

# AN ETHNO MEDICO BOTANICAL OBSERVATION OF SOME TRADITIONAL MEDICINAL PLANTS WITH ANTI VIRAL EFFICACY IN THE PRESENT CONTEXT OF COVID-19

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**Abstract:** *Viral diseases are common in humans since ages. Covid-19 is new viral attack and it is pandemic. It has spread throughout the world and at present millions of people are suffering and facing deaths. At present there is no vaccine or successful treatment in the modern medicine system, alternate sources of medicine are to be considered. The present observations of tribal uses of plants against anti viral and anti bacterial symptoms can be considered to combat with this disease. A list of 90 medicinal plants with their taxonomic position and chemical content is available here for further investigation and bioprospecting.*

**Key Words:** *Anti-viral, traditional medicinal plants, Covid-19.*

## 1. INTRODUCTION:

Traditional medicine is currently the fastest growing medical field with herbal therapies becoming increasingly popular. Traditional medicine is considered more holistic, acceptable, accessible, low cost, proven to be safe and that is why preferred by local people (1, 2). The tribal's live and rely on plants and plant products and are using traditional medicine system for since centuries. The traditional medicinal practices are an important part of the primary health care system in developing world (3).

Covid -19 is a newly identified strain of corona virus that causes illness ranging from effects similar to the common cold to fatal diseases in people across the world (4). This disease was first identified in early December 2019, and by the mid of March 2020, the World Health Organization (WHO) assessed Covid -19 as a pandemic (5). As till March 2020, there have been more than 178,700 confirmed cases in at least 140 countries. The majority of cases were reported in mainland China, followed by Italy, Iran, Spain and South Korea (6). Now it has covered 200 hundred countries of the world, which havoc caused in United States of America and Europe with a great death toll (7).

The common symptoms of Covid -19 include fever, cough, and shortness of breath. In severe cases, pneumonia and thrombosis may occur and ultimately lead to organ failure and even death (8). Currently there are no available vaccines or specific medicines for the treatment of Covid -19. In light of the outbreak, various treatment modalities have been considered, traditional medicine, which has been widely used during the past epidemic outbreaks, such as severe acute respiratory syndrome (SARS) and H1N1 influenza (9).

The science of medicine, whether traditional or folkloric, has undergone a phenomenal growth with a concomitant increase of interest among the plant scientists, Ethnobotanists, Anthropologists, Pharmacologists, Medicinal chemists and Druggists.

The modern medicine is known to achieve great targets by new Bioassay methods, fractionation and determination of molecular structure etc. The task does not end here with these in recent times. The use of traditional knowledge is always useful in achieving the target of "health for all", (10).

In the present study an Ethno medico botanical data of plants used for common symptoms of Covid-19 and other viral and bacterial infections is depicted for further investigation.

## 2. METHODOLOGY:

For documentation of ethno-botanical information and collection of plant material, several tours were undertaken in Mahur and Kinwat forest area of Nanded District from Maharashtra State, India. Data presented here is based on personal observations and interviews with traditional healers (*viz.* medicine men, hakims and old aged people with knowledge of folklore medicines) and methodology used is based on the methods available in literature, (11, 12). Gathered ethnobotanical information can be used for research and a drug with multiple combinations of herbs with anti viral and anti bacterial potential reference to Covid-19. The documented data prepared is summarised in a Table. The collection of plants material with local is done in between 2014 to 2019. Plant identification was carried out by using

local flora and floras of adjoining districts. Plants used in were compared with published literature, (13, 14). The voucher specimens are deposited in Department of Botany, Baliram Patil Arts, Commerce and Science College, Kinwat, District, Nanded, Maharashtra, India. The collection of information is mostly from Mahur and Kinwat forest tribal's from Maharashtra State of India.

### 3. RESULTS:

Information on 90 plant species used especially for the anti viral and anti bacterial problems in Table no.1. It reveals utilization of flowering plants belonging to 80 genera comprising of 44 families, out of these 39 families are of dicotyledons, 5 of monocotyledons. These crude drugs were used as decoction or infusion of whole plants, leaf, bark, flower, fruit and seeds are used internally, as the traditional herbal remedies are based on ancestral knowledge and empiric experiences, they had been cross checked by literature previously reported for anti viral and anti bacterial diseases,(15, 16 & 17). Further extensive Ethnobotanical and Ethno-pharmacological study may lead to the exploitation of plants and compounds for these properties. The correct botanical name, family, part used, recipe and phytochemicals of the plants as per data available is depicted in **Table No. 1**.

