

## Review Article

ISSN: 2454-5023

J. Ayu. Herb. Med. 2022; 8(3): 204-208 Received: 25-08-2022 Accepted: 14-09-2022 © 2022, All rights reserved www.ayurvedjournal.com DOI: 10.31254/jahm.2022.8312

# A Review of Medicinal Plants Commonly Used in Manipur: with Special Reference Against COVID-19

Punyakishore Maibam<sup>1</sup>, Vaidurya Pratap Sahi<sup>2</sup>, Thangjam Gopeshwor Singh<sup>3</sup>

- <sup>1</sup> Assistant Professor, College of Food Technology, Central Agriculture University, Manipur-795004, India
- <sup>2</sup> Associate Professor, Department of Plant Breeding and Genetics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj-211007, India
- <sup>3</sup> Assistant Professor, College of Food Technology, Central Agriculture University, Manipur-795004, India

## **ABSTRACT**

Prevention and cure are the part and parcel of the fight against any disease. Despite the advanced medical knowledge and skills, the global pandemic situation due to COVID-19 has strengthened the importance of age old traditional therapeutic system. The traditional therapy based on medicinal plants can be said as an alternative means to treat and cure several diseases. There are more than 1200 plant species reported to be used in the traditional medicine system in Manipur. When used in right ways, these plants can be effectively used to help protect against several diseases including symptoms similar to the SARS-Cov-2 infection.

Keywords: Disease, Covid-19, Therapeutic System, Medicinal Plants, Manipur.

#### INTRODUCTION

Human being has been using biological products of animal and plant sources for thousands of years, either in the pure form or crude extracts to treat many diseases. A number of herbs are used as bases of medicine in many ways [1-3]. Research interest has focused on various herbs that possess immune-stimulating properties as a useful feature in helping diminish the risk of infection from various causes as well as many diseases including cancer [4-5]. Herbs possess a wide range of phytochemicals, identified as flavonoids, lignans, terpenoids, polyphenolics, sulfides, saponins, carotenoids, curcumins, plant sterols and phthalides [6]. Several of these phytochemicals either inhibit nitrosation or the formation of DNA which stimulate the activity of protective enzymes such as the phase II enzyme glutathione transferase. Many plants contain potent antioxidant compounds that provide significant protection against chronic diseases. These compounds may defend LDL cholesterol from oxidation, inhibit cyclooxygenase and lipoxygenase enzymes, prevent lipid peroxidation, or have antitumor activity [7-8].

The use of medicinal plants in the prevention and treatment of various diseases have been a common practice all around the world since time immemorial. Such practices are a part of the tradition and culture of any community. Manipur, a north-eastern state of India, is no exception and there are several written and unwritten records of using medicinal plants as therapeutic agents <sup>[9]</sup>. In the traditional system in Manipur, the person who has the knowledge and skill of traditional treatment acquired the knowledge to perform such practices either through oral dissemination from knowledgeable elders or written edicts. They are locally known as 'maiba' or 'amaiba' in Manipuri. Apart from the Meitei community, almost all the tribal community residing in the state of Manipur have their own traditional form of plant and animal-based medicine system <sup>[10-13]</sup>.

Medicinal plants are extensively used to treat and cure different types of infections and diseases. Such diseases include common ailments like cough, fever, headache, stomach problems, diarrhea, dysentery, fungal infections, etc. Several chronic diseases affecting heart, lung, liver, kidney and nerves are also subject to treatment with the help of medicinal plants in every community [14, 15]. Another unique tradition of using the medicinal plants in Manipur is the incorporation of them in the daily dietary intake as food. They are eaten either as raw or in cooked potions, which thus supplies the useful medicinal ingredients as a normal daily supplement [16].

