



## Ethnobotanical Investigation of Medicinal Flora used by Indigenous People in District Attock, Pakistan

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### ABSTRACT

The Present Survey deals with ethno taxonomical observation of medicinal plants of district Attock. The study was designed to disseminate the dynamic of local knowledge, explore, conserve and document medicinal flora. During survey, traditional folk uses of medicinal flora were gathered via questionnaire, plant specimens were collected and photography was done for identification. Eighty medicinal plant species belonging to 64 genera reported to be used by local inhabitants for different diseases: asthma, piles, cancer, skin diseases, diabetes, cough, inflammation, kidney stones, Jaundice, as refrigerant, antidote and astringent etc. The medicinally important plants and traditional knowledge is going to be threatened day by day because of mortality of old experienced healers, overpopulation, overexploitation, deforestation, and modern agricultural practices. In this context conservation of medicinal flora and traditional folk knowledge demands serious attention. This study will be fruitful in future conservation strategies and will also assist plant scientists and other academic disciplines.

**Keywords:** Attock. Traditional folk uses, Used value, Overexploitation, Conservation strategies,

### INTRODUCTION

The term ethno botany was for the first time proposed by Harshburger J,W '1896 [1]. Ever since appearing on this planet some two million years ago, man has been exploiting medicinal plants, available to him in abundance due to the benevolence of nature, to fulfil his basic needs. Medicinal plants of course, multitude of medicines from Common cold to Cancer. They act as therapeutic agents and provide new active ingredients for manufacture of traditional and modern medicines. The reason for their popularity in rural areas is due to their low cost, natural and no side effect as compare to allopathic medicines. Arid areas are present in every province where medicinal plants grow naturally. But the rich medicinal flora is under genetic erosion and there is need to conserve it [2-5]. In Pakistan the existence of medicinal plants are in the range of 400-600 out of 5700. According to an estimate in the early 1970, 80% of villagers or rural people were dependent on herbal medicines for their health [6]. The ethnobotanical and taxonomical investigations of 226 economically important plants of Tehsil Attock was authenticated by [7]. The ethno botanical survey of 30 plants of Shogran valley was conducted in order to highlight the traditional uses of shrubs and trees [8]. The ethno botanical survey of 139 plants species was highlighted in Palas valley of Pakistan [9], 68

species were utilized as medicines by the local aborigines. The medicinal flora of Himalayan Region Poonch valley Azad Kashmir was ascertained [10]. The common medicinal folk recipes for 30 common diseases were documented in district Buner, Pakistan [11].

Geographically District Attock lies between 33°.'7' and 34° North latitude, 71 °.45' and 73° East longitude. The average annual rainfall is 783 mm. The area for most of the part is "Pothohar". The topography of area is a combination of hills and plains. The district Attock basically consisted on six subdivisions named as Jhand, Attock, Hasan Abdal, Hazro, Pindi Gheb and Fateh Jang. Topographically the area lies in the sub-himalayan with varying elevation from 305 to 1067 meters. Type of forest in the area is Scrub forest [12, 13].

### MATERIALS AND METHODS

The field survey was conducted in order to document the unique medicinal flora of arid areas of District Attock. During field trips investigation about medicinal plants was done through questionnaire by interview, talks and discussion with local people including indigenous herbalists, herb sellers, land farmers, old women and men. Specimens were authenticated by plant taxonomists in the botany department of Quaid-i-Azam University and through "Flora of Pakistan"[14]. Voucher

specimens for plants were prepared, properly labelled and finally deposited in the herbarium of University. Ethno taxonomical comprehensive list was prepared for each medicinal plant consisted on alphabetically arranged family name, botanical name, vernacular name, English name, habit and habitat, part used and traditional –folk formulas.

## RESULTS AND DISCUSSION

In a total of 80 plant species belonging to 64 genera and 36 families are reported to be used by local inhabitants for the treatment of various ailments. Ethno taxonomical comprehensive list of each medicinal plant species consisted on alphabetically arranged family name, botanical name, vernacular name, English name, habit and habitat, part used and traditional –folk formulas (Table 1).

