6000 broken sound parkway NW, Suite 300 Boca Raton, FL 33487-2742.
15. Sourav M *et al*. Indian j. of Traditional knowledge,2013:12(2):272-27.
16. Kirtikar KR, Basu BO *et al*. Indian Medcinal plant by Lalit Mohan Basu, Allahabad, 2nd edition,1935:1:267.
17. Pradeepkumar R *et al*. Intern. Journal of Herbal Medicine,2014:2(1):81-87.
18. Vidhya V Shinde *et al*. department of botany dhule, WorldJou. Of Pharma. Res,2014:3(3):4217-4223.
19. Shubangi P, Patil DA. Observation on folkloric medicinal plants of Jalgaon District, Maharastra. Indian Journal of traditional knowledge,2004:(4):437-441.
20. Patil Dy *et al*. j of eco biotechnology,2011:(3):11-17.
21. Khyade MS *et al*. Asian journal exp. Biol. Sci,2010:1(2):393-403.
22. http://flora-peninsula-indica.ces.iisc.ac.in/herbsheet.php?id=4981&cat=7[Accession 25/12/2020].
23. Patil VS, Deshmukh OS. traditional ethno veterinary practice in betul district (MP), International Journal of current Research of life science,2015:4(10):423-428.
24. Patil DA, Ahirrao YA. Ethno medicinal Knowledge of Plants used by Buldhana Maharashtra, Journal of Eco biotechnology,2011:3(3):11-17.
25. Khyade MS[1] Awasarkar UD[1] *et al*. Ethno botanical Reports about Few Important Disease Akole tehsil Ahmednagar (MS), Asian J. Exp. Biol. Sci,2010:1(2):393-403.
26. Vijay V Wagh, Ashok K Jain. ethno pharmacological survey of plants used by Bhil and Bhilala traditional knowledge dermatological disorders medicinal plants jhabua, printed by journal of herbal medicine,2020:19:6.
27. Rathor OS *et al*, ethno medicinal studies in some less known plants of Marathwada, department of botany Marathwada University Aurangabad, 2002, 88.
28. Rafik U Shaikh, Dukare DD *et al*. Etnobotanical study of folk Medicinal Plant, International Journal of Ayurveda and Herbal Medicine,2014:4(5):1585-1595.
29. Khare CP *et al*. Indian Medicinal plants, AnIllistrated dictionary,2007, 456.
30. Nagar PS. florisric biodiversity of Barda Hills and its surroundings, printed scientific publishers Jodhpur (India), 281.
31. Dr Nadkarni's KM. Indian matera Medica printed Bombay Popular Prakashan,1976:1:729.
32. Pande CN *et al*. Gujarati Oushaddhi Vanaspastya, by Guj. Eco. Edu. & Res. Foun. Gandhinagar, 2010, 211.
33. Nagar PS. floristic biodiversity of barda hills and its surrounding Gujarat, printed by scientific publishers Jodhpur India, 281.
34. Dr. Bagul RM. status report on wild medicinal plants of satpuda forest east Maharashtra, printed by laxmi book publication, solapur, 2016, 60.
35. Rama Rao V *et al*. diversity and therapeutic potentiality of the family lamiaceae in Karnataka state, international journal for species ISSN 2319-5746.
36. Meena, Yadav *et al*.: Ethnomedicinal plants used by Garasia tribes of Sirohi (Raj), International Journal of Natural Products and Resources,2010:1(4):500-506.
37. Jagtap SD, Deokule. traditional ethno medicinal knowledge of satpura hills Maharashtra, printed by ethno botanical leaflets, 2009, 98-115.
38. Desale MK *et al*, Medicinal plant used by the rural people of Taluka Purandhar, district Pune, Maharashtra, Indian Journal of Traditional Knowledge,2013:12(2):334-338.

39. Pande CN *et al*. GujaratiOushaddhiVanaspastya,byGuj. Eco.Edu. &Res. Foun. Gandhinagar, 2010, 211.
40. Patil DA, Tayade SK. Potential Aromatic Plant in Khandesh Region of Maharashtra, Sch. Acad. J. Biosci,2017:5(9):688-695.
41. www.google/ map/Maharashtra/Pune/ Khed.info [Accession 8/9/2020].
42. https://books.google.co.in/books?id=-37OBQAAQBAJ&pg=PA2231&lpg=PA2231&dq=ethnomedical+uses+of+lavandula+bipinnata&source=bl&ots=8iGxsv5gZX&sig=ACfU3U3bYzHJ_xqpWjN1bkMhUCDu2rBYfg&hl=en&sa=X&ved=2ahUKEwjdlaXhq5rsAhVexTgGHdd_BHo4PBDoATAGegQIARAC#v=onepage&q=ethnomedical%20uses%20of%20lavandula%20bipinnata&f=false[Accession 4/10/2020].
43. Meena, Yadav *et al*. Ethenomedicinal plants of Sirohi Dist., Raj, 2010, 272-276
44. Kanga DD. http://journal.library. Iisc.ernet.in/archives/iiscjournal/p89-92.pdf,191.
45. Kamble SY, Patil SR, Sawant PS, Sangita Sawant, Pawar SG, Singh EA. Indian journal of traditional knowledge,2010:9(3):591-598.
46. Vidhya V Shinde *et al*. World journal of Pharma. Res,2014:3(3):4217-4223.
47. Bandgar BP *et al*. Bioorg Medicinal chemistry Lett,2010:20:730-733.
48. Hosakatte murthy *et al*. international. Food Research Journal, 21(4), 1473-1476.