One of the most important aspects of disease prevention and treatment is the development of the innate immune system of the body. In the last few decades, man has witnessed extensive knowledge and skills in immunology. This has expanded our view of the immune system and means of searching for its structures

\*Corresponding author: Dr. Punyakishore Maibam

Assistant Professor, College of Food Technology, Central Agriculture University, Manipur-795004, India

Email: punya.maibam@gmail.com

and functions in an impressive way. The basic function of the immune system is to protect against foreign pathogens and infectious agents [17]. When the immunity is well developed inside the body, several disease fighting agents called antibodies are produced through complex biochemical and physiological processes.

During normal biochemical reactions in our body, there is a generation of reactive oxygen and nitrogen species, which gets enhanced during patho-physiological conditions creating 'oxidative stresses [18]. During this phenomenon, cellular constituents *get al*tered resulting in various diseased states. This may be effectively neutralized by enhancing the cellular defenses in the form of antioxidants [19-21]. Dietary supplements having high antioxidant content may help greatly in such conditions. Many components present in food, such as beta-carotene, lycopene, lutein and other carotenoids function as important antioxidants which greatly boost the immune system [22,23]. Studies have revealed that the floral diversity especially those used as medicinal plants are a rich source of such substances that are claimed to induce overall immunity functions in the body.

Situated in the Indo-Burmese Biodiversity Hotspot, Manipur is a beautiful landlocked state with rich flora and fauna. The floral diversity of the region exhibits high degree of endemism which also includes valuable plants of medicinal properties [11,13]. Since time immemorial, the various floral diversity of the state has been a part of ethnic therapeutic system of different communities living in Manipur [12,21].

Herbal drugs play an important role in the treatment and prevention of diseases as well as in the overall immune boosting of the body. So far, there have been reports of more than 1200 plant species of medicinal importance in the state of Manipur [17]. These plants are used in different forms and extracts in fighting against several diseases (24). The present review is an attempt to identify and address the use of medicinal plants of Manipur as an alternative means to fight against the impending global pandemic situation raised due to COVID-19. While considering the mode of use of these medicinal plants, it is also important to mention that the knowledge and skills of the traditional medicine practitioners will be of great help based on their extensive knowledge while using these floral resources in such times.

Manipur can be considered a place rich in medicinal plants and many plants of the place have high medicinal properties as highlighted above. Although, the list of plants with medicinal properties available in the state is quite long, there are few such plants which are frequently used in everyday life by the local people specially to cure or minimize ailments similar to the symptoms of Covid-19 such as, cold, cough, and fever. The information collected and noted below are thus plants having medicinal values and most commonly used by the local community of Manipur to fight against symptoms similar to covid-19 during this pandemic situation which are very easy to use and can be consumed without any expertise. The details of such plants and the common mode of consumption are given below.

Table 1: List of medicinal plants found in Manipur which can be effective against Covid-19