**Table No. 1**  
**List of plants with potential of anti viral and anti bacterial properties.**

Sr. No.	Botanical name	Family	Part used	Recipe	Phytochemicals
1	<i>Abrus precatorius</i> L.	Fabaceae	Leaves and root	Decoction of fresh leaves or roots.	Glycyrrhizin, triterpene glycosides, pinitol and alkaloids, (18).
2	<i>Abutilon indicum</i> (Link) Sweet.	Malvaceae	Seeds	Mucilage of seeds.	Alkaloids, flavonoids, carbohydrates, phenolic compounds and saponins.
3	<i>Acacia nilotica</i> (L.) Del.	Mimosaceae	Bark	Decoction of bark.	Catechin, epicatechin, dicatechin, quercetin, gallic acid and procyanidin.
4	<i>Acalypha indica</i> L.	Euporbiaceae	Leaf and root	Decoction of leaves or root.	Saponins, flavanoids and amino acids.
5	<i>Achyranthes aspera</i> L.	Amaranthaceae	Root and seeds	Pinch of root or seeds powder with equal amount of black pepper with honey.	Alkaloid, saponin, coumarin, tannin and phenol, reducing sugars, flavonoid, steroids and triterpenoid.
6	<i>Adhatoda zeylanica</i> (L.)	Acanthaceae	leaves	Decoction of 2 leaves with handful leaves of <i>Ocimum species</i> and 1/2 leaf of <i>Eucalyptus globulus</i> Labill.	Quinones, coumarins, terpenoids, phenols, saponins, flavonoids, volatile oils, resins, gums and mucilages and tannins, (19).
7	<i>Aegle marmelos</i> (L.) Corr.	Rutaceae	Fruit	Fruit pulp drink	Coumarins, beta-sitosterol and xanthotoxin, (20 and 21).
8	<i>Ailanthus excels</i> Roxb.	Simaroubarceae	Bark and leaves	Vapours of boiling bark or leaves (Decoction bark or leaves)	Quassinoids, kaempferol and luteolin, (22).
9	<i>Allium cepa</i> L.	Amaryllidaceae	Bulbs	Juice of Bulbs	Flavonoids, phytosterols and saponins, (23).
10	<i>Allium sativum</i> L.	Amaryllidaceae	Bulbs	Two bulbs with honey	Carbohydrates, flavonoids and saponins, (24).
11	<i>Anisomeles malabarica</i> (L.) R. Br.Ex.Simg.	Lamiaceae	Leaves	Decoction of fresh leaves.	Alkaloid, flavonoids, saponins, tannins, and terpenoids.
12	<i>Anogeissus latifolia</i> Roxb.ex.Dc.) Wall. Ex. Guill&Perr.	Combretaceae	Bark	Bit of bark is kept in mouth for 3 - 4 times a day.	Mannose, galactose and arabinose.
13	<i>Argemone mexicana</i> L.	Papaveraceae	Root	Decoction of root	Isoquinoline alkaloids, Alkaoids, Aliphatic and Phenolic compounds.
14	<i>Aristolochia indica</i> L.	Aristolochiaceae	Root	The paste of fresh root is applied over chest for children.	Reducing sugars, combined reducing sugars, glycosides, tannins, alkaloids, acidic compounds, steroids, terpenoids and flavonoids.
15	<i>Bacopa monnieri</i> (Linn.) Penell.	Scrophulariaceae	Whole plant	A poultice of the boiled plant on the chest of small children.	Tannins, flavonoids, glycosides, terpenoids, saponins, and steroids.
16	<i>Balanites aegyptica</i> (L.) Delile.	Zygophyllaceae	Root	Root decoction	Saponins, flavonoids and alkaloids.
17	<i>Bambusa arundinacea</i> (Retz.)	Poaceae	leaves	Decoction of leaves	Flavonoids, steroids, tannins, quercetin, phenols and quinines.