It is widely accepted that the use of medicinal plants for the recovery of several diseases is the most cheap, effective, simple method with minimum side effects. The diversity of medicinal plants is important in district Attock as it is semi arid with fertile patches thus provides suitable conditions and useful resources based area of wild and cultivated medicinal plants [12]. Usually the local people are more closest to nature and due to unavailability of basic health facilities local people rely on medicinal plants for their common ailments by traditional methods and the trend of using medicinal plants is common in old inhabitants then youngsters [15- 17]. However encroaching industrialization and modern cultural changes in the life style are responsible for decrease of ethno pharmacological practices. It is therefore felt worthwhile to record the indigenous knowledge about the plant based remedies before the information is lost [18].

In present study 80 plants species belonging to 64 genera and 37 families are reported to be used by local people for medicinal purpose. It is reported that % use of herbs as medicinal plants is high among local inhabitants as compared to

shrubs and trees. Local people are mostly poor they used various parts of plants such as roots, stem, bark, gum, leaves, fruits, seeds, flowers, and milky latex for medicinal purpose. It is reported that medicinal plants are multi-functional; the same plant is used in a number of different ways. The milky latex of *Calotropis procera* is used to treat asthma, wounds, as astringent, and for piles. The gum of *Acacia modesta* and *Acacia nilotica* is effective for lumbago. The leaves of *Aerva javanica* are used for insanity. The leaves of *Datura innoxia* are used for depression and urine problems. The roots of *Trianthema portulacastrum* are used against jaundice. Medicinal efficacy of some of the plants is restricted to ethnoveterinary purposes as *Cleome viscosa* for more production of milk and as vigorous. People of area did not give clear information about some medicinally important plants as *Tamarix aphylla* and diseases as aids. The 43 summer medicinal flora of district Attock was asserted [5]. The 43 medicinal plants were belonging to 33 families includes: *Acacia nilotica* L., *Achyranthes aspera* L., *Chenopodium album* L. *Morus niger* L., *Cannabis sativus* L., and *Calotropis procera* R.BR. It was reported that local inhabitants rely on medicinal plants due to their low cost and as part of their life and as well as culture. The data on medicinal plants of Baluchistan was compiled [19]. Common medicinal plants of arid area were *Withania somnifera* (L.) Dunal of Solanaceae, *Tribulus terrestris* Linn. and *Peganum harmala* L. of Zygophyllaceae, *Cannabis sativa* L. of Cannabinaceae and *Achyranthes aspera* L. of Amaranthaceae family. The 69 medicinal recipes of plants used by local communities of district Pind Dadan Khan, District Jehlum were visualized [20]. The 31 plant species comprised of 21 families grown in Chitral Gol National Park, District Chitral were reported [21]. The 48 medicinal plants from arid areas of Khushab, Punjab were documented, used for the recovery of 45 different diseases [22].

Table 1: List of medicinal flora and their folk uses in District Attock

No.	Botanical name	Family	English name	Vernacular name	abit	Part used	Traditional folk use
1.	<i>Justicia adhatoda</i> L.	Acanthaceae	Vasaka/ Malabar nut	Bhekar/ Arusa/Bansa	Prostrate herb	WP	Leaves are insecticidal; decoction of leaves is used to cure diabetes, blood purification, fever, cough, asthma and spitting of blood
2.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Prickly chaff plant	Puthkanda	Annual erect spiny herb	L, St, and Sp	Leaves and stem is recommended for kidney stones, skin eruptions, piles and asthma
3.	<i>Aerva javanica</i> (Burm.f.) Juss.	Amaranthaceae	Kapok bush	Bui Booti/Sufaid Bui	Under shrub	L	Used for epilepsy and insanity
4.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Prickly amaranth	Khاردar chulari	Annual spiny herb	WP	Used to treat kidney stones, blood pressure and to treat black cataract on eye.
5.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Amaranth	Chulai	Annual erect herb	L and St	Used for cough, inflammation, high blood pressure and work as urinate.
6.	<i>Altemanthera pungens</i> Kunth	Amaranthaceae	Paper thorns	Kabli kanda/ Kabli bukhra	Prostrate spiny herb	L and Sp	Powder of dry leaves and spines is used for lumbago and eye complaints.
7.	<i>Rhazya stricta</i> Dene	Apocynaceae	Rhazya	Verian	Evergreen shrub	L	The extract of leaves is used for blood purification, diabetes, allergy, as muscle tonic and skin diseases.