| SI. No. | Botanical name                          | Family        | Common name and local name               |                            |   |  |
|---------|---|---------------|--|----------------------------|---|--|
| 1.      | Acacia catechu (L.F) Wild               | Mimosaceae    | Babul bark & Ching-gonglei               | Seed, tender, pod          | Muscular pain, cough, fever                 |  |
| 2.      | Acorus calamus Linn                     | Araceae       | Sweet flag & Oak-hidak                   | Leaves, root, rhizome      | Cough, fever,                               |  |
| 3.      | Adiantum capillus-<br>veneris (L.)      | Polypodiaceae | Arjunterminalia & Mayur-<br>pambi        | Leaves                     | Cough, chest diseases                       |  |
| 4.      | Andrographis paniculata (Burm.f.) Wall. | Acanthaceae   | Bhubati King of bitters/<br>Andrographio | Leaves                     | Fever                                       |  |
| 5.      | Ardisia crenata Sims.                   | Myrsinaceae   | Coralberry & U-thum                      | Leaves                     | Cough, diarrhoea                            |  |
| 6.      | Benincasa hispida<br>(Thunb.) Cogn.     | Cucurbitaceae | Torbot                                   | Fruit                      | Fever                                       |  |
| 7.      | Brassica rapa L.                        | Brassicaceae  | Hanggam                                  | Leaf                       | Headache                                    |  |
| 8.      | Centilla asiatica Linn.                 | Apiaceae      | Indian penny wort Peruk                  | Whole plant/ leaf          | Sore Throat                                 |  |
| 9.      | Clerodendrum serraturn<br>(L.) Moon     | Lamiaceae     | Bharmgt & Moirang-<br>khanambi           | Leaves, inflorescence root | Cold, cough, rheumatism, asthma             |  |
| 10.     | Clerodendrum<br>siphonanthes R.Br       | Verberaceae   | Turk's turban & Charoi-tong Stem, leaves |                            | Cough, fever, dysentery, asthma, bronchitis |  |
| 11.     | Clerodendrum<br>colebrookianum          | Verberaceae   | Turk's turban & Kuthab-lei Leaves        |                            | Cough,                                      |  |
| 12.     | Clerodendrum indicum (L.) Kuntze        | Verberaceae   | Charoi-utong                             | Leaves                     | Upper respiratory tract infection           |  |
| 13.     | Cinnamomum<br>zeylanicum Breyn.         | Lauraceae     | Cinnamon &<br>U-shingsha                 | Bark                       | Cold, astringent carminative, cough         |  |
| 14.     | Cucurma angustifolia<br>Rosc.           | Zingiberaceae | East Indian arrow root & Yaipal          | Inflorencence              | Cough, diarrhoea                            |  |
| 15.     | Curcuma caesia Roxb.                    | Zingiberaceae | Black zedoary &Yaimu                     | Rhizome                    | Fever, cough, Sprain                        |  |
| 16.     | Cymbopogan flexuosus                    | Poaceae       | Citronella grass &Houna                  | Leaves                     | Throat problem, back –pain,                 |  |
| 17.     | Cynodon dactylon (L)<br>Pers.           | Poaceae       | Doob grass &Tingthau                     | Leaves                     | Throat problem                              |  |
| 18.     | Eclipta prostrata (L.) L.               | Compositae    | Uchi sumbal                              | Whole plant                | Fever & cough                               |  |
| 19.     | Eclipta alba (L.) Hask.                 | Asteraceae    | Long pepper & Uchi-sumbal                | Leaves                     | Headache, cough, fever                      |  |