Sr. No.	Botanical name	Family	Part used	Recipe	Phytochemicals
18	<i>Barleria cristata</i> L.	Acanthaceae	leaves	Juice of fresh leaves mixed with dried fruits powder of <i>Piper nigrum</i> .	Triterpenes, phenolic compounds, glycosides and flavonoids.
19	<i>Bauhinia racemosa</i> Lamkark.	Caesalpinaceae	Flower and leaves	Dried leaves powder is smoked as cigarette and decoction of flowers and leaves.	Tannins, alkaloids, glycosides, steroids and saponins.
20	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Whole plant	Decoction of plant	Flavonoids, alkaloids, glycosides, steroids, triterpenoids, lipids and lignans.
21	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Whole plant	Decoction of plant	Glycosides, flavonoids, tannins, saponins, alkaloids, phenolics, and ferric chloride.
22	<i>Boswellia serrata</i> Triana & P lanch.	Burseraceae	Bark	Decoction of bark	Sabinene, terpinen-4-ol and terpinyl acetate.
23	<i>Butea monosperma</i> Lamk. Taub.	Fabaceae	Gum	Gum mixed with water.	Flavonoids, tannins, saponins, carbohydrates, terpenoids, alkaloids, proteins, quinones, phenols and glycosides.
24	<i>Calotropis gigantea</i> (L.) R.Br.ex. Schult.	Asclepiadaceae	Flower	Pinch of flower in betel leaf.	Calactin, calotropin, and calotoxin.
25	<i>Calotropis procera</i> (Ait.) R. Br.	Asclepiadaceae	Flower	Pinch of dried flowers powder is mixed with <i>Piper nigrum</i> , slight common salt and jiggery.	Saponin, coumarin, tannin and phenol, reducing sugars and triterpenoid.
26	<i>Careya arborea</i> Roxb.	Lecythidaceae	Bark and flower	Pinch of flower and fresh bark mixed with honey.	Tannins, saponins, sapogenol, hexacosanol, quercetin, ellagic acid, taraxerol, $\beta$ -sitosterol and $\alpha$ -spinasterol.
27	<i>Celosia argentea</i> L.	Amaranthaceae	Whole plant	The ash of whole plant with water.	CelogenamideA, celogentin A-D, Celogentin-H, celogentin-J and celogentin – K and moroidin.
28	<i>Chrysanthemum indicum</i> L.	Asteraceae	Whole plant	Decoction of plant	Chrysanthemin, cyaniding and stachydrine.
29	<i>Clerodendrum serratum</i> (L.) Moon.	Verbenaceae	Leaves	The leaf juice is mixed with dried fruit powder of <i>Piper nigrum</i> .	Saponins, terpenoids, steroids and flavonoids, (25).
30	<i>Clitoria ternatea</i> Linn.	Fabaceae	Root	Root juice is given with cold milk.	Phlobatannin, anthraquinone and anthocyanins.
31	<i>Cordia dichotoma</i> Forst.f.	Boraginaceae	Bark and fruit	Decoction of bark 50 ml or fruit 15 ml per day.	Saponin, coumarins, triterpens and flavonoids, (26).
32	<i>Curcuma longa</i> L.	Zingiberaceae	Rhizome	Pinch of dried rhizome powder with warm water.	Curcuminoids, Curcumin, demethoxycurcumin and bisdemethoxycurcumin, volatile oils, sugars, proteins and resins.
33	<i>Curcuma pseudomontana</i> J. Graham, Cat.	Zingiberaceae	Rhizome	Pinch of dried rhizome powder with warm water.	Alkaloid, glycoside, steroid, flavonoid, tannin, saponin, phenol, terpenoids and phytosterol.
34	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Whole plant	Whole plant juice mixed with honey.	$\beta$ - sitosterol, $\beta$ - carotene, vitamin C, palmitic acid, triterpenoids, arundoin, friedelin, selenium, alkaloids- ergonovine, ergonovinine, Ferulic, syringic, p- coumaric, vanilic, p hydroxybenzoic and o- hydroxyphenyl acetic acids, Cyanogenichyperoside, anogenicglucoside- triglochinin, furfural, furfural alcohol, phenyl acetaldehyde, acetic acid, phytol, $\beta$ - ionone; mono and oligosaccharides and lignin.
35	<i>Cyperus rotundus</i> L.	Cyperaceae	Tubers	Tubers decoction	Carbohydrates, alkaloid, tannins, and glycosides.
36	<i>Datura metel</i> L.	Solanaceae	Leaves and fruit	The dried leaves powder or fruit powder is smoked.	Alkaloid, Reducing sugars and Triterpenoid.
37	<i>Desmodium gangeticum</i> (L.) DC.	Fabaceae	Root	Root decoction with <i>Piper nigrum</i>	Alkaloids, carbohydrates, glycosides, phytosterol and flavonoids.
38	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Tubers	Soup of tubers	Steroids, flavonoids, cardiac glycosides, saponins, reducing sugars, anthraquinones, phlobatanins and tannins.

