



Phytochemical And Organoleptic Analysis Of Several Medicinal Plants Found In Koka Forest Of Bhandara District Maharashtra.

Sayedra Parveen Qureshi

P.G. Department Of Botany, J.M.Patel College, Bhandara.(M.S.)

Corresponding Author- Sayedra Parveen Qureshi

Email id: drsdprvnqureshi17@gmail.com

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Abstract :

Medicinal plants have a promising future because these are about half million plants ground the world and most of them in their medicinal activities have not investigated yet ,and their medicinal activities could be decisive in the treatment of present and future studies. Medicinal plants contain many organic compounds which provide definite physiological action on the human body and these bioactive substances include alkaloids ,Steroids ,tannins , terpenoids ,flavonoids ,carbohydrates .In the present work phytochemical and organoleptic analysis were carried out in Eleven Plants *Saraca asoca*, *Sesbania grandiflora* , *Syzygium cumini*, *Phyllanthus emblica*, *Acacia nilotica*, *Adhatoda vasica*, *Eucalyptus*, *Aegle marmelos* , *Dalbergia sissoo*, *Withania somnifera* , *Tinospora cordifolia* of Koka forest of Bhandara District ,Maharashtra, India.

Keywords : Organic compounds , Organoleptic , Phytochemical ,Forest.

Introduction

The term medicinal plant include a various types of plants used in Herbalism and some of these plants have a Medicinal Activities .These Medicinal plants Consider as arich resourses of ingredient which can be used in drug development and Synthesis.Besides that these plants play a Critical role in the Deveolpment of Human culture around the world. In India medicinal plants are widly used by all section of people both directly as folk medicines in different indegenoius system of medicine like Siddha, Ayurveda, and Unani and indirectly in the pharmaceuticals preparations.(Shrinivasan et.al. 2001). It is reported that *Phyllanthus emblica*L. (syn.*Emblica officinalis*) is commonly known as Indian gooseberry.*P.emblica* is highly nutritious and is reported as an important dietary source of vitamin C, minerals and amino acids. All parts of the plant are used in Ayurveda as a potent Rasayana (rejuvenator). *P.emblica* contains phytochemicals including fixed oils, phosphotides essential oils ,tannins, minerals, vitamins, amino acids, fatty acids, glycosides ,etc.(Gaire,B.P.et.al.2014). The therapeutic role of *sesbania grandiflora* as an inhibitor of advanced glycation end product (AGE) Formation and Discovery of

lead compound for managing hyperglycemia .(Prasanna ,G. 2013) These Days the term Alternative medicines became very common in western culture it focuses on the idea of using the plants for medicinal purpose .But the current Belief that Medicines which come in Capsules or pills are the Only Medicines that we can trust and use . Medicinal plants frequently used as raw materials for extraction of Active Ingredient which used in the synthesis of different drugs like in case of laxative , blood thinners, antibiotics ,antimalaria and cancer medication ,continingredient from plants . Medicinal plants have a promising future because these are about half million plants ground the world and most of them in their medicinal activities have not investigate yet ,and their medicinal activities could be decisive in the treatment of present and future studies.

Material And Method

1field Survey For Collection Of Plant Materials:

1.Collected the proper number of Plants sample and taken them directly to the testing laboratory. Field survey was carried out in December-2021 in around areas of Koka Forest of Bhandara district . During field visit generally, we concentrate on medicinal plants for the study of preliminary

phytochemical and organoleptic analysis. The plants used in the present investigation were selected based on their medicinal uses and present properties. The fresh plants of *Saraca asoca*, *Sesbania grandiflora*, *Syzygium cumini*, *Phyllanthus emblica*, *Acacia nilotica*, *Adhatoda vasica*, *Eucalyptus*, *Aegle marmelos*, *Dalbergia sissoo*, *Withania somnifera*, *Tinospora cordifolia* were collected from different areas of Koka forest of Bhandara district, Maharashtra, India.