| 20. | Eupatorium nodiflorum                                 | Asteraceae     | Ngai-camphor &Tamu-<br>langthrei              | Leaves                            | Fever, cough   |  |
|-----|---|----------------|---|-----------------------------------|--|--|
| 21. | Ficus auriculata                                      | Moraceae       | Elephant ear Fig Heirit                       | Fruit and Bark                    | Lungs disease  |  |
| 22. | Hedychium aurantiacumWall.                            | Zingiberaceae  | Cogon grass & Eengel lei                      | Inflorescence, rhizome Bronchitis |  |  |
| 23. | Hedychium coronarium<br>Koenig                        | Zingiberaceae  | White ginger lily & Takhel lei angouba        | Rhizome                           | Throat problem, tonic, dyspepsia   |  |
| 24. | Hedychium marginatum C.B. Clarke.                     | Zingiberaceae  | Redginger lily & Takhel-lei angangba          | Rhizome, leaves                   | Bronchitis, tonic  |  |
| 25. | Helianthus annus Linn.                                | Asteraceae     | Sunflower & Numit lei                         | Seed, leaves                      | Muscular pain, cold, cough, bronchitis   |  |
| 26. | Houttuynia cordataThunb.                              | Sauraceae      | Molucca bean & Toningkhok                     | Leaves, rhizome                   | Dysentery, muscular pain, antiviral  |  |
| 27. | Hibiscus rosa-sinensis L.                             | Malvaceae      | Juba kasum                                    | Flower                            | Headache   |  |
| 28. | Jatropha curcus (L)                                   | Euphorbiaceae  | Physic nut & Awa-ke-ge                        | Leaves                            | Cough, dysentery, fever  |  |
| 29. | Melothria perpusilla (Blume)                          | Cucurbitaceae  | Stinking passion flower & Lam-thabi/paba sari | Whole plant                       | High fever, diarrhoea  |  |
| 30. | Mesua ferrea Linn.                                    | Clusiaceae     | Iron wood & Nageshore                         | Seed, inflorescence               | Dysentery, cough, diarrhoea  |  |
| 31. | Perilla ocymoides L.                                  | Lamiaceae      | Frangipani & Khamella                         | Leaves, fruit                     | Cough, lung inffection   |  |
| 32. | Plantago erosa Wall                                   | Plantaginaceae | Gurjan tree & Yempat                          | Leaves, seed, root                | Fever, muscular sprain   |  |
| 33. | Phyllanthus emblica (L.)                              | Labiateae      | Gooseberry Heikru                             | Fruit                             | Dry Cough/ Asthma  |  |
| 34. | Pinus kesiya  | Pinaceae       | Baguio pine & Uchan                           | Wood, leaves                      | Cough, headache  |  |
| 35. | Phyllanthus emblica (L.)                              | Labiateae      | Gooseberry Heikru                             | Fruit                             | Dry Cough/ Asthma  |  |
| 36. | Psophocarpus<br>tetragonolobus (Linn.)<br>D.C.        | Papilionaceae  | Tengnou-manbi Four-angled bean/ Winged bean   | Young fruit                       | Cough  |  |
| 37. | Rhus chinensis  | Annacardiaceae | Nutgall tree<br>Heimang                       | Young shoot, fruit                | it Antiviral, antibacterial, anti-<br>diarrhea, antioxidant<br>activities and as a digestive |  |
| 38. | Santalum album Linn.                                  | Santalaceae    | Sandal wood & Cha-chandan                     | Wood                              | Headache, high fever, skin diseases  |  |
| 39. | Sapindus trifoliatus L.                               | Sapindaceae    | Kekru   | Seeds                             | Fever  |  |
| 40. | Sesbania sesban (L.)                                  | Fabaceae       | Egyptian pea & Chuchu-<br>rangmei             | Seed, leaves, root                | Cough, fever   |  |
| 41. | Solanum viarum Dunal                                  | Solanaceae     | Shingkhanga                                   | Fruit                             | Upper respiratory tract infection  |  |
| 42. | Syzigium fruticosum DC.                               | Myrtaceae      | Heinouman                                     | Leaf                              | Fever (especially for children)  |  |
| 43. | Thysanolaena latifolia<br>(Roxb. ex Hornem.)<br>Honda | Poaceae        | Urong-sumchit                                 | Leaf                              | Fever  |  |
| 44. | Wendlandia glabrata DC.                               | Rubiaceae      | Ivy like fig & Pheija                         | Shoot, inflorescence              | Cough, dysentery   |  |
| 45. | Zingiber montanum<br>(J.Koenig) Link ex A.Dietr.      | Zingiberaceae  | Tekhao-yaikhoo                                | Tuber                             | Cough  |  |

 Table: 2 Compound Ethnobotanical Plants of Manipur used in Treatment of Covid 19

| SI. | Botanical name   | Manipuri Name   | Parts used   | Diseases  | Treatment method  | Reference  |
|-----|--|---|--|---|---|--|
| No. |  |   |  |   |   |  |
| 1.  | P. thyrsiformis Nees +<br>Zanthoxylum acanthopodium<br>+ Ginger + white sugar cube | Nongmankha angangba<br>+ Nongmankha angouba<br>+ Mukthrubi + Sing +<br>Sitamasi | Tender leaf +<br>Tender leaf + seed<br>+ rhizome+sugar | Dry cough/<br>throat<br>congestion and<br>fever | The leaves, seeds and tuber along with white sugar cube are boil together till the colour turns blackish and half a glass full is serve | [21].  |
|     |  | Sitamasi  |  | 16461   | as decoction before food.   |  |
| 2.  | Terminalia arjuna Roxb. +<br>Premna bengalensis + Acacia<br>nilotica               | Mayokpha, + Upongtha<br>Kikar   | Bark+ Bark + Bark                                      | Antiviral                                       | The barks of these trees are boiled together and the decoction of the bark is taken orally.   | Traditional<br>knowledge<br>(Needs to be<br>Scientifically<br>validated) |

