

CORRECT IDENTITY OF SOME FOLK MEDICINES OF SOUTH WESTERN MAHARASHTRA

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A B S T R A C T

Sixty nine samples folk medicines produced from local market have been characterized botanically and pharmacognostically. Botanical characterization has been done by actual comparison of authentic samples with that of market samples. The present paper deals with enumeration of these species used in folk medicine and gives correct botanical identity of plant materials, their common names, local names, parts used and botanical diagnostic characters.

INTRODUCTION

Folk medicines exist since the advent of man on the earth. It consists of independent traditional practices of primitive nomadic or tribal communities. Aborigines still living in remote inaccessible forest areas away from modern civilization depend only on folk medicines for their healthcare. These people possess sound knowledge of folk medicine and this will provide an excellent clue for modern drug development programme.

According to WHO, herbal medicines serve the health need of about 80% of the world population. So there is urgent need to document knowledge of folk medicines of different regions with their correct botanical identity.

During the period of development of modern civilisation many quakes polluted the knowledge of medicine in India. However, once again these traditional systems of medicines have become the central theme of healthcare of modern society. Nowadays, there is a great demand for such medicines so there is immediate need to document these folk medicines with their correct botanical identity. With this view in mind present investigation was undertaken on southwestern Maharashtra.

South-Western Maharashtra

South-Western Maharashtra comprises five districts viz., Ratnagiri, Sindhudurg, Satara, Sangli and Kolhapur approximately between the latitude 15°28' and 18°5'N and longitude 73°22' and 75° 40'E. The total area of about 40,157-sq. km. Geographically the entire area can be divided in 3 regions viz., Konkan, Sahyadris and Desh.

Sahyadri range, a part of Western Ghat possesses rich biodiversity and harbours many medicinal plants. The adjoining areas of forest of the region are inhabited by aboriginal and tribal communities notably the Dhangar living in the remote areas of the region. These people use plants for several ailments. Plant parts *viz.*, roots, stems barks, flowers, fruits etc. are sold in local market by these tribal people. Attempts were made to procure these plant parts and information on their medicinal value and same is presented in the present paper.

REVIEW OF PREVIOUS WORK

Folk medicines consist of the independent traditional practices by aborigines or tribal communities. These practices are as older as any other system of medicine. This provides basis for many modern medicines, however there is no critical study on many of the folk medicine, their correct botanical identity and uses.

References to about 67 medicinal plants have been made in "Rigved" (4500 B.C. -1500 B.C.) Followed by Atharvveda (2000 B.C. -1500 B.C.) which recorded 290 plants for their medicinal values. Further contribution to medico-botany has been made by Sai (1927); Nadkarni (1954), Chopra *et al.*, (1956, 1959), Kapoor and Mitra (1979), Kurup, *et al.*, (1979), Satyavati and Gupta (1976-87), Agarwal and Ghosh (1985); Rastogi and Mehrotra (1993), Shivrajan and Indira Balchandran (1994), Warriér, *et al.*, (1996) compiled 500 medicinal plants of south India.

During last two decades, attempts have been made to document knowledge about Indian plants by several workers which have been compiled in forms of books on ethnobotany (Jain 1981; 1991a; 1991 b).

Significant work on medicinal plants of Maharashtra includes that of Agharkar (1953), Vartak (1959), Naik (1998) etc. and ethnobotanical studies include that of Kulkarni and Kumbhojkar (1983), Tiwari and Pandey (1993). Though there are lots of works on medicinal plants and ethnobotany, there is need for research on folk medicines, their correct botanical identity and their unnoticed and neglected uses. Over 600 flowering plant species having some medicinal value have been recorded from south-western Maharashtra.

MATERIALS AND METHODS

In this context, weekly village and town markets were visited since last two years to collect the samples of folk medicines. Information on their local uses, local names, and physical forms given, were recorded by taking interviews of tribal peoples. Over 100 samples of plant material including roots, stems, barks, seeds, fruits and flowers were collected and studied in laboratory. Correct identity of plant parts used in folk medicines were confirmed by comparing morphological and anatomical characters of the plant material with that of authentically identified plant materials. Anatomical character of folk medicines and genuine plant parts were studied by using wood microtome sections. Slides were made permanent by using usual technique (Johnson, 1940) and are deposited in botany department of Shivaji University.

Following is the statistical account of folk medicines collected by authors.

Table - 1: Showing number of plant sample collected from different groups of plants.

Sl. No.	Group	No. of folk medicines collected
A	Angiosperms	66
	1 Dicot	59
	2 Monocot	7
B	Gymnosperms	1
C	Pteridophytes	1

Table - 2 : Showing plant partwise number of species collected during present studies.