Sr. No.	Botanical name	Family	Part used	Recipe	Phytochemicals
39	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	Leaves	The 2-3 drops of leaves juice is mixed with equal quantity of honey.	Alkaloids, flavonoids, glycosides, polyacetylenes and triterpenoids.
40	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Leaves	The pills are prepared from crushed leaves and jaggery.	Alkaloids, saponins, tannins, cardiac glycosides, steroids and flavonoids, (26).
41	<i>Evolvulus alsinoides</i> L.	Convolvulaceae	Whole Plant	Dried whole plant crushed is made into cigarettes.	Glycosides, alkaloids, poly phenols, carbohydrates, amino acids and proteins, saponins, volatile oil, flavonoids and tannins.
42	<i>Ficus hispida</i> L.	Moraceae	Leaves	Young fresh leaves pounded with milk and <i>Piper longum</i> .	Alkaloid, phenolic compounds, flavonoid and glycosides, (27).
43	<i>Ficus racemosa</i> L.	Moraceae	Fruit	The dried ripe fruits are mixed with jiggery.	Phenols, flavonoids and alkaloids.
44	<i>Gloriosa superba</i> L.	Colchicaceae	Leaves	The leaves paste applied on forehead and neck of children.	Colchicine, alkaloids, $\beta$ - sitosterol and glucoside.
45	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Schult.	Asclepiadaceae	Leaves	Leaves juice	Alkaloids, flavonoids, phenols, tannins, terpenoids carbohydrate, tannin, and saponin.
46	<i>Helecteris isora</i> L.	Sterculiaceae	Bark	Decoction of Bark	Tannins, phenolic compounds, amino acids, carbohydrates, phytosterols, triterpenoids and alkaloids, (28).
47	<i>Hemidesmus indicus</i> (L.) R. Br.	Apocynaceae	Root	Decoction of root	Flavonoid, Steroid, Phenol, Terpenoid, Anthraquinone, Cardiac glycoside, and Tannin, (29 and 30).
48	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Leaves, and root	Decoction of leaves or root or fruits.	Flavonoids, glycosides, phytosterols, terpenoids and tannins,
49	<i>Holarrhena antidysenterica</i> sensu.Wall. ex. DC.	Apocynaceae	Bark	The root bark powder is mixed with boiled water.	Flavonoids, alkaloids and tannins, (31).
50	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	Leaves and stem	Decoction of leaves and stems.	Quamoclines I-IV and jalapin.
51	<i>Lagenaria siceraria</i> (Mol.) Standl.	Cucurbitaceae	Fruit	Juice of the fruit.	$\beta$ -sitosterol, ampesterol and isoquercitrin.
52	<i>Lagerstroemia indica</i> L.	Lythraceae	Flower	Decoction of flowers.	Anthraquinones, reducing sugars, terpenoids, flavonoids, saponins, tannins, alkaloids and cardiac glycosides.
53	<i>Lawsonia inermis</i> L.	Lythraceae	leaves	The leaves juice mixed with water and sugar.	Alkaloids, Quinones, Glycosides, Tannins and saponins.
54	<i>Leptadenia reticulata</i> (Retz.) Wight & Arn.	Apocynaceae	leaves	The leaves juice mixed with honey.	Apigenin, reticulatin, denticulatin, and leptaculatin.
55	<i>Leucas aspera</i> (Willd.) Link.	Lamiaceae	Whole Plant	Decoction of whole plant with equal amount of leaves of <i>Ocimum sanctum</i> .	alkaloids, glycosides, steroids, lignans, flavonoids, terpenoids,oleanolic acid, ursolic acid, 3-sitosterol, nicotine, sterols and galactose, glucoside.
56	<i>Leucas cephalotes</i> Spreng. (Roth).	Lamiaceae	Leaves	leaves juice	Labdane, A bietone-type, diterpenes named leucadins A (1), B (2), C (3).
57	<i>Madhuca longifolia</i> (J.Konig) J.F.Macbr. (J.Konia) Maebr.	Sapotaceae	Flower	Fresh juice of flowers.	Quercetin, $\beta$ -amyriindecinate, $\beta$ -amyrin, $\beta$ -amyriin acetate, stigma sterol and $\beta$ -amyriincinamate.
58	<i>Momordica dioica</i> Roxb. exWilld.	Cucurbitaceae	Root	Root paste in water.	Alkaloids, terpenoids, flavonoids, anthraquinones, tannins, saponins, glycosides, reducing sugars, steroids and cardiac glycosides.
59	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Seed	The seeds powder mixed with honey.	Saponins, phlobotannins, flavonoids, tannins, sterols and phenols.
60	<i>Nyctanthus arbor-tristis</i> L.	Oleaceae	Leaves	Decoction of leaves	Flavonoid, saponins, alkaloids and coumrins.
61	<i>Ocimum americanum</i> L.	Lamiaceae	Leaves	Decoction of leaves	Chavicol, camphor and linalool, (32).
62	<i>Opuntia elatior</i> Mill.	Cactaceae	Whole plant	Whole plant juice	Flavonoids, flavonone carbohydrates, tannins, sterols, proteins, pectin, citric acid and vitamin C.
63	<i>Pergularia daemia</i> (Forssk.) Chiov.	Asclepiadaceae	Leaves	Extract of leaves	Tannins, flavonoids, alkaloids, steroids, and quinines.