#### 1. Phlogacanthus thyrsiformis

Family: Acanthaceae

Manipuri Name: Nongmangkha

Parts used: Leaves and flower

It is an evergreen shrub found in the sub-tropical Himalayas spreading up to Bhutan, upper Gangetic plains, Bihar, North Bengal, Assam, Arunachal and Manipur (Anonymous, 1969). It is commonly known by the name Nongmankha in Manipur. There are three different species namely, *P. hyrsiformis, P. pubinervius and P. curviflorus*, having all medicinal importance <sup>[25]</sup>. Whole plant is used for curing coughs, colds and asthma while fruits and leaves are burnt and prescribed for fevers. In Manipur, local people during this pandemic used the leaves of the plant which is boiled and the steam is inhaled through the nostril and also the boiled decoction of leaves is taken orally. Table 2 indicates that the local community of Manipur also uses certain compound in the treatment of covid -19.

#### 2. Azadiracta indica A. Juss

Family: Meliaceae

Manipuri name: Neem

Parts used: Leaves

It is fast growing deciduous tree that can reach a height of 15 to 20 meters, shedding many of its leaves during the dry winter months. The leaf of the tress is used for treating many ailments. The crushed leaves are mixed with little water and about 2-3 tea spoonful is taken twice a day before each meal. Since time immemorial, neem has been respected and widely used as an immunity booster. It is very effective in keeping the body safe from attacks by harmful pathogens, thanks to its anti-viral, anti-bacterial and anti-fungal properties. Neem can also keep your blood clean. It purifies the blood by flushing away toxins and this can strengthen immunity.

## 3. Ocimum tenuiflorum

Family: Lamiaceae

Manipuri name: Tulsi

Parts used: Leaves

It is an aromatic perennial plant which is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southern Asian tropics. Tulsi contains the phytochemicals compounds like oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool and  $\beta$ -caryophyllene. Tulsi essential oil consists mostly of eugenol (nearly 70%),  $\beta$ elemene (nearly 11%) and  $\beta$ -caryophyllene (8%) and with the balance being made up of various trace compounds mostly terpenes. This aromatic leaf can be our primary line of defence against COVID-19. Tulsi or basil is a powerful germicide. Because of its phytochemicals and antioxidants, it can effectively locate germs, viruses and bacteria the moment they enter our body and destroy them  $^{[27]}$ . In Manipur, people chew a few leaves first thing in the morning directly or by consuming tulsi tea.

## 4. Zingiber officinale

Family: Zingiberaceae

Manipuri name: Sing

Part used: Rhizome

It is herbaceous perennial which grows annual psedostems about one meter tall. There are different varieties of ginger which are well known for their medicinal and economic significances. Ginger has been an ageold remedy for flu and the common cold. It can also be effective against COVID-19 [28]. It contains gingerol — an antioxidant that can power up our immune system and kill viruses. Ginger is particularly good in preventing respiratory tract infections. In Manipur, local people consume ginger tea during the pandemic.

## 5. Cucurma longa Linn

Family: Zingiberaceae

Manipuri name: Yai ngang

Part used: Rhizome

It is a rhizomatous aromatic herb extensively cultivated in both plain and hills of North Eastern states. The rhizome contains an essential oil consisting of sesquiterpenes, zingiberene, cineol and the crystalline colouring compound known as cucurmin. This cucurmin which is a phytochemical can remove toxins from our body and strengthen our immune system to fight off germs and bacteria [29]. People consume turmeric with milk to boose their immunity.