2. Macroscopy

The Plants were studied for its morphological characters using the appropriate techniques..

3. Organoleptic Character

Organoleptic evaluation can be done by sense organs, which provide the simplest as well as quickest means to establish the identity and purity to ensure the quality of a particular drug. Organoleptic characters such as shape, size, colour, Odour, taste etc. are evaluated.

4. Preliminary Phytochemical Screening

A known quantity of dried powder was extracted with chloroform, alcohol and water. About 100gm of plant material was used to prepare crude extract. The plant material was washed thoroughly with distilled water and were shade dried and crushed into uniform dry powder. Extracts were prepared using two solvents – Ethanol (80%) and double distilled water. Aqueous and ethanol crude extracts were isolated by Soxhlet's method and subjected to the qualitative chemical tests for the identification of various bioactive phytochemicals.

Result & Discussion

1. Macroscopic Studies:

The Macroscopic studies of all Eleven species of Medicinal Plants were studied using "Flora of Bhandara district published by botanical survey of India as standard reference.

(1) *Saraca asoca*:

It is a perennial tree belongs to the family Meliaceae. The root is tap root, well branched with deep feeders. Stem is woody, erect, aerial, cylindrical and solid. Leaves are alternate, exstipulate. Inflorescence is axillary panicle. Flower of plant is complete, hermaphrodite, actinomorphic, pentamerous. Fruit is Drupe type. Seed is non-endospermic.

(2) *Sesbania grandiflora*: *Sesbania grandiflora* (Linn) belonging to family Leguminosae common name of sesbania grandiflora. A small erect quick-growing short-lived soft-wooded tree sparsely

branched, the wood white and soft. The tree is 5 to 12 meters in height. The leaves are 20 to 30 centimeters long, and pinnate having 20 to 40 pairs of leaflets, which are 2.5 to 3.5 centimeters long. The flowers are white and 7 to 9 centimeters long. The pods are linear, 20 to 60 centimeters long, 7 to 8 millimeters wide, pendulous, and somewhat curved, and contain many seeds.

(3) *Syzygium cumini*:

Syzygium cumini belongs to family Myrtaceae. The plant is long evergreen tree. Roots are tap roots. Stem is smooth, erect and slender. Leaves are smooth, glossy, elliptic to oblong or ovate. Flower greenish white. Fruits are berry, oblong, black juicy shining when thoroughly ripe.

(4) *Phyllanthus emblica*:

Phyllanthus emblica IS ALSO KNOWN BY NAME *EMBLICA OFFICINALIS*, commonly known as amla, belongs to family Phyllanthaceae. The tree is small to medium in size. The leaves are simple, alternate, subsessile, light green, pinnate. Flowers are greenish yellow, in axillary fascicles. Fruit of plant is light greenish-yellow and drupe type.

(5) *Acacia nilotica*:

The plant are long tree belongs to the family Fabaceae. The tap root system is seen. Stem are erect, cylindrical, solid and woody. Leaf is compound, alternate, petiolate, opposite. Inflorescence is cymose head. Flowers are small, sessile, actinomorphic and complete. Fruit is legume.

(6) *Adhatoda vasica*

The plant is small shrubs belongs to the family Acanthaceae. The root is tap root. Stem is erect and woody. Leaves are simple, entire, and opposite. Inflorescence is racemose, spike. Flowers are sessile, complete, zygomorphic, pentamerous, whitish with pink streaks

(7) *Eucalyptus*

Eucalyptus belongs to family of Myrtaceae common name is Nilgiri. It is fast growing tree in world and attend great height. The leaves are leathery and often hang oblique or vertically; most species are evergreen. The flowers petals cohere to form a cap when the flower expands. The capsule fruit is surrounded by a woody cup shaped receptacle and contains numerous minute seed

(8) *Aegle marmelos*

Aegle marmelos, commonly known as bael came under family Rutaceae. It is a deciduous shrub or small to medium-sized tree, up to 13 m tall with slender drooping branches. The leaf is trifoliate, alternate, each

leaflet 5–14 x 2–6 cm, ovate with tapering or pointed tip and rounded base pale green in colour , The flowers are 1.5 to 2 cm, pale green or yellowish, sweetly scented, bisexual , The bael fruit typically has a diameter of between 5 and 12 cm. It is globose or slightly pear-shaped with a thick, hard rind and does not split upon ripening. The woody shell is smooth and green, gray until it is fully ripe when it turns yellow.