Sr. No.	Botanical name	Family	Part used	Recipe	Phytochemicals
64	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Fruit	The fruit juice	Tannins, flavonoids, saponins, terpenoids and ascorbic acids, (33).
65	<i>Piper longum</i> Linn.	Piperaceae	Fruit	Decoction of immature fruits.	Alkaloid, saponin, coumarin, tannin and phenol, reducing sugars, steroids and triterpenoid. , (34).
66	<i>Pongamia pinnata</i> (L.) Pierre.	Fabaceae	Leaves	Decoction of leaves	Pongone, Galbone, Pongalbol, Pongagallone A and B.
67	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Bark	Aqueous extract of the wood.	Glycosides, saponins, tannins and flavonoids.
68	<i>Pupalia lappacea</i> (L.) Juss.	Amaranthaceae	Leaves	The leaves are put into soups.	Alkaloids, amino acids, glycosides, flavanoids, glycosides, saponins, tannins, starch, steroids, terpenoids and coumarins.
69	<i>Semecarpus anacardium</i> L.f.	Anacardiaceae	Fruit and nut	Nut is boiled in milk (The fruits are eaten).	Urushiol and andanacardol.
70	<i>Senna fistula</i> L.	Fabaceae	Fruit	Fruit pulp juice	Alkaloids, saponins, flavonoids, anthraquinones, phenolic compounds, carbohydrate and glycosides, (35).
71	<i>Senna occidentalis</i> L.	Fabaceae	Leaves and flower	Leaves juice mixed with honey Decoction of flower	Emodin, physicion, beta-glucopyranoside, bianthraquinone and chrysophanol.
72	<i>Senna tora</i> L.	Fabaceae	Seeds	The dried seeds powder	Tannin, saponin, protein, steroids, terpenoids, carbohydrate, alkaloids, flavonoids and glycosides, (36).
73	<i>Sida rhombifolia</i> L.	Malvaceae	Root and leaves	Decoction of roots and leaves	Alkaloids, Saponins, Flavonoids, Proteins, Tannins, Terpenoids and Glycosides.
74	<i>Solanum indicum</i> L.	Solanaceae	Fruit	Fruit is pounded and fried in butter	Sesquiterpenoids and coumarins, (37).
75	<i>Solanum nigrum</i> L.	Solanaceae	Fruit	Decoction of berries	Epicatechin, rutin, and naringenin, (38).
76	<i>Solanum virginianum</i> L.	Solanaceae	Root	Decoction of root	Alkaloids, terpenoids, glycosides, flavonoids, saponins, coumarins, tannin, (39).
77	<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Fruit	Fresh fruit juice	Anthocyanins, delphinidin, petunidin and malvidin-diglucosides, (40).
78	<i>Tephrosia purpurea</i> (L.) Pers.	Fabaceae	Root	Powdered root are smoked	Flavonoids, tannin & phenols, alkaloids, phytosterols and saponins.
79	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wt. & Arn.	Combretaceae	Bark	Decoction of stem bark	Arjunin, arjunic acid, arjungenin, terminic acid, terminoltin and arjunolic acid.
80	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Fruit	The cortical part of dried fruit is kept into the mouth	Alkaloid, Flavonoid, Glycoside, Cardiac glycosides, Phenolic, Steroid, Terpenoid, Lignans, Tannins and Phlobatannins .
81	<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit	The dried fruits powdered with honey	Alkaloid , saponin, coumarin, tannin and phenol, reducing sugars, flavonoid, steroids and triterpenoid.
82	<i>Tinospora cordifolia</i> (Thunb.) Miers.	Menispermaceae	Root	Crushed root and is given with milk	Flavonoids, alkaloids, proteins, phenolic compounds, phytosterols, cardiac glycosides and tannins, (41).
83	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Whole plant	Decoction of plant	Flavonoids, saponins, steroidal glycosides, saponins, saponins, furostanol glycosides and alkaloids.
84	<i>Tylophora indica</i> (Burm.F) Merrill	Asclepiadaceae	Root	The juice of fresh root	Rare alkaloids tyloindicines A, B, C, D, E, F, G, H, I, and J, desmethyltyloph-orine, desmethyltylophorinine and isotylocrebrine, (42).
85	<i>Vernonia cinerea</i> (L.) Less.	Asteraceae	Leaves	The dried leaves are smoked.	Alkaloids, Phenolics, flavonol, flavones, flavonone and polyoses.
86	<i>Vitex negundo</i> L.	Lamiaceae	Leaves	The dried leaves are smoked.	Alkaloid , saponin, coumarin, tannin, phenol, reducing sugars, flavonoid, steroids and triterpenoid.
87	<i>Withania somnifera</i> (L.) Dunal.	Solanaceae	Leaf and root	Leaf and root juice	Alkaloids Withanine, somniferine, somnine, somniferinine, withananine, pseudo-withaninetropane, pseudo-tropine, choline, anaferine, anahydrine and isopelletierine, (43).

