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Some ethnomedicinal plant species of Satpuda forest region of east Khandesh Jalgaon district, Maharashtra.

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ABSTRACT

The work deals with 27 medicinal plant species used traditionally by *Pawara* and *Barela* tribes of Jalgaon district of Maharashtra for the treatment of various ailments. Some medicinal plants with unexplored ethnomedicinal uses of plants have been reported.

Key Words: Ethnomedicine, Pawara, Barela, Jalgaon, Satpuda

INTRODUCTION

Forests are the sources of invaluable medicinal plant wealth since time immemorial. Tribal men's realize the preventive and curative properties of plants and started healthcare system. India's traditional systems of medicine are the part of cultures that attracted the attention of peoples today. Medicinal plants in meetings family's primary healthcare and nutritional needs are traditional which is found popular in all cultures (Anonymous 1994; Ayensu ES 1981). These medicinal plants provide alternative green health and number of ecofriendly domestic and industrial usage (Billore KV; Joseph and Dave 1998; Bodding 1925; Rajasab 2004). These remedies based on herbal medicines often have negligible side effects and due to relatively unaffordable cost of synthetic drugs, traditional medicines now become an affordable choice for the poor people in these areas. Although considerable work has been done on floristic and ethnobotany of various regions and tribes of Maharashtra state (Tewary 1980; Borins 1976; Duke 1996; WHO 2002; Khare 2004; Bagul and Yadav and Garud 2006; Bagul and Yadav 2003a & b 2007; Prakash et al.2008; Semwal et al. 2010; Rajith et al. 2012; Bagul and Patil 2011; Bagul 2011, 2013).

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Pawara and Barela are the tribes predominantly located in the east west Khandesh of Maharashtra. Burhanpur district of Madhya Pradesh, Belgaum district of Karnataka, and Surat district of Gujarat make the boundaries. River Tapti, Girna and Purna flows along with the middle of the district covers major forest area in which Pawara & Barela primarily depends upon medicinal plants of their surrounding area for the treatment of their ailments. Living in the forest these tribal communities acquired knowledge about these wild flora and fauna. After years of practice, observations and analysis by trial and error methods the innovative members of these communities have selected useful and harmful members of the surrounding forest vegetation. The study aims to prepare an inventory of medicinal plants species used by these tribal peoples to cure various diseases.

STUDY AREA (Fig. 1)

a) Topography

The study covers the areas of Satpuda region "Jalgaon district situated between 20°-17' and 21°-26' North latitude and 74°-47' and 76°-28' East longitude.

Satpuda mountain ranges from the northern boundary Ajanta and Satmala ranges from roughly the southern boundary. Northern is border of Madhya

Pradesh, whereas it shares the border areas in eastern Buldhana, Southern Aurangabad and Nasik and Western Dhulia district. The forest area to the north of Tapi River which covers the entire Satpuda of east Khandesh runs east west towards west Khandesh of Dhule and Nandurbar district.

b) Configuration of the ground

The area falls in the Deccan plateau. The area is variable in topographical features and in landscape. Three regions of the Jalgaon district on basis of topography can be distinguished, namely -1. The rich Tapi valley in the centre, 2. The high mountainous range of Satpuda on north and 3. Barren ridges of Satmala and Ajanta ranges on the south.

Study is mainly confined to the first two regions only and more specific to Satpuda mountainous ranges. The Satpuda form a broad belt of mountain ranges on the north of Tapi river. The Central crust is about 610 meters high. The highest peak 'Panch Pandu' in Yawal Taluka is 1072 mtrs.

c) Geology & Soil

The entire area is of Deccan traps except a few strips of alluvial along river tributaries touches the foot hills of Satpuda. The Deccan traps are the result of out pouring of enormous lava flows which spread over vast areas of western, central and southern India in continuation at the end of Mesozoic era. There are long narrow fissures and craks in the north east and spread almost horizontal shoots. These are called plateau basalt. The lavas are generally horizontal in deposition but at places they dip at some places. In Aner valley and near Dalvot north of Chopda they appear to be horizontal but they dip at some areas stretching upto Raver. The traps are mostly compact and harder. in color. These traps are mostly dark grey to brownish. The amyodadoidal variety is greenish to purple and softer in the slops of the valleys. Also, secondary minerals like quartz, chalcedony arato, Jaspor, rock crystals, xoolitos and calitos are found. The most of hilly regions near Tapi valley are of basalt.

The soil is produced by erosion and weathering are deep brown to red or black (regur). Alluvial soil is found around the river tapi. The black soil is rich in plant nutrients and good for cotton cultivation. Latorite soil is reddish brown, porous, found in patches hilly regions.

d) Climate

The climate of the area is generally dry except in monsoon. The rainy season starts in the month of June and there are post monsoons at the end of Oct. and winter begins from December and ends with February. Summer is very hot and begins from March and ends in May. The hottest month is usually May.

e) Rainfall

Jalgaon District receives an average rainfall of about 750 mm. In which Yawal-731.70, Jalgaon-725.10, Chopda- 718.70, Raver-708.20, Muktainagar -664.10 mm which falls in the areas of Satpuda forest ranges.

f) Temperature

December and January are the coldest months of the year with the mean daily minimum temperature 8.2°C and the mean daily maximum at 24°C. Cold waves from northern India may also affect the temperature of the area and it may dip up to 2°C. Temperature rises gradually from the month of March and in the month of May it is highest. The mean daily maximum temperature recorded in summer is about 40°C and the highest recorded in Jalgaon up to 46°C. The lowest mean daily minimum is up to 38°C.