8.	<i>Calotropis procera</i> R.BR.	Asclepiadaceae	Swallow wort/ Mudar	Akk	Erect shrub with milky latex	WP	Leaves are used as antidote against snake and scorpio bite by local people of area. Seeds are prescribed for epilepsy by local people. Flowers are effective for asthma and rheumatism.
9.	<i>Carthamus oxycantha</i> M.Bieb	Asteraceae	Wild Safflower	Pohli	A spinose branched herb	L, Sd	Used to treat jaundice, skin diseases, fever, scabies, and abnormal eye sight and used as refrigerant and vigorous.
10.	<i>Cichorium intybus</i> L.	Asteraceae	Chicory	Kasni	An erect small to medium sized herb	L	Used against chronic gastritis and as liver tonic, diuretic, jaundice, dropsy.
11.	<i>Echinops echinatus</i> Roxb	Asteraceae	Camel's thistle	Untkatara	Annual prostrate spiny herb	WP	Paste of root is applied on the belly of pregnant woman at child birth for easy delivery of birth. Plant extract along with milk is used against anorexia, rheumatism, kidney stones, used as caloric and digester.
12.	<i>Brassica alba</i> L.	Brassicaceae	White mustard	Chitti surian	An erect herb	Oil from Sd, L and St	Oil is pain killer, conditioner, cleanser and skin tonic and caloric. Leaves and stem used as vegetable.
13.	<i>Brassica nigra</i> L.	Brassicaceae	black mustard	Kali surian	An erect herb.	Oil from Sd, L and St.	Uses are same as recommended by local inhabitants for <i>Brassica alba</i>
14.	<i>Eruca sativa</i> (L.) Mill.	Brassicaceae	Rocket	Jumian/Taramee ra	An erect herb	Oil from Sd, L, F and St.	Oil is used as hair and skin tonic, effective for blood purification and against intestinal worms.
15.	<i>Opuntia monocantha</i> (Willd.) Haw.	Cactaceae	Prickly pear	Thor/ Nag phani	Spiny shrub with milky latex	F, St, Sd, Milky latex	Latex or ripe fruit is effective for gonorrhoea and syphilis. Milky latex (gum) used for as glue for book binding.
16.	<i>Cassia fistula</i> L.	Caeselpiniaceae	Indian laburnum	Amultas	Deciduous tree	F pulp, L, B	Fruit pulp is effective for asthma, chest pain, inflammation of liver, high fever, jaundice and cough and constipation
17.	<i>Cassia occidentalis</i> L.	Caeselpiniaceae	Negro coffee	Kasundi	Shrubs.	L	Decoction of leaves along with pepper used for cough and dropsy.
18.	<i>Cannabis sativa</i> L.	Cannabinaeeae	Indian hemp	Bhung	Annual herb	WP	WP is laxative and sedative. Ash of WP in combination with date sweetmeat is used for energy and as refrigerant.
19.	<i>Cleome viscosa</i> L.	Capparidaceae	Wild mustard/ Dog mustard	Jangli Gawara	Herb	St, L	St and leaves used as fodder, enhance milk production.
20.	<i>Chenopodium album</i> L.	Chenopodiaceae	Goose foot plant	Bathu	Annual herb.	L, St	Used against tuberculosis, jaundice, fever, glottis pain, blood purification, flue, phlegm, dropsy, inflammation, as urinate and caloric. Also used against kidney and gall bladder stones.
21.	<i>Bryophyllum pinnatum</i> Kurz	Crassulaceae	Air plant	Zukhum-e-Hayat	Herb	L	Fresh leaves are used to remove kidney stones. Leaves along with milk are used to heal up wounds.
22.	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Bind weed/ Deer's foot	Lehli/Vehri	Herb	WP	WP is used as vegetable (saag), effective against skin diseases and used as blood purifier.
23.	<i>Citrullus colocynthis</i> (L.) Schrad	Cucurbitaceae	Bitter apple/ Colocynth	Tumba	Annual creeper	F pulp	Fruit pulp along with almond oil and tragacanth is effective for rheumatism, dropsy, dysentery, paralysis, distortion of mouth, ur-qun-nisa (pain from back to little toes) and diabetes.
24.	<i>Citrullus vulgaris</i> Schard	Cucurbitaceae	Water melon	Rainda/Adwaran /Turbooz	Annual creeper	F	Fruit is effective against liver and gall bladder stones and diseases, as diuretic, refrigerant seasonal fever, inflammation, kidney stones, typhoid fever, and tuberculosis and against iron deficiency.
25.	<i>Cucumis melo</i> L. subsp.agrestis	Cucurbitaceae	Wild watermelon	Chibber	Creeper	F	Fresh fruit is used for itching.