(9) Dalbergia sisso:

It is a large tree belongs to the family Fabaceae . Long tap root system is present .Stem is woody and hard .Leaves are leathery and pinnetely compound .Flower are whitish to pink, fragrant and nearly sessile .Seeds are kidney shaped ,thin and flat ,light brown .Fruit is dry and hard.

(10) Withania somnifera:

Withania somnifera is short tender perennial

shrub growing 35-75 cm .branches extend radially from a central stem. Leaves are dull green, elliptic. The flowers are small green and bell shaped.the ripe fruit is orange red.

(11) Tinospora Cordifolia:

Tinospora Cordifolia is commonly known by name Gulvel (Giloy) belongs to family *Menispermaceae*. It is a large deciduous ,extensively- spreading climbing shrub with several elongated twining branches. Stem of this plants is rather succulent with long filiform fleshy and climbing in nature .Leaves of this plant are membranous simple alternate with long petiole , pulvinate heart shaped green in colour.Flowers are small and unisexual which are greenish yellow in colour .Male flowers are clustered and female flowers exist in solitary. Fruits are fleshy single seeded which are aggregates of one to three.

Observation Table

Observation Table 1- Details of the plants Collected during Survey with their medicinal uses.

S. No	Botanical Name Of Plants	Venacular Name Of Plants	Family	Medicinal Use
1	<i>Saraca asoca</i>	Ashoka	<i>Fabaceae</i>	Bark is used for Menorrhagia , irregular period,skin wounds,and mouthulcer.
2	<i>Sesbania grandiflora</i>	Agasathi	<i>Lythraceae</i>	The whole part is used for ayurvedic treatment of hydrocelce,mouth ulcers ,tumor and leukemia.
3	<i>Syzigium cuminis</i>	Jamun	<i>Myrtaceae</i>	This plant is used in folk medicine for diabetes, flatulence, and gastritis
4	<i>Phyllanthus emblica</i>	Amla	<i>Phyllanthaceae</i>	Amla is used in the form of powder and juice to treat fever,lack of appetite, piles ,worms, anaemia and cough.
5	<i>Acacia nilotica</i>	Babool (kikar)	<i>Fabaceae</i>	It is used for the treatment of venereal diseases nausea, burns and wounds ,stomach ache and diarrhea.
6.	<i>Adhathoda vasica</i>	Adulsa	<i>Acanthaceae</i>	It is used in all types of cough ,chronic bronchitis breathlessness and ashtama.
7.	<i>Eucalyptus globulus</i>	Nilgiri	<i>Myrataceae</i>	<i>Eucalyptus</i> oil is used in the treatment of

				respiratory diseases .showing antibacterial, antiseptic, antioxidant anti inflammatory and anticancer activity.
8.	<i>Aegle marmelos</i>	Bael	Rutaceae	It is used for treatment of chronic diarrhea, dysentery and peptic ulcers.
9.	<i>Dalbergia sissoo</i>	Shisham	<i>Fabaceae</i>	The plant is used for ayurvedic purpose the leafy juice for eye ailments ,antipyretic and analgesic.
10.	<i>Withania somnifera</i>	Ashwagandh	<i>solanaceae</i>	It is not only are juvenating agent ,but it used as geriatric tiredness and insomnia.
11.	<i>Tinospora cordifolia</i>	Gudvel	Menispermaceae	This plant is used i n medicine for diabetes ,jaundice ,cough ,fever and gastritis

Table2:Field visit data for the collection of Medicinal plants.