Sl. No.	Folk form collected	No. of samples
1	Leaf	10
2	Stem	16
3	Bark	11
4	Root	38
5	Fruits	8
6	Seeds	3
7	Flowers	1
8	Bulbils	1
9	Prickle	1

OBESERVATIONS

Out of 100 plant samples, 69 were identified correctly by comparing with authentically identified plant samples. The account of sample collected, their local names, uses, methods of administrations and botanical characters are depicted in table no. III.

Table 3 : Showing plant species, its local names, uses, parts used, method of administration and diagnostic botanical characters.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
1.	<i>Actinodaphne angustifolia</i> Nees	Malawa	Leaf	Decoction of leaf given in night emission.	Leaves simple, petiolate, thick, coriaceous, entire. aromatic. Stomata para- cytic type, hairs uniseriate 2-3 celled, long, thick walled. Leaf with mucilage cells epidermal cells straight in outline.
2.	<i>Adhatoda zeylanica</i> Medic.	Adulsa	Leaf	Decoction of leaf given in common fever, dried leaves are smoked in asthma.	Leaves simple, thin coriaceous, entire, hairs present on both surfaces, glandular / non glandular, stomata diacytic, epidermal cells wavy in outline.
3.	<i>Aegle marmelos</i> (L.) Corr.	Bel	Stem & Root	It is used as one of the ingredient of Dashmula.	Stem cylindrical, cream / whitish yellow coloured, surface rough fractures granular odour none. Taste less.
4.	<i>Alstonia scholaris</i> R. Br.	Satvin	Bark	Bark is used as wound healing.	Mature bark channeled or quilled, irregularly curved young bark green in color. Fissured irregularly, rough, both are marked by numerous rounded or transversely elongated lenticels, fractures short. Stone cells are numerous of various shape viz.,

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
					from irregular rounded to linear fiber like, blunt at both ends, thickening of the stone cells and girth of the lumen varies.
5.	<i>Argyreia boseana</i> Sant. & Patel	Maral-	Stem mathangi	Stem paste used to cure wounds.	Stem cylindrical with small irregular fissures or wrinkles fracture fibrous in mature stem. Colour grey coloured. Secondary anomalous growth present.
6.	<i>Artocarpus integrifolia</i> L.f.	Phanas	Root	Roots are used to cure mouth ulcer.	Stem cylindrical, orange red, outer papery flanking bark, lenticels scattered irregularly rounded to oblong. Cortex extensively sclerosed containing a ring of stone cells.
7.	<i>Asparagus racemosus</i> var. <i>javanica</i> Baker	Shatavari	Root	Root are used to cure various diseases such as lucorrhoea, menorhagea, generally given with milk to the ladies suffering with lucorrhoea	Adventitious roots arising from single point, fleshy, fibrous, tapering towards both the ends, swollen at the middle. Surface smooth in fresh material, finely longitudinally wrinkled in dry, fracture smooth. Odour none, taste sweetish and latter on bitter.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
8.	<i>Atalantia racemosa</i> Wt. & Arn..	Makad-limbu	Root	Both leaf and stem powder prescribed for the cough and sore throat. Used in blood as blood purifier and in fever. One tea-spoon of stem powder with one glass of water after 6 hours in fever.	Root cylindrical, gray to lemon coloured. Bark thick, without wrinkles and fractures short. Taste biting, Odour like that of typical Rutaceae members.
9.	<i>Bridelia retusa</i> Spreng.	Asan	Bark	The bark is used as cardial exhilarent. Doses recommended as one teaspoon three times in a day a blood purifier.	Bark thick, white colored, internally reddish colored, without wrinkles or fissures; lenticels not common, scattered irregularly, rounded to oblong. Fractures fibrous taste astringent, odour none.
10.	<i>Butea frondosa</i> Koenig	Palas	Seed & Root	Seeds are used as aphrodisiacs. Root used in wound healing.	Root cylindrical, rough, fissures and wrinkles irregular. Outer covering of bark smooth, papery silvery in color; fractures fibrous. Inner bark dark brown or black in color with transverse cut. Presence of gum.
11.	<i>Calotropis gigantea</i> (L.) Br.	Rui	Stem	Stem used in all types of skin diseases and also used as wound healing.	Stem cylindrical, white waxy in young condition. Mature stem gray colored, bark thin, shallowly wrinkled and fissured; transverse fissures; fracture short. Odour none, tasteless