	(Naudin) Pangalo						
26.	<i>Momordica dioica</i> Roxb. ex. Willd	Cucurbitaceae	Small bitter gourd	Jangli karaila	Creepers	F	Fresh juice is recommended for diabetes, Jaundice, Irritation, kidney stones, worms, paralysis and against intestinal worms and gonorrhoea
27.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Snake weed	Dudhi	Annual climbing herb	WP	Milky latex is used to heal up cuts. Diluted latex is used as eye drops against as redness of eyes.
28.	<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	Prostrate spurge	Hazardani	Annual herb	WP	WP extract is effective against piles. Decoction of plant is used to cure ring worms. Paste of plant is used against skin diseases.
29.	<i>Ricinus communis</i> L.	Euphorbiaceae	Castor oil plant	Arand	Perennial shrub	Root, Sd, L and oil	Seeds are cathartic. Decoction of leaves is effectual for asthma and cough.
30.	<i>Cyamopsis tetragonoloba</i> (L.) Taub	Fabaceae	Clustered bean	Gawara	An erect herb	WP	WP is used to cure influenza and itching in animals.
31.	<i>Fumaria parviflora</i> Lam.	Fumariaceae	Fumitory	Shahtra	Annual herb	WP	Plant extract is used to treat liver and stomach problems.
32.	<i>Lallemantia royleana</i> Benth	Lamiaceae	Salvia seeds	Thukm- malanga	Annual Herb	F or Sd	Used to cure following ailments: indigestion, Jaundice, high blood pressure and chest pain, also used as refrigerant in summers.
33.	<i>Mentha longifolia</i> (L.) Huds	Lamiaceae	Horse mint	Pahari poodna	Herb	L	Leaves are diuretic, emetic and help in digestion, mint tea along with lemon juice is effective against other stomach problems: dysentery and colic pain. Also effective for Jaundice and phlegm.
34.	<i>Salvia moorcroftiana</i> Wallich ex Benth	Lamiaceae	Meadow clary	Gaskin	A perennial herb.	WP	A little fried leaves used as dresser and as astringent. Energetic for animal.
35.	<i>Ocimum basilicum</i> L.	Lamiaceae	Holy basil	Niazbo	Scented herb	L	Coffee or decoction of leaves is used as digester and cure inflammation.
36.	<i>Aloe vera</i> L.	Liliaceae	Indian Aloe	Kanwar gandal	Herb	Jelly, Pickle	Used for phlegm, diabetes, rheumatism, lumbago, stomach ulcer and liver disorders. Jelly is used as skin tonic.
37.	<i>Malva parviflora</i> Wall.	Malvaceae	Mallow	Sonchal	Herb	L, St	Used as vegetable, effective for phlegm, constipation and diabetes.
38.	<i>Melia azedarach</i> L.	Meliaceae	Barbados lilac	Daraik	Tree	F, L	Effective for constipation, skin diseases, jaundice and piles, purifies blood and used as pain killer and act as anti allergic.
39.	<i>Tinospora cordifolia</i> (Willd.) Miers.	Menispermaceae	Heart leaved moon seed	Gillo	Climbing shrub	L, St	Decoction of leaves and stem is used to kill worms present on the body of animals.
40.	<i>Acacia modesta</i> Wall.	Mimosaceae	Wood apple	Phulai	Prickly deciduous tree	Gum, B, and Branches	Sweetmeat of gum is effective for lumbago.
41.	<i>Acacia nilotica</i> (L.) Delile.	Mimosaceae	Indian Babul	Kiker	A medium sized prickly tree	Gum, Pods, B, and L	Effective for leucorrhoea, lumbago, kidney pains, diabetes, sexual disorders, phlegm, and tooth powder and as astringent.
42.	<i>Albizia lebeck</i> (L.) Benth.	Mimosaceae	Siris	Shirin	Large deciduous tree.	Sd, B, and L	Seeds, Bark, and Leaves are effective for toothache and inflated gums, piles and diarrhoea
43.	<i>Prosopis cineraria</i> (L.)	Mimosaceae	Druce.	Kikri	Spiny tree	F pods Honey, Branches	Effectively control skin diseases: freckles, boils and pimples. Good for asthma. Branches are used as tooth brush.
44.	<i>Ficus bengalensis</i> L.	Moraceae	Banyan tree	Bohr "Local people called it house of genii"	Large tree	L, B, Root, and Latex	Milky latex along with honey is used before fasting as antidiabetic.