Sr. No.	Botanical name	Family	Part used	Recipe	Phytochemicals
88	<i>Woodfordia fruticosa</i> Kurz.	Lythraceae	Flower	Powder of fresh flowers	Alkaloids, saponin, tannins and phenolic compounds.
89	<b><i>Wrightia tinctoria</i> (Roxb) R.Br.</b>	Apocynaceae	Bark	Decoction of bark	Flavonoid, alkaloids, saponins, tanins, terpenoids, reducing sugar, cardiac glycosides, anthroquinones and steroids, (44).
90	<b><i>Zingiber officinale</i> L.</b>	Zingiberaceae	Rhizome	The fresh juice of the rhizome is mixed with honey.	Dehydrogingerol, gingerol, tetrahydrocurcumin and hexahydrocurcumin, (45).

\*The names of the plants depicted in bold letters are more potential for bioprospecting against viral attack.

#### 4. DISCUSSION:

During the present study it has been observed that root, bark, stem, leaves and whole plant is used but leaf is the commonest part used in the treatment. Majority of the preparations are used internally in the form of infusion or decoction. The detailed information regarding the therapeutic application of different 90 plant species were obtained and their role in curing bacterial and viral diseases is depicted here with and many of them are also immune boosters which help our system to become a strong. This helps in preventing cough, cold and the flu. Mode of administration by tribal healers, priests and ordinary villagers were compared with available literature in different regions of India and abroad on medicinal plants. It was found that many of the uses listed are not recorded earlier. It provides deeper insight into the indigenous method of applications and effectiveness of the plant derivatives in treating especially and for the investigation of anti viral and anti bacterial potential in context to Covid-19. Further pharmacological and clinical studies on these plants may provide effective natural medicines and it will also be useful to determine in the bio prospecting potential of these plants. The phytochemical content is to be considered for further investigation.

This wealth of traditional knowledge needs to be collected, documented and preserved which may help to understand remedial plant metabolites for development of novel herbal medicines and for the betterment of the mankind in future which as is know at present in a dangerous situation.

#### Acknowledgments

The authors thanks to Principal of Baliram Patil, Arts, Commerce and Science College, Kinwat, District Nanded, Maharashtra India for his cooperation.

#### REFERENCES:

- Gessler M. The antimalarial potential of medicinal plants traditionally used in Tanzania and their uses in the treatment of malaria by traditional healers. *Inaugural dissertation*, Baseler- Schelldruck, Basel, 1995.
- Malunga NP, Ohilander LE, Smith M. Current perspective on an emerging floral natural products sector in South Africa. *Journal of Ethnopharmacology*.2008, 119:365-375.
- Ghosh A. Herbal folk remedies of Bankura and Medinipur Dist. West Bengal. *Indian Journal of Traditional Knowledge*. 2003; 2(4):393-396.
- Centers for Disease Control and Prevention (CDC). Corona virus Disease 2019(COVID-19) situation summary; 2020. Available from: <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>. Accessed March 6, 2020.
- Centers for Disease Control and Prevention (CDC). Corona virus Disease 2019(COVID-19) situation summary; 2020. Available from: <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>. Accessed April 23, 2020.
- World Health Organization (WHO). WHO Director-General's opening remarks at the media briefing on COVID-19 – 11 March 2020; 2020. Available from: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020>. Accessed March 11, 2020.
- Lai KKR, Wu J, Harris R, McCann A, Collins K, Watkins D, et al. Corona virus map: tracking the spread of the outbreak; 2020. Available from: <https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html?action=click&module=RelatedLinks&pgtype=Article>. Accessed March 17,2020.
- World Health Organization (WHO). Q & A on coronaviruses (COVID-19);2020. Available from: <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>. Accessed March 6, 2020.
- Luo H, Tang QL, Shang YX, Liang SB, Yang M, Robinson N, et al. Can Chinese medicine be used for prevention of corona virus disease 2019 (COVID-19)? A review of historical classics, research evidence and current prevention pro-grams. *Chinese J Integr Med* 2020, <http://dx.doi.org/10.1007/s11655-020-3192>.