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
12.	<i>Caryota urens</i> L.	Bherli-Mad, Ardhi-supari	Seeds	Seeds are used, application to the head in cases of hemicrania. The seed is rubbed on copper coin and applied to fore head.	Seeds brownish black 1.5-2 cm broad, 1.5-2 cm long, planoconvex longitudinally striated.
13.	<i>Cassia fistula</i> L.	Bahava	Fruit	Used in piles and as purgative.	Fruit pendulous, cylindrical, nearly straight, 60-80 cm long and 10-15 cm broad. Color dark brown or black, smooth, shining, hard, indehiscent, finely transversely striated, pointed at distal end. Taste sweetish, characteristic odour.
14.	<i>Cassine paniculata</i> (Wt. & Arn.) L. Callen	Ragatwad	Bark	Bark used in joint pains.	Bark thick, incurved, without wrinkles and fissures, green colored in dried specimens also. Fractures short; taste slightly bitter. Odour none. Bark when placed in water the colour of water changes to red.
15.	<i>Catunaregam spinosa</i> (Thub.) Tirveng.	Gela	Root & Fruit	Fruit used to remove black marks remained due to the pimples, also used as a purgative. Root are used for similar purposes.	Root cylindrical, surface smooth, pink coloured, without wrinkles and fissures. Fracture short. Taste none, Odour none. Fruit like a guava, green when young, brown when ripe, globose or broadly ovoid, longitudinally ribbed,

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
					crowned with large calyx limb, 2 celled, softly hairy, pericarp thick. Seeds many flat, imbedded in pulp. Taste.
16.	<i>Ceiba pentandra</i> (L.) Gaertn.	Pandh-risavar	Bark	Bark is used to cure luecorrohea, powder of bark given twice a day to the women's suffering from white discharges	Bark thick, green and smooth, fractures fibrous.
17.	<i>Celastrus paniculatus</i> Willd.	Mal-kanguni	Stem & Root	Stem and root used to relieve the muscular pain. and also used as antirheumatic	Root cylindrical, external surface dark yellow, coloured smooth; fracture short, internally reddish pink coloured; wood pink coloured. Taste astringent, Odour none.
18.	<i>Cinnamomum nitidum</i> (Roxb.) Hook.	Mawa-run-g	Root	Root powder applied in headache and also used as wound healing. Powdered root given in fever.	Root cylindrical, surface smooth, bark thick brown to dark red colored, presence of oil gland, Odour like Vicks vaporub, taste similar as that of vicks vaporub after some times it becomes slimy in mouth.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
19.	<i>Cissus elongata</i> Roxb.	Girnul	Stem	Used in wound healing, and in various skin diseases.	Stem cylindrical with irregular deep fissures, fractures fibrous in mature stem, outer surface rough yellowish green colored, taste none, dour none, clusters of raphides common in parenchyma tissue.
20.	<i>Cocculus hirsutus</i> (L.) Diels	Sapsan	Root	Root decoction is given with butter milk used to cure stomach complaint such as gas trouble and dysentery.	Root cylindrical, brown colored, wrinkled and fissured irregularly, fissures deep; fractures short taste first sweet and later on bitter.
21.	<i>Costus speciosus</i> (J. Koenig) Smith	Kosht	Root	Rhizomes are used in gas trouble, to remove the black marks on face	Rhizomes are tuberous, cylindrical, reaching up to 45-60cm long and 3-6 cm in diameter branched, thickly covered by brown coloured simple 2-3 celled hairs, Odour none.
22.	<i>Crateva adansonii</i> DC.	Wai-verna	Bark	Bark is used as carminative. The bark powder is taken orally in morning.	Bark greenish white, thick buff coloured inside, pieces incurved, lenticels scattered irregularly, taste bitter.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
23.	<i>Cryptolepis buchanani</i> R. & S.	Kawali	Stem	Stem used to cure the wounds, externally pate prepared from stem applied on cut wounds	Stem cylindrical, shallowly wrinkled, outer bark flaking off, thin papery, stem reddish in color, lenticels irregularly scattered, large oblong. Wood white coloured. Bark followed by ring of latex containing cells. Odour none, taste bitter.
24.	<i>Dioscorea bulbifera</i> L.	Dukkar-kand	Bulbil	Bulbils are used for external application on piles with mixture of root of <i>Salacia</i> spp. and <i>Gnetum scandense</i> .	Bulbils axillary brown, 4 × 3 cm oval with many lenticels and pointed attachment, white inside mucilagenous.
25.	<i>Diploclisia glaucescens</i> (Bl.) Diels	Var-dhara Chakrumbi, Vatoli, Saptkapi.	Stem	Stem combination with the <i>Gnetum scandens</i> given in piles and used as antidibetic.	Stem cylindrical, gray coloured, surface smooth, Odour none taste none, bark thin secondary anomalous growth shows successive bundles of xylem and phloem in rings repeating the structure of young stem.
26.	<i>Embelia ribes</i> Burm.f.	Vav-ding	Seeds	Seeds are used to expel worms from the stomach.	Fruit spherical globular, black coloured, size varies from 4-5 mm, fruits warty, persistent calyx, pericarp encloses the seeds.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
27.	<i>Embelia tsjeriam-cottam</i> A. DC.	Vav-ding	Seeds & Root	Seeds are used to remove the stomach worm from children, Root is given to reduce heat from the body.	Fruit spherical globular, colour varies from brown to black size 4-6 × 4-6 mm, fruits finely striated longitudinally, pedicels short, calyx persistent, 5-partite; pericarp encloses seeds brittle.
28.	<i>Entada scandens</i> Benth.	Garamb-i	Stem & Seeds	Seeds are used in scorpion sting, and used in stomach complaints. Stem used for wound healing.	Stem cylindrical, bark dull green to gray coloured, thick rough with cracks, fractures smooth, short, lenticels irregularly distributed, odour none taste bitter. Largest vessels with alternate intervacular pitting; seeds ovoid orbicular compressed black shining, pericarp hard. Osteosclerides present.
29.	<i>Eulophia nuda</i> Lindl.	Amar-kand	Tuber	Tubers are reported to be highly nutritious proteinaceous. Tubers are mixed with milk and given orally to relieve backache.	Tubers spherical oblong, tapering at both ends. Color pale yellow to green, surface smooth with transverse ridges and many thick roots arising from tuber.
30.	<i>Eulophia ochreata</i> Lindl.	Amar-kand	Tuber	Uses same as <i>E. nuda</i> .	Tubers pale yellow to green coloured, shape conical tapering at