## 6. Allium sativum

Family: Amaryllidaceae

Manipuri name: Chanam

Parts used: Bulb

Allium sativum is a perennial flowering plant growing from a bulb. It has a tall, erect flowering stem that grows up to 1 m (3 ft). The major active components of garlic are its organosulfur compounds, such as diallyl thiosulfonate (allicin), diallyl sulfide (DAS), diallyl disulfide (DADS), diallyl trisulfide (DATS), E/Z-ajoene, S-allyl-cysteine (SAC), and S-allyl-cysteine sulfoxide (alliin) [30]. Like ginger, garlic too will protect us from coronavirus by stimulating our immunity. It contains allicin- a plant compound that acts as a germicide. Most people consume garlic as raw or partially cooked.

The review thus serves as a pool of information about the medicinal plants easily available in the state of Manipur and the ways of its consumption. This information can be vital for people residing in the state as well as those who have access to the above noted plants to reap the benefit of it in the right way. One of the positive aspects of using such medicinal plants in natural way is that there is extremely less or no side effects. In many cases, the mode of consumption is easy and can be included in regular diet. Small lifestyle changes by inculcating healthy habits of including such medicinal plants in one's

diet may result in improvement of immunity and protection from numerous ailments.

## CONCLUSION

The present review will help in exploring the potential of the various medicinal plants found in Manipur to face the current pandemic situation. Since prevention is the foremost precautionary measure against any disease, we can be assured that medicinal plants available at our own backyard, when taken at the right form in the correct dose at the right time can be a healthy alternative in addition to the advanced medical practices.

## Acknowledgement

The authors are grateful to the competent authorities of the Central Agricultural University, Imphal and the Dean, College of Food Technology, CAU, Imphal for the encouragement and technical support to prepare the work.

#### Conflict of Interest

None declared.

#### **Financial support**

None declared.

#### REFERENCE

- 1. www.smpbmanipur.org (Manipur State Medicinal Plants Board).
- Singh RS, Singh NI. A preliminary ethno-botanical studies on wild edible plants in the Markets of Manipur. Journal of EconomicTaxonomy and Botany. 1985;6:699-703.
- Singh PK, Singh NI, Singh LJ. Ethno-botanical Studies on Wild Edible Plants in the Markets of Manipur-II. Journal of Economic Taxonomyand Botany. 1988:12(1):113-19.
- Janeway Jr. CA and Travers P.Immunobiology: The immune system in health and disease. Current Biology Ltd/Blackwell Scientific/Garland Publishers. New York. 1994.
- Alhazmi HA, Najmi A, Javed SA, Sultana S, Al Bratty M, Makeen HA et al. Medicinal Plants and Isolated Molecules Demonstrating Immunomodulation Activity as Potential Alternative Therapies for Viral Diseases Including COVID-19. Front Immunol. 2021;12:637553.
- 6. Winston JC, Health-promoting properties of common herbs. The American Journal of Clinical Nutrition. 1999;7(3):491-99.
- Khodadadi S. Role of herbal medicine in boosting immune system.Immunopathol Persa. 2015;1(1):e01.
- Sharma P, Kumar P, Sharma R, Gupta G, Chaudhary A. Immunomodulators: Role of medicinal plants in immune system.Natl J Physio Pharm Pharmaco. 2017;7(6):552-56.
- 9. Sinha SC. Medicinal plants of Manipur. (MASS and Sinha Publication,Imphal, Manipur). 1996;1-238.
- Reshma K, Singh PK, Das AK, Dutta BK. Indigenous wild edible fruits for Kom tribe of Manipur. Pleione. 2012;6(2):268-72.
- Devi TI, Devi KU, Singh EJ. Wild medicinal plants in the hill of Manipur, India: A traditional therapeutic potential.Intl J Sc Res Pub. 2015;5(6):1-9.
- Kom, LE, Tilotama K, Singh TD, Rawat AKS, Thokchom DS. Ethno-medicinal plants used by the Kom community of Thayong Villaga, Manipur. J Ayu Herb Med. 2018;4(4):171-79.
- Rojini A, Meenakshi B, Manabendra DC. A Review on Medicinal Plants of Manipur with special reference to Hepatoprotection. Int J AdvPharma Res. 2014;5(3):182-91.