Sr.no.	Plant name	Date of Collection	Time of collection	Place of collection
1	<i>Saraca asoca</i>	2/03/2022	10.00am	Koka Forest
2	<i>Sesbania grandiflora</i>	2/03/2022	10.30am	Koka Forest
3	<i>Syzygium cumini</i>	2/03/2022	10.45am	Koka Forest
4	<i>Phyllanthus emblica</i>	2/03/2022	11.30am	Koka Forest
5	<i>Acacia nilotica</i>	2/03/2022	10.45am	Koka Forest
6	<i>Adhatoda vasica</i>	3/03/2022	11.00am	Koka Forest
7	<i>Eucalyptus</i>	3/03/2022	11.30am	Koka Forest
8	<i>Aegle marmelos</i>	3/03/2022	11 45am	Koka Forest
9	<i>Dalbergia sissoo</i>	3/03/2022	11.55am	Koka Forest
10	<i>Withania somnifera</i>	3/03/2022	12.15pm	Koka Forest
11	<i>Tinospora cordifolia</i>	3/03/2022	12.30pm	Koka Forest

Observation Table 3

Organoleptic Test of all the Eleven Plant species which were carried out in the present investigation-

Sr.no.	Plant Name	Colour	Odour	Taste	Nature
1	<i>Sarac asoca</i>	DarkGreen	Unpleasant smelling	Bitter,a crid	Terrestrial
2	<i>Sesbania grandiflora</i>	LightGreen	Aromatic	Sweet	Terrestrial
3	<i>Syzygium cumini</i>	DarkGreen	Aromatic	Sweet	Terrestrial
4	<i>Phyllanthus emblica</i>	DarkGreen	Characteristic	Astringent with sweet &bitter	Terrestrial
5	<i>Acacia nilotica</i>	Green	Unpleasant	Sweet	Terrestrial
6	<i>Adhatoda vasica</i>	Dark Green	Aromatic	Bitter	Terrestrial
7	<i>Eucalyptus</i>	Dark Green	Aromatic	Bitter	Terrestrial
8	<i>Aegle marmelos</i>	Yellow Green	Aromatic	Astringent Sweet	Terrestrial
9	<i>Dalbergia sissoo</i>	Green	Aromatic	Bitter	Terrestrial
10	<i>Withania somnifera</i>	Yellowish green	Aromatic	Bitter ,acid	Terrestrialsmall tree
11	<i>Tinospora cordifolia</i>	Green	Aromatic	Sweet	Terrestrial

Observation Table 4-Phytochemical tests of the reported plants

Compounds	Plants Name										
	A	B	C	D	E	F	G	H	I	J	k
Carbohydrate	+	+	+	+	+	+	+	+	+	+	+
Gum and Mucilage	+	+	+	-	+	-	+	+	+	-	-
Fixed Oil	+	-	+	+	+	+	+	+	+	+	+
Protein	+	+	+	+	+	+	-	+	+	+	+
Alkaloids	+	+	+	+	+	+	+	+	+	+	+
Phenolic compounds	+	+	+	+	+	+	+	+	+	+	+
Saponin glycosides	+	+	+	+	+	+	+	+	+	+	+
Steroids	+	-	-	+	+	-	+	+	+	-	+
Flavonoides	+	+	-	+	+	+	+	+	+	+	+
Vitamins	+	+	+	+	+	+	+	+	+	+	+

Phytochemical test of plants Fig.: (A) *Saraca asoca*, (B) *Sesbania grandiflora*, (C) *Syzigium cumini*, (D) *Phyllanthus emblica*, (E) *Acacia nilotica* (F) *Adhatoda vasica* (G) *Eucalyptus* (H) *Aegle marmelos* (I) *Dalbergia sisso*, (J) *Withania somnifera* (K) *Tinospora Cordifolia*