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
					one end and broad towards base. Taste bitter, odour none.
31.	<i>Ficus exasperata</i> Vahl	Kharvat	Bark	Bark is used as antidote to scorpion sting, also used as wound healing.	Bark thick, yellow, incurved, lenticels irregularly scattered, fractures granular, without wrinkles and fissures. Laticiferous.
32.	<i>Ficus hispida</i> L.	Kalaumber, Bokida	Root	Root used as wound healing, used for external application.	Stem cylindrical, dark brown to reddish black colored, outer bark flaking off in thin papery sheets, lenticels irregularly scattered, wrinkles shallow, fractures short, tasteless, odour none.
33.	<i>Gmelina arborea</i> Roxb.	Shiwan	Root	Root is used as one of the ingredient in dashmula.	Root cylindrical, brown, wrinkles deep longitudinal irregular, bark rough thick, rough, thick. Taste slightly bitter, odour none. Fractures short.
34.	<i>Gnetum scandens</i> Roxb.	Umbal-vel	Stem	Stem is used on hemicrania and also recommended in pilcs.	Stem cylindrical, black shallowly wrinkled, lenticels scattered irregularly, fractures fibrous. Stem showing secondary anomalous growth. Taste bitter, odour none.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
35.	<i>Gymnema sylvestre</i> R. Br.	Bedki	Leaf	Leaf powder recommended in diabetic patient three times in a day.	Leaves ovate elliptic pubescent along nerves, hairs simple multicellular, uniseriate, epidermis with straight walls, stomata present on both surfaces, paracytic. Leaves when chewed makes sensory bud numb.
36.	<i>Helicteres isora</i> L.	Murud sheng	Fruit	Fruits are used to remove stomach complaints in small children's.	Fruit follicle, 4-6 cm long, linear twisted together, stellate tomentose, seeds many, black, angular.
37.	<i>Hemidesmus indicus</i> R. Br.	Uprsari	Root	Root are recommended in leucoderma, all types of skin diseases.	Root tortuous, externally dark brown. Bark thin corky, marked with transverse cracks, easily detachable from the central core.
38.	<i>Holarrhena antidysenterica</i> Wall.	Kuda Anantmul	Root & Bark	Root and bark used in amoebic dysentery, and other stomach complaints.	Bark whitish brown, thick, paler outside longitudinally recurved, with transverse lenticel and fine longitudinal wrinkles fracture brittle short, Odour none, taste bitter. Mature bark shows continuous bands of stone cells and solitary prisms of calcium oxalate.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
39.	<i>Jasminum malabaricum</i> Wt.	Padmul	Root	Roots are used in menorrhoea	Root cylindrical whitish brown coloured, bark thick, wrinkles not deep, irregular fractures short. Odour characteristic, taste none, bark with a bunches of sclerides, oblong, yellow.
40.	<i>Leea setuligera</i> Clarke	Dinda	Root	Root tubers are recommended in all types of skin diseases such as elephantiasis.	Roots tuberous, oblong sometimes compressed, reddish brown coloured bark thin papery, and parenchyma containing starch and raphides.
41.	<i>Lepisanthes teraphyllus</i> (Vahl) Radlk.	Ambakharof	Leaf	Ash of leaves mixed with castor oil used on various skin diseases.	Leaves opposite or subopposite, petiolate, oblong-lanceolate, obtuse, acute or emarginate, entire, glabrous, coriaceous. Reticulately veined.
42.	<i>Litsea deccanensis</i> Gamble	Had-sandhi	Stem	Stem used in bone fracture.	Stem cylindrical, wrinkled striated; fractures short, lenticels few scattered irregularly. Taste aromatic becomes slimy in mouth.
43.	<i>Mimusops elengi</i> L.	Bakul	Bark	In old fever the decoction of bark given also used to strengthen the teeth, and in wound healing.	Bark thick, greenish black, internally dark red; fractures fibrous.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
44.	<i>Momordica dioica</i> L.	Kartoli, Rankarle	Root	Tubers are recommended as anti diabetic.	Root tuberous, surface rough, whitish yellows, lenticels large prominent, rounded, odour characteristic, taste bitter.
45.	<i>Moullava spicata</i> (Dalz.) Nicol.	Waghatai, Wakeriche, Bhate	Stem	Stem powder given with in premature ejaculation / in night emissions.	Stem cylindrical, reddish coloured, surface smooth, without transverse fissures, lenticels small, irregularly scattered, fractures short, inner wood pinkish yellow coloured. Taste slightly bitter, odour none.
46.	<i>Oroxylum indicum</i> Vent.	Tetu	Root	Root is used as one of the ingredient of dashmula.	Roots cylindrical, deeply wrinkled, brown coloured wrinkles longitudinal. Fracture fibrous, lenticels transversely scattered.
47.	<i>Pittosporum dasycaulon</i> Miq.	Vikari	Bark	Bark is used in various skin diseases.	Old bark brown coloured, pieces curved inside or channeled, lenticels scattered irregularly, transversely arranged fracture short, odour aromatic taste bitter.
48.	<i>Plumbago zeylanica</i> L.	Chitrak	Root	Used in menstrual problems in small quantity in women's. Poisonous in large quantity.	Roots are uniformly cylindrical, with shallow irregular fissures, lenticels scattered irregularly,