45.	<i>Ficus palmata</i> L.	Moraceae	Wild fig	Khabarha	A deciduous tree	Latex, F	Fruit is used for constipation, fair complexion and asthma, diabetes, as cordial, flatulence, cough, liver diseases and inflammation.
46.	<i>Ficus religiosa</i> L.	Moraceae	Sacred fig	Pipal	Large glabrous tree	F, L	Fruit is laxative, refrigerant, used against asthma and constipation.
47.	<i>Morus alba</i> L.	Moraceae	White Mulberry	Chitta toot	Perennial tree	F	Used for heart diseases and chest pain
48.	<i>Morus nigra</i> L.	Moraceae	Black Mulberry	Kala toot	Tree	F berries	Leaves, Roots, and Fruit used as tonic for cough, throat diseases including inflammation, tonsils, and (shurbat-i-toot saya).
49.	<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	River red gum	Sufaida/Lachi	Ever green tree	L, Oil from L	Oil from leaves is used as nose drop against influenza.
50.	<i>Eucalyptus globulus</i> Labill	Myrtaceae	Tasmanian blue gum	Sufaida/Lachi	A medium sized to tall tree	L, Oil from L	Both the plants have same medicinal importance.
51.	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Jambolan	Jamnoo	tree	F	Used against anorexia, as aphrodisiac, antidiabetic and astringent.
52.	<i>Boerhavia procumbens</i> Banks ex. Roxb.	Nyctaginaceae	Spreading hogweed	It-sit	A prostate spreading herb	WP	Uses are similar to <i>Trianthema portulacastrum</i> L.
53.	<i>Mirabilis Jalapa</i> L.	Nyctaginaceae	Four o'clock plant	Gul Basi	Herb	L, Sd and Flowers	The powder of dry seeds is used to treat irregular menses while powder of dry flowers is effective for piles.
54.	<i>Arachis hypogea</i> L.	Papilionaceae	Peanut	Phali	Annual Cultivated herb	F	The property of oil is somewhat similar to olive oil. Keeps the body warm, commonly used in winter.
55.	<i>Cicer arietinum</i> L.	Papilionaceae	Chick pea	Kalay Cholay/ Chunnay	A small leguminous annual herb	F	Used to treat flu, cough, jaundice, diabetes, as vigorous, tuberculosis, phlegm, piles, kidney and liver diseases.
56.	<i>Dalbergia sissoo</i> Roxb.	Papilionaceae	Sissoo	Tali	A medium sized deciduous tree	L, Fs	Used for blood purification, skin diseases, leprosy, gonorrhoea and syphilis.
57.	<i>Plantago ovata</i> Forsk	Plantaginaceae	Spogel seeds/ Plantain seeds	Ispagol	Thickly stem fewer herbs	F testa	Effective for urine problems, act as refrigerant. Also cures of diarrhoea.
58.	<i>Cynodon dactylon</i> (L.) Pers	Poaceae	Dog grass/ Bahama grass	Khuble ghaas	A perennial grass	WP	Decoction of root is effective against dysentery.
59.	<i>Desmostachya bipinnata</i> (L.) Stapf	Poaceae	Halfa grass/Big cord grass/Salt reed-grass	Dabh ghaas	Perennial grass	R	Ash of roots is used to treat broken bones.
60.	<i>Hordeum vulgare</i> L.	Poaceae	Barley	Joa	An annual cultivated herb	F	Used against fever, dysentery, as refrigerant, bloodpurification, typhoid and heart diseases.
61.	<i>Pennisetum typhoides</i> (Burm.f.) Stapf	Poaceae	Pearl millet	Bajra	Cultivated Herb	St, F	Bread is also effective for pregnant women, urinate, vigorous and caloric.
62.	<i>Sorghum bicolor</i> (L.)	Poaceae	Sorghum	Jawar	Cultivated Herb	F	Poultice of flour is used to treat inflammation.
63.	<i>Triticum aestivum</i> L.	Poaceae	Wheat	Kanak/ Gandum	An annual cultivated herb	F	Used as aphrodisiac, vigorous and against sexual disorders.
64.	<i>Zea mays</i> L.	Poaceae	Corn/Maize	Makai	An annual cultivated herb	F	Bread of its flour is effective for tuberculosis, phlegm and diabetes.
65.	<i>Rumex dentatus</i> L.	Polygonaceae	Wild Spinach	Jangli Palak	Herb	L, St	Used against flatulence.
66.	<i>Ziziphus nummularia</i> (Burm.f.) Wight and Arn.	Rhamnaceae	Wild jujube	Jahri Bair	A spiny tree	F, L	Effective against vomiting and given to women before pregnancy.
67.	<i>Datura innoxia</i> Mill.	Solanaceae	Thorn people	Datura	An annual bushy herb	WP	Plant is intoxicant. Used against phlegm, and used during pregnancy for easy delivery of birth.