Conclision

The phytochemical characteristics of Eleven medicinal plants tested were summarized in the table-4. The results revealed the presence of medically active compounds in the eleven plants studied. Analysis of the plants extract revealed the presence of phytochemical such as carbohydrate, Protein, Alkaloids, Fixed Oil, Gum and Mucilage, Phenolic compounds, Saponin glycosides, Steroids, Flavonoides, Vitamins. The phenolic compounds are one of the largest and most ubiquitous groups of plants metabolites. Therefore, extracts from these plants could be seen as a good source for useful drugs. From the table, it could be seen that, carbohydrates, vitamins, alkaloids, phenols and saponins were present in all reported medicinal plants. Gums and mucilage absent in *Phyllanthus emblica*, *Adhatoda vasica*, *withania somenifera*. Protien absent in *Eucalyptus*, flavonoids absent in *Syziium cumini*, Sterioids were absent in *Sesbania grandiflora*, *Syzigium cumini*, *Adhatoda vasica* and *Dalbergia sisso*. Phytochemical analysis conducted On the plant extracts revealed presence of consitituents which were known to exhibit medicinal as well as physiological activities. The traditional medicine practice is recommended strongly for these plants as well as it is suggested that further work should be carried out to isolate, purify, and characterize the active constituents responsible for the activity of these plants. Also additional work is encouraged to elucidate the possible mechanism of action of these extracts.

References-

1. Ali, A., Akhtar, N., Khan, B.A., Khan, M.S. (2012). *Acacia nilotica*: A plant of Multi purpose medicinal uses. *Journal of Medicinal Plant Research* .6 (9), pp1492-1496.
2. Bhattacharya, M., Singh, A., Ramrakhyani, C. (2014). *Dabergia sissoo* – An Important medicinal Plants, *Journal of medicinal plants studies* . 2 (2), pp 76-82.
3. Gaire, B.P., (2014) Phytochemistry, pharmacology and medicinal properties of *Phyllanthus emblica* Linn. *Chin J Integr Med* . PMID :25491539.
4. Jadhav, Dinesh (2008). *Medicinal plants of India*, Vol-2., Scientific publisher, 247 Pages.
5. Koshyp, N. (2009). Antimicrobial activity of some medicinal plants from Malaysia., *AM.J. Appl. Sci.*, 6 (8):1613-1617.
6. Prasanna, G. & Thangavel, S.N. (2013) The therapeutic role of *Sesbania grandiflora* as an inhibitor of advanced glycation Endproduct (AGE) Formation and Discovery of lead compound for managing hyperglycemia, *Planta Medica* 79(13)PN 84. doi: 10.1055/s-0033-1352426.
8. Raquel, F.E. (2007). Bacterial lipid composition and antimicrobial efficacy of cationic steroid compounds, *Biochemica et Biophysica Acta*. 2500-2509.
9. Saxena, N.B. & Saxena, S. (2019). *Plant taxonomy*, Eleventh edition.
10. Senguttuvan, J. (2014). Phytochemical analysis and evaluation of leaf and root parts of the medicinal herb *hypochaeris radicata* L, for in vitro antioxidant activity. *Asian Pacific Journal of tropical biomedicine* China humanity technology publishing house.
11. Sharma, A., Kumar, A. (2016). *Anti*

microbial activity of *Justicia adhatoda*. World
Journal of Pharmaceutical Research, 5 (7)
.pp1332-1341
12. Srinivasan ,D.,Nathan , S. ,Suresh,T.&
Perumalsamy ,P.L.(2001) .Antimicrobial
activity of certain medicinal plants used in

folkloric medicine ,J
Ethnopharmacol.3;74(3):217-20
13.Yadav, R.& Agarwala, M .(2011)
Phytochemical analysis of some medicinal
plants , Journal of Phytology 3(12): 10-14