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
					and fracture short, dried roots black coloured with central wood yellow. Taste biting.
49.	<i>Pongamia glabra</i> Vent.	Karanj	Bark	Bark is used in all types of skin diseases.	Bark dark brown coloured incurved, taste bitter fractures smooth, lenticels numerous, irregularly scattered.
50.	<i>Pueraria tuberosa</i> DC.	Vidari-kand, Buhikohala	Tuber	Tuber is used as tonic in menorrhagea, general debility and in epilepsy to tubers are eaten with that of milk.	Root tuberous forming a long chain of tubers. Largest tuber reaches up to 30-60cm long and 15-30cm broad, oblong to rounded in shape, brown coloured. Starch absent.
51.	<i>Remusatia vivipara</i> Schott	Rukhal	Tuber	Combination of tuber with that of bark of <i>Pittosporum dacycaulon</i> used in piles as a external application.	Tuber round to oval, with leaves crowned at top, brown, starchy.
52.	<i>Salacia macrosperma</i> Wt.	Sapt-rangi	Root	Root is used as blood purifier, used as	Roots cylindrical, outer bark thin papery golden yellow coloured. In

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
				antidiabetic, and in kidney stone.	young root the lenticels longitudinal, scattered irregularly. Root shows secondary anomalous growth in which xylem is followed by phloem forming a alternate rings.
53.	<i>Salvadora persica</i> L.	Pilu	Root	Roots are used as a tooth-brush.	Roots long cylindrical, surface smooth bark thin yellow coloured, surface smooth without fissures and wrinkles. Transverse cracks present, characteristic odour in fresh condition.
54.	<i>Sida acuta</i> Burm.f.	Maha-bala	Leaf	Used in wound healing and in bone fracture applied externally.	Leaves petiolate, long lanceolate, with rounded base, sharply serrate, glabrous at both sides.
55.	<i>Sida rhombifolia</i> L. subsp. <i>rhombifolia</i>	Bala	Leaf	Used in wound healing and in bone fracture applied externally.	Leaves simple, petiolate, rhomboid in shape, obovate, or truncate, sometimes retuse, cuneate at base, often coarsely toothed at the top, dark green and glabrous above, tomentose beneath.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
56.	<i>Stereospermum chelonoides</i> DC.	Patla	Root	Root is used as one of the ingredient of dashmula.	Root cylindrical green, shallowly wrinkled; fractures short, taste slightly bitter, odour none.
57.	<i>Syzygium cumini</i> (L.) Skeels	Jamb-hool mul	Root	Roots are used as antidiabetic and internally given in kidney stone.	Root pink colored, cylindrical, without wrinkles and fissures fracture smooth, full of starch present, taste sweet.
58.	<i>Tectaria cicutaria</i> L.	Kom-badn-akhi	Rhizome	Rhizome powder rubbed on the teeth to stop pain in teeth, used in earache.	Shape irregular, dark brown coloured internally yellowish green, surface completely covered by dark brown or black coloured leaf bases, fracture short taste astringent, later on bitter, odour noxious in powdered material.
59.	<i>Terminalia arjuna</i> Wt.	Arjun	Bark	Bark is used as wound healing and in bone fracture given orally and also used as bandage.	Bark pale pink to white in color, surface smooth, taste astringent, flat, fracture short, presence of calcium carbonate crystals.
60	<i>Terminalia bellerica</i> Roxb.	Behada	Fruit	Fruit is used as a one of the ingredient of triphalachurhna.	Fruit drupe, globular, gray, suddenly narrowed into a very short stalk. Fruit clothed with