10. Akerele, Olayiwola. 1991. Medicinal Plants: Policies and Priorities. In Conservation of Medicinal Plants, ed. Olayiwola Akerele, Vernon Heywood, and Hugh Syngé, 3–11. Cambridge: Cambridge University Press.
11. Jain SK. Methods and approaches in Ethnobotany, Society of Ethnobotanists, Lucknow, 1989.
12. Jain SK. Dictionary of Ethno veterinary Plants of India, *Deep Publications*, New Delhi, 1999.
13. Almeida SM, Almeida MR. Hand book of diseases and their herbal remedies in Maharashtra. *Orient press limited*, Mumbai, Part-1 & 2, 2014.
14. Jain SK. Dictionary of Indian folk medicine and Ethnobotany, *Deep publications*, New Delhi, 1991.
15. Parrota J.A. (2001). Healing Plants of Peninsular India. *C.A.S.I. Publication*, USA.
16. Kirtikar K.R. and Basu B.D (2005). Indian medicinal plants Vol.1, 2, 3, & 4. Publication by, *International book distributors*, Dheradun, India.
17. Madhava Chetty K, K. Shivaji & K. Tulsirao (2008). Flowering plants of Chittor district, Andhra Pradesh, India, *Students offsets printers*, Tirupati.
18. Samuel Ehiabhi Okhale, Ezekwesiri Michael Nwanosike (2016). *Abrus precatorius* Linn (Fabaceae): phytochemistry, ethnomedicinal uses, ethnopharmacology and pharmacological activities. *International Journal of Pharmaceutical Science and Research*. ISSN: 2455-4685, Impact Factor: RJIF 5.28. Volume 1; Issue 6; P; 37-43.
19. Shabi Ruskin and R., S. Ajina(2017). Qualitative Phytochemical Screening and In-vitro Anthelmintic Activity of *Adhatoda vasica* (Acanthaceae). *Research Journal of Pharmacy and Technology*. Volume No. :10, Issue No. : 2, P: 414-420.
20. Venkatesan D, C.M. Karrunakarn, S.S. Kumar, P.T.P. Swamy, (2009). "Identification of phytochemical constituents of *Aegle marmelos* responsible for antimicrobial activity against selected pathogenic organisms," *Ethnobotanical Leaflets*, 13, P; 1362-1372.
21. Mathew George, Lincy Joseph and Sreelakshmi R, (2016). Phytochemical and pharmacological screening of in vivo anti-inflammatory activity of *Aegle marmelos* (L.) Corr. Serr. *Journal of Chemical and Pharmaceutical Research*, 8(2): P; 330-334.
22. Sunita Verma (2016). Pharmacological study on *Ailanthus excels- Ardusa* (The tree of heavens) Simaroubaceae: A multipurpose tree. *World Journal of Pharmaceutical Research*. Vol 5, Issue 12, P; 772-777.
23. Sunil Pareek, Narashans Alok Sagar, Sunil Sharma and Vinay Kumar, (2018). *Onion (Allium cepa L.)*. *Fruit and Vegetable Phytochemicals: Chemistry and Human Health, Volume II*, Second Edition. Edited by Elhadi M. Yahia. ©2018 John Wiley & Sons Ltd. Published by John Wiley & Sons Ltd.
24. Hudu G. Mikail, (2010). Phytochemical screening, elemental analysis and acute toxicity of aqueous extract of *Allium sativum* L. bulbs in experimental rabbits. *Journal of Medicinal Plants Research*, Vol. 4(4), pp. 322-326.
25. Jagruti J. Patel Sanjeev R. Acharya Niyati S. Acharya, (2014). *Clerodendrum serratum* (L.) Moon. A review on traditional uses, phytochemistry and pharmacological activities. *Journal of Ethnopharmacology*, 154, 2, P; 268-285.
26. Dhole JA, Dhole NA, Lone KD and Bodke SS, (2011). Preliminary Phytochemical Analysis and Antimicrobial Activity of Some Weeds collected from Marathwada Region. *Journal of Research in Biology*, 1: P; 19-23.
27. Atanu Chatterjee, Jayita Mondal, Rudranil Bhowmik, Anshuman Bhattachayra, HIRAK ROY and Swarnendu Kundu (2015). In-Vitro Anti-oxidant and Antimicrobial Study of *Ficus hispida*. *Journal of Pharmaceutical Technology, Research and Management*, P; 153–166.
28. Varsha Shriram, Sheetal Jahagirdar, C. Lathac, Vinay Kumar, Prashant Dhakephalkar, Supada Rojatkhar and Mahadeo G. Shitole, (2010). Antibacterial & antiplasmid activities of *Helicteres isora* L. *Indian J Med Res* 132, P; 94-99.
29. Aparna Banerjee and Subha Ganguly (2015). Antimicrobial activity and Qualitative estimation of phytochemicals present in *Hemidesmus indicus*. *World Journal of Pharmaceutical Research*. Volume 4, Issue 4, P; 1061-1065.
30. Prasanna Purohit, Ritu Thakur Bais, Pratibha Singh and Shagufta Khan (2016). Antibacterial and Phytochemical Screening of Ethanol Extract of *Hemidesmus indicus* roots. *UK Journal of Pharmaceutical and Biosciences* Vol. 4(2), P; 53 -57.
31. Aswathy.C, Nancy Jose, Dr. Sr. Betty Carla, Priyona Roy and Meera.R.Nath, (2015). Evaluation of depressant and anxiolytic activity of *Holarrhena antidysentrica* leaves. *World Journal of Pharmacy and Pharmaceutical Sciences*. Volume 4, Issue 05, P; 573-587.
32. Shubhangi Nagorao Ingole (2016). Phytochemical analysis of leaf extract of *Ocimum americanum* L. (Lamiaceae) by GCMS method. *World Scientific News*, 37, P; 76 -87.
33. Md. Rubaiyat Hasan, Md. Nasirul Islam and Md. Rokibul Islam, (2016). Phytochemistry, pharmacological activities and traditional uses of *Emblca officinalis*: A review. *International Current Pharmaceutical Journal*, 5(2): 14-21