- Metodiewa D, Koska C. Reactive oxygen species and reactive nitrogen species: relevance to cyto(neuro)toxic events and neurologic disorders. An overview. Neurotox Res. 2000;1(3):197-33.
- Gabor C, Francis JM. Oxidative stress in cardiovascular disease. International Journal of Molecular Sciences. 2014;15(4):6002-6008.
- Yumnam JY and Tripathi OP. Traditional knowledge of eating raw plants by Meitei of Manipur as medicine/nutrient supplement in their diet. Indian Journal of Traditional knowledge. 2012;11(1):45-50.
- 17. Kuby, J. Immunology. WH Freeman and Co., New York; 3rd Edition. 1997.
- Devasagayam TP. Molecular damage by reactive oxygen species: Its possible role in health and disease. In Biological concepts in radiotherapy; edited by BB Singh and D. Bhatacharjee.Narosa Publishing House, New Delhi. 1995.
- Devasagayam TP, Kesavan PC. Radioprotective and antioxidant action of caffeine: Mechanistic considerations. Ind J ExpBiol. 1996;34:291.
- Devasagayam TP, Sainis KB. Immune system and antioxidants, especially those derived from Indian medicinal plants. Indian J Exp Bio. 2002;40:639-55
- 21. Devasagayam TP, Kamat JP. Free radicals and antioxidants and human disease. EMSI Newslett. 2003;23:3.
- Yuhung CC, Bhattacharya M. Indigenous medicinal plants used by the Maring tribe of Manipur, Northeast India. Journal of Ayurvedic and Herbal Medicine. 2016;2(4):146-53.
- 23. Singh HB, Singh RS, Sandhu JS. Herbal Medicine of Manipur A Colour Encyclopedia. (Daya Publishing House, Delhi). 2003;1-55.
- 24. Leisangthem S, Sharma LD. 2014. Study of some important medicinal plants found in Imphal- East District, Manipur, India. International Journal of Scientific and Research publication. 2014; 4(9):1-5.
- Phuraitpam AK, Singh SR, Chanu TM, Ngangbam P. Phlogacanthus- An important medicinal plant of North East India: A review. African Journal of Agricultural Research. 2014;9(26):2068-2072.
- Mohammad A. Alzohairy. Therapeutics Role of Azadirachta indica (Neem) and Their Active Constituents in Diseases Prevention and Treatment. Evidence-Based Complementary and Alternative Medicine. vol. 2016, Article ID 7382506, 11 pages, 2016.
- Enegide C, Ofili CC. Ocimumspecies:Ethnomedicinal uses,phytochemistry and pharmocological importance. International Journal of current research in physiology and pharmacology. 2021;5(2):1-12.
- 28. Sharma GJ, Chirangini P, Kishor R. Gingers of Manipur: diversity and potentials as bioresources. Genet Resour Crop Evol. 2011;58:753-67.
- Gautam SC, Gao X, Dulchavsky S. Immunomodulation by curcumin. Adv Exp Med Biol. 2007;595:321-41.
- El-Saber Batiha G, Magdy Beshbishy A, G Wasef L, Elewa YHA, A Al-Sagan A, Abd El-Hack ME, et al. Chemical Constituents and Pharmacological Activities of Garlic (Allium sativum L.): A Review. Nutrients. 2020;12(3):872

## HOW TO CITE THIS ARTICLE

Maibam P, Sahi PV, Singh TG. A Review of Medicinal Plants Commonly Used in Manipur: with Special Reference Against COVID-19. J Ayu Herb Med 2022;8(3):204-208. DOI: 10.31254/jahm.2022.8312

## Creative Commons (CC) License-

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY 4.0) license. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. (http://creativecommons.org/licenses/by/4.0/).