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
					minute tomentum, obscurely angled when dry.
61.	<i>Terminalia chebula</i> Retz.	Herda	Fruit	Fruit is used as a one of the ingredient of triphalachurna.	Fruits yellowish brown, ovoid, wrinkled longitudinally; 5-6 ribbed, hard and stony; seeds light yellow, surface rough, odourless, taste astringent and bitter.
62.	<i>Terminalia crenulata</i> Roth	Ain	Bark	Bark is used in bone fracture.	Bark rough, brown coloured, curved, without wrinkles and fissures fracture smooth; taste astringent, presence of calcium carbonate crystals less than that of <i>Terminalia arjuna</i> .
63.	<i>Tinospora cordifolia</i> (Willd.) Miers.	Gulvel	Stem	The stem used in jaundice, small pieces of stem are tied around the neck of women after delivery, also in jaundice and to reduce heat from the body.	Stem elongated, cylindrical, glabrous, soft wooded, outer covering thin papery, gray coloured. Stem striated, circular lenticels irregularly scattered, fracture fibrous, taste bitter, odour none, bark flaking off, corky.
64.	<i>Trichosanthes tricuspidata</i> Lour.	Kaundal	Stem	Stem is used in backache paste	Stem grey coloured, deeply grooved, surface covered with small lenticels,

Sr. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
				prepared from stem applied on affected area	scattered irregularly or in vertical lines, fracture short, secondary anomalous bundles united at the center completely obliterating the pith and giving stellate appearance to the xylem with phloem at the ends of the radii.
65.	<i>Viscum angulatum</i> Heyne ex DC.	Bandhla	Entire plant	Stem is used in rheumatism as external application. Also used in bone fracture.	Plant leafless, main stem terete, young branch four angled, jointed.
66.	<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	Root	Roots are recommended in general weakness with the milk.	Stem tuberous, cylindrical, grey coloured longitudinal fissures and wrinkles present in dried specimens. Stem with full of starch, vascular bundles irregularly scattered.
67.	<i>Woodfordia fruticosa</i> (L.) Kurz	Dhayati	Root, leaf, flower	Leaf powder applied internally to the buffaloes when they are not eating the	Flower powder red, bulbous based glandular hairs, hairs simple unicellular, small, seeds many cuneate obovoid brown smooth.

Sl. No.	Botanical name	Local name	Parts used	Methods of administration	Botanical characters
				food. Flower powder recommended in emmanagogues to reduce the bleeding.	Root cylindrical surface smooth bark thick pinkish coloured, fracture short, wood hard, taste none odour none.
68.	<i>Wrightia tinctoria</i> R. Br.	Kala-Kuda	Bark	Bark is given for the same purpose as that of <i>Holarrhena antidysenterica</i>	Bark thin recurved or channeled gray colored lenticels transversely arranged and irregularly scattered, fracture smooth, short Odour none taste bitter. Stone cells striated.
69.	<i>Zanthoxylum rhetsa</i> (Roxb.) DC.	Chirphal	Prickl-e/ Thorn	Prickle is used to stop blood from the cut wounds.	Prickle sharp, pointed. conical solid based yellow colored, horizontally striated, mature prickle without sharp points.