34. Banga SS, Garg LC, Atal CK, (1964). Effect of pipartine and Crude extracts of *Piper longum* on ciliary movements, *Indian J Pharm*, 26, P; 139-141.
35. Anusha Kulkarni, Govindappa M., Channabasava, Chandrappa CP, YL Ramachandra and Prasad S. Koka, (2015). Phytochemical analysis of *Cassia fistula* and its in vitro antimicrobial, antioxidant and anti-inflammatory activities. *Advancement in Medicinal Plant Research*, ISSN: 2354-2152, Vol. 3(1), P; 8-17.
36. Rahimullah Shaikh, Imran Zainuddin Syed and Payoshni Bhende, (2019). Green synthesis of silver nanoparticles using root extracts of *Cassia toral L.* and its antimicrobial activities. *Asian Journal of Green Chemistry*, 3, P; 70-81.
37. Vinit Sharma, Kritika Hem, Ankit Seth and Santosh Kumar Maurya, (2017). *Solanum indicum* Linn.: An ethnopharmacological, phytochemical and pharmacological review. *Current Research Journal of Pharmaceutical and Allied Sciences*; Vol. 1 (Issue 2): P; 1-9.
38. Romana Rashid, Muzaffer Hussain Wani and Sangeeta Devi (2015). Phytochemical Investigation of the Plant *Solanum nigrum* L. used in Traditional Medicine from the Local Area of Bhopal. *International Journal of Science and Research*. Volume 6 Issue 6, P; 1258- 1261.
39. Elangbam Chanbi Devi, Jharna Devi, Partha Pratim Kalita, Nayan Talukdar, Minakshi Bhattacharjee and Manash Pratim Sarma (2015). Phytochemical Analysis of *Solanum virginianum* and its Effect on Human Pathogenic Microbes with Special Emphasis on *Salmonella typhi*. *Journal of Forensic Toxicology & Pharmacology*. 5: 1, P; .4172/2325-9841.1000141.
40. Ayyanar M and Subash-Babu P.(2012). *Syzygium cumini* (L.) Skeels: a review of its phytochemical constituents and traditional uses. *Asian Pac J Trop Biomed*. 2(3): P; 240-246.
41. A. Madhavi, A Vijayalaxmi and, V Narasimha (2017). Preliminary phytochemical analysis of Guduchi *Tinospora cordifolia* (Willd) Miers. Leaf in different solvent extracts. *International Ayurvedic Medical Journal*, 5 (5), P; 1500-1505.
42. Khurana SMP\* and Kumar N, (2019). Ethno-Eco-Chem-Medico and Tissue Culture Knowledge of the Asthma Climber-Antmool (*Tylophora Indica*). *International Journal of Pharmacognosy and Chinese Medicine*. Volume 3 Issue 2, DOI: 10.23880/ipcm-16000162.
43. Jyoti Kiran Bara, Ritu Soni, Sakshi Jaiswal and Dr. Parul Saksena (2016). Phytochemical Study of the Plant *Withania somnifera* against Various Diseases. *Journal of Agriculture and Veterinary Science*. 9, 8. P; 109-112.
44. S. Selvakumar and Sanjeet Kumar Singh (2016). Preliminary Phytochemical Screening of *Wrightia tinctoria*. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. 7(1), P; 8-11.
45. Khushbu Sharma and Mahendra Sahai, (2018). Chemical constituents of *Zingiber officinale* rhizome. *Journal of Medicinal Plants Studies*; 6(1): P; 146-149.