68.	<i>Solanum nigrum</i> L.	Solanaceae	Black night shade	Mako/ Kanchmanch	Herb	F, L, and St	Used for diabetes, inflammation, hysteria, smartness and effective against low blood pressure.
69.	<i>Solanum surattense</i> Burm. f	Solanaceae	Wild egg plant	Mokri/Kandiari	Prickly herb	WP	Used against tooth ache, intestinal worms, diabetes, constipation, boils and pimples.
70.	<i>Withania coagulans</i> (Stocks.) Dunal	Solanaceae	Ashwagandha/ Withania	Paneer doda	Shrub	Fs or Sd	Used along with sugar as digester. Efficiently control sugar level in body.
71.	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Winter Cherry	Aksin/Asghand	Perennial erect shrub	L, St and R	Decoction of leaves is suggested for itching, allergy and leprosy.
72.	<i>Tamarix aphylla</i> (L.) Karst	Tamariaceae	Salt cedar	Ghazz	Tree	L	Leaves decoction along with sugar is recommended to heal up internal wounds in animals.
73.	<i>Vitex negundo</i> L.	Verbinaceae	Five- leaved Chaste tree/ Indian Privet	Marvan	Shrub	WP	WP is used to treat eye conjunctivitis in animal. Branches are used as tooth brush.
74.	<i>Fagonia indica</i> Burm.f.	Zygophyllaceae	Fagonia	Dhumian	Perennial or annual spiny herb	WP	Used against chicken pox, anti- canceric, refrigerant, and skin diseases, scabies
75.	<i>Peganum harmala</i> L.	Zygophyllaceae	Syrian tree, Wild rue	Harmal	A perennial much branched bushy herb	L and Sd	Leaves decoction is effective for paralysis, blood purification, distortion, epilepsy, insanity and cough. Smoke of dried leaves is antiseptic.
76.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Small Caltrops	Bukhra	Annual or biannual prostrate spreading herb	F	Effective for kidney stones.

## CONCLUSION

It was reported that conservation of medicinally important plants and traditional folk knowledge is necessary in order to save them from distinction. It can be achieved through proper identification, preservation of plant specimens in herbarium, and by growing them in botanical gardens and national parks. Besides it awareness, training to local people about importance of medicinal plants, by keeping check on grazing, deforestation, etc needs serious attention. This will uplift economic status of district. Further research is needed on medicinal plants to study other diseases which are not reported by local inhabitants and to utilize them in pharmacology, drugs production, phytochemistry, cosmetic industry and other fields of science.

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