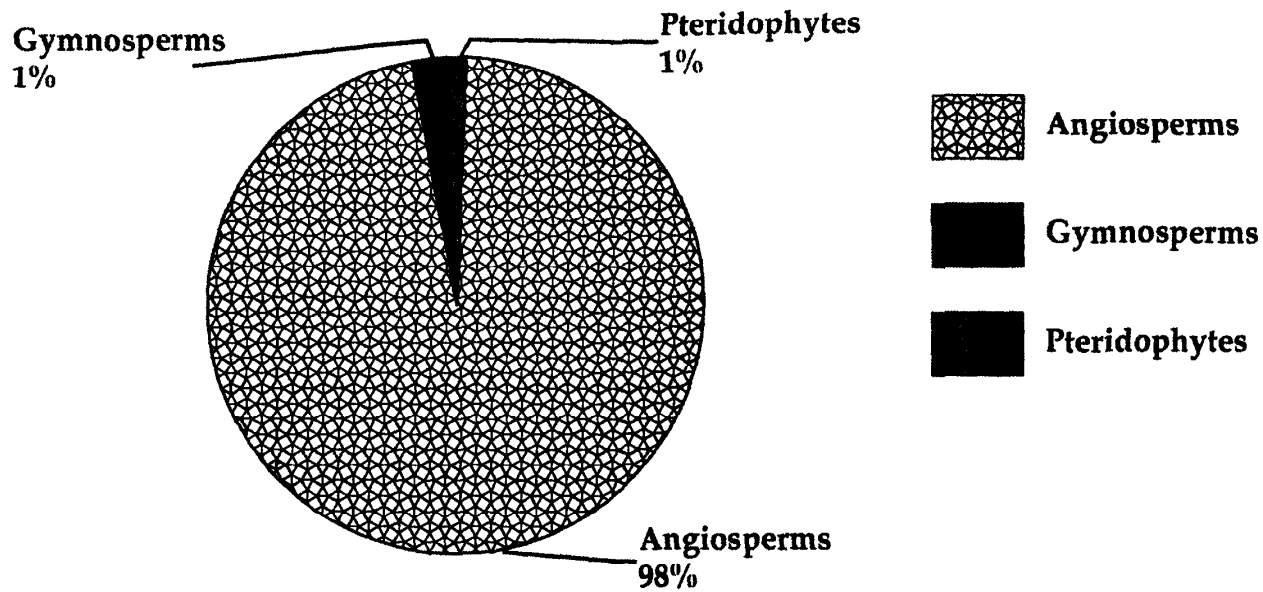


Fig. 1 : Showing Percentage of plant groups used in folk medicines

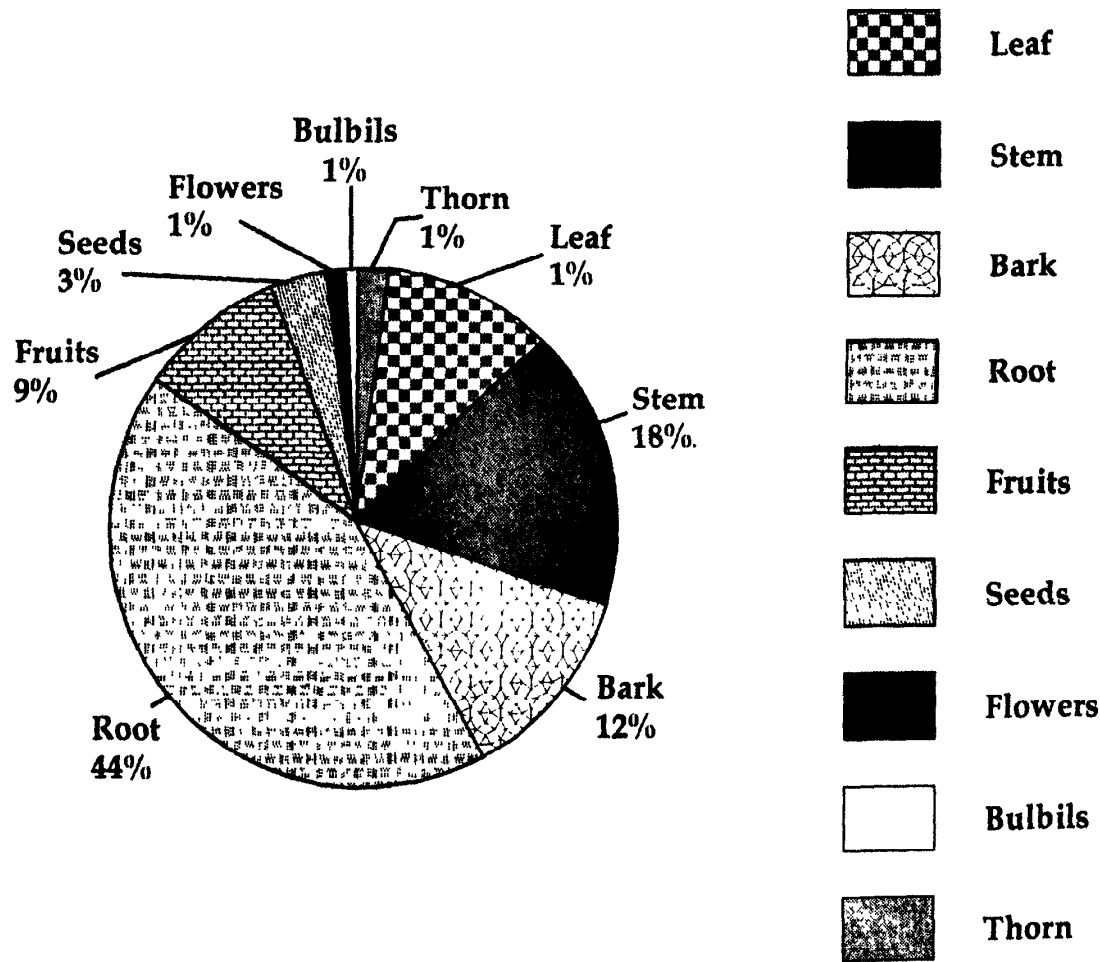


Fig. 2 : Showing Percentage of plant part collected and identified during present studies

DISCUSSION

In present investigation over 100 samples of folk medicines were collected, out of which 69 samples have been identified correctly on the basis of external characters, odour, taste etc. Tuber shape of *Eulophia nuda* Lindl. varies from spherical, oblong, tapering at both ends, surface smooth with many thick roots arising from tubers. While tuber of *Eulophia ochreatea* Lindl. are conical in shape tapering towards the growing end and broad towards basal end with longitudinal wrinkles in semidried specimens. Both are used for backache and considered to be nutritious.

Seeds of *Embelia tsjeriam-cottam* and *Embelia ribes* were distinctly characterized by presence of longitudinal striations on fruit of *E. tsjeriam-cottam* and that of *E. ribes* with warty surface.

The drug sold in market under the name of "Saptarangi" is roots of different species of *Salacia* such as *S. chinensis* L., *S. macrosperma* L., *S. brunoniana*. However, in many books of medicinal plants the botanical name of the 'Saptarangi' given as *Casearia esculenta* (Gogate, 1974; Naik, 1998). In present investigation it has been revealed that *Salacia* is correct name of the 'Saptarangi'. Roots of *Salacia* spp. can be distinguished from that of *Casearia esculenta* by its golden yellow bark and secondary anomalous growth where xylem is alternating with phloem and forming a concentric rings.

In local market, the stem of *Diploclisia glaucescens* is sold under the name of Saptkapi and Vardhara, however the common name for the Vardhara is given for *Rourea santaloides* (Cook, 1903) and also for *Argyrea speciosa* (Gogate, 1974). The stem of *Diploclisia glaucescens* can be identified by secondary anomalous growth in which successive bundles of xylem and phloem repeating the structure of young stem and the bundles separated by tangential bands of parenchyma and large fascicular rays.

Some of the uses of different parts and plant species are not recorded in any literature. For example roots of *Celastrus paniculatus* to relieve the muscular pain and also used in rheumatism, roots of *Cinnamomum nitidum* applied in headache, in wound healing, and in fever, roots of *Butea monosperma* used for wound healing. Stem of *Diploclisia glaucescens* as antidibetic, stem of *Trichosanthes tricuspidata* used to relieve backache, stem of *Argyreia boseana* for woundhealing. Leaf of *Actinodaphne angustifolia* used in night emissions, prickle of *Zanthoxylum rhetsa* used to stop immediate blood from the wounds. Rhizome of *Costus speciosus* applied to remove black marks or pigmentation on skin due to fungal infection.

CONCLUSIONS

© Southwestern Maharashtra is fairly rich in medicinal plant, as over 600 plants species of some medicinal value are known.

- ⊙ About 100 plant species are used as folk medicines in southwestern Maharashtra.
- ⊙ In this age of vanishing tribal communities and modernisation of civilisation it seems very important to collect and document knowledge of folk medicines this will provide an excellent clue as of new drug molecules.
- ⊙ Over and unrestricted exploitation of folk medicines has resulted in rarity of many medicinal plants e.g. *Salacia brunoniana*, *S. chinensis*, *S. macrocarpa*, *Embelia ribes*, *Embelia tsjeriam-cottam*, *Pittosporum dasycaulon*, *Cinnamomum nitidum* etc.
- ⊙ In addition to documentation there, is needed to establish a proper communication channel among the tribal people, traditional healers, health professionals, researchers to formulate and develop utilization of these folk medicines in primary health care.

There is needed to develop cultivation practices of medicinal plants that are used as folk medicines for continuous and assured supply of authentic medicinal plants.

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