Forests

The forest types of Satpuda ranges are generally 'Tropical dry deciduous as classified by Champion and Seth (1968). Considerable variation in the composition of forests are noted from east to west of Satpuda ranges. This may be due to the nature of soil, topography, and climatic factors. The western and northern slopes or valleys are rich in the flora. Soil plays the important role in the constituents of floral composition. The alluvial soil provides good growth to the tree species. Entire area is under much biotic interference which affects the growth as well as the composition of forests also. The forests types are mainly of 4 types:

1] Dry Teak Forests

These are confined to the plain areas and down foot hills of Satpuda ranges in Chopda and Yawal talukas. The main association of *Tectona grandis* is *Boswellia serrata, Acacia chundra, Anogeissu latifolia, Hardwickia binnata, Emblica officinalis, Garuga pinnata, Diospyros melanoxylon, Lagerstromia parviflora, Terminalia crenulata, Bombax cieba, Sterculia urens, Buchanania cochinchinensis, Butea monosperma, Dolichandrone falcata, Ziziphus mauritiana*. The shrubby species are *Cassia auriculata, Carissa congesta, Lantana camera*, the

grasses are *Heteropogon contortus, Cymbopogon martinii, Apluda triandra, Themeda quadrivalvis*.

Stratification point of view on hilly region the general floristic composition is *Tectona grandis* as the most dominant species associated with *Terminalia crenulata, Boswellia serrata, Pterocarpus marsupium, Grewia tiliifolia, Ougeinia oogenensis, Lagerstroma parviflora, Mitragyna parvifolia, Bombax cieba, Diospyros melanoxylon, Schleichera oleosa, Madhuca longifolia, Dalbergia paniculata, Soymida febrifuga, Ficus racemosa, Sterculia urens, Erythrina indica, Terminali arjuna, Terminalia bellirica, Emblica officinalis* at the ground story. Thesecond story consists of *Acacia chundra, Buchanania cochinchinensis, Lannea coromandelica, Ziziphus mauritiana, Bridelia retusa, Butea monosperma, Cassia fistula, Bambusa arundinacea*, shrubby species are *Helecteris isora, Cassia auriculata, Vitex negundo in nallahs, Capparis sepiaria* etc.

2] Southern dry mixed deciduous forests

This type of forest is confined to the areas around Tapi and Aner valleys of Chopda taluka and Raver and Yawal Talukas. The tract is hilly and slopy. The vegetation is of poor quality. The area is under much grazing stress and biotic interference.

The composition of flora is mainly *Anogeissus latifolia, Acacia chundra, Beswellia serrata, Tectona grandis, Hardwickia binnata, Lannea coromandelica, Azadirachta indica, Dalbergia paniculata, Strychnos portatum, Butea monosperma, Ziziphus mauritiana*, the shrubby species are *Vitex negundo, Carissa congesta, Capparis sepiaria,* Herbaceous species are *Cassia tora, Heteropogon contortus, Aristida ciliata, Lapidagathis trinervosa*.

3] Scrub Forests

Scrubby forests are common all along the Tapi river in Aner, Yawal and Chopda area. Heavy grazing and illicit cutting of trees are common factors of deterioration of forest.

The general floristic composition is *Acacia chundra, Boswellia serrata, Anogeissus latifolia, Lannea coromandelica, Ziziphus manritiana, Dolichondrone falcata, Hardwickia binnata, Albizzia amara.*

4] Anjan Forests

These types of forests are confined to Mohomandali range, Pal range, Haripura range and also in some patches of Chopda and Yawal ranges.

The composition of Anjan forest is mainly dominated by *Hardwickia binnata*, and other associated species are *Anogeissus latifolia, Albizzia amara, Boswellia serrata, Acacia chundra, Bridelia reticulata, Diospyros melanoxylon, Strychnos pertatum, Buchanania cochinchinensis, Butea monosperma, Terminalia crenulata, Terminalia bellirica, Dalbergia paniculata, D. latifolia, Balanites aegyptiaca, Acacia leucophloea, Nyctanthes arbortristis, Vitex negundo*.

Wild life

In past the area was considered to be rich in Wild life. But due to heavy pouching practices and quick transport facilities the wild life is reduced to meager in recent times.

The main animals recorded by forest department in last 5 years are : Pantherwagh- *Panthera tigria*, Bibla - *Panthera pardus*, Wild cat - *Felia chaus*, Jackal - *Canis aurous*, Hyaena (Taras) – *Hyaena hysena*, Barking deer (Baker) - *Muntiacus muntijak*, Sambar-*Corvus unicolor*, Blue bull (Nilgai) - *Boselaphus tragocamelue*, common here (Sasa) - *Lopus nigricollia*.

The birds found in the area are: painted partridge, grey partridge, Jungal bush quail, Grey jungle fowl, Grey pheasant, vulture, shrike, sparrow hawk, Indian search.

METHODOLOGY

Extensive and intensive ethnobotanical surveys were conducted in different tribal region localities of Jalgaon district **from June 2006- July 2009**. The interview method was adopted for gathering knowledge of tribal's, Local medicinemens (Bhagats, Witch doctors, and maharaj) and mouth to mouth discussion about therapeutic uses of local plants in the treatment of various diseases were noted carefully. A simple questionnaire was prepared to gather data regarding the medicinal information purpose. Voucher specimens were collected from the field. The collected specimens were identified correctly by using Flora and other pertinent literature (Karnik and Basu 1935; Karnik 1961. Mahabale and Karnik1959; Cook 1958; Hooker JD 1872-1897; Singh et al. 2001). The herbarium prepared by standard method (Jain and Rao 1977) has been deposited in the department of botany, Arts, Science and com, college, Chopda.

Simple Questionnaire (Jain and Bose 1993) used for data collection is like Occurrence of Plant, Respondents age, sex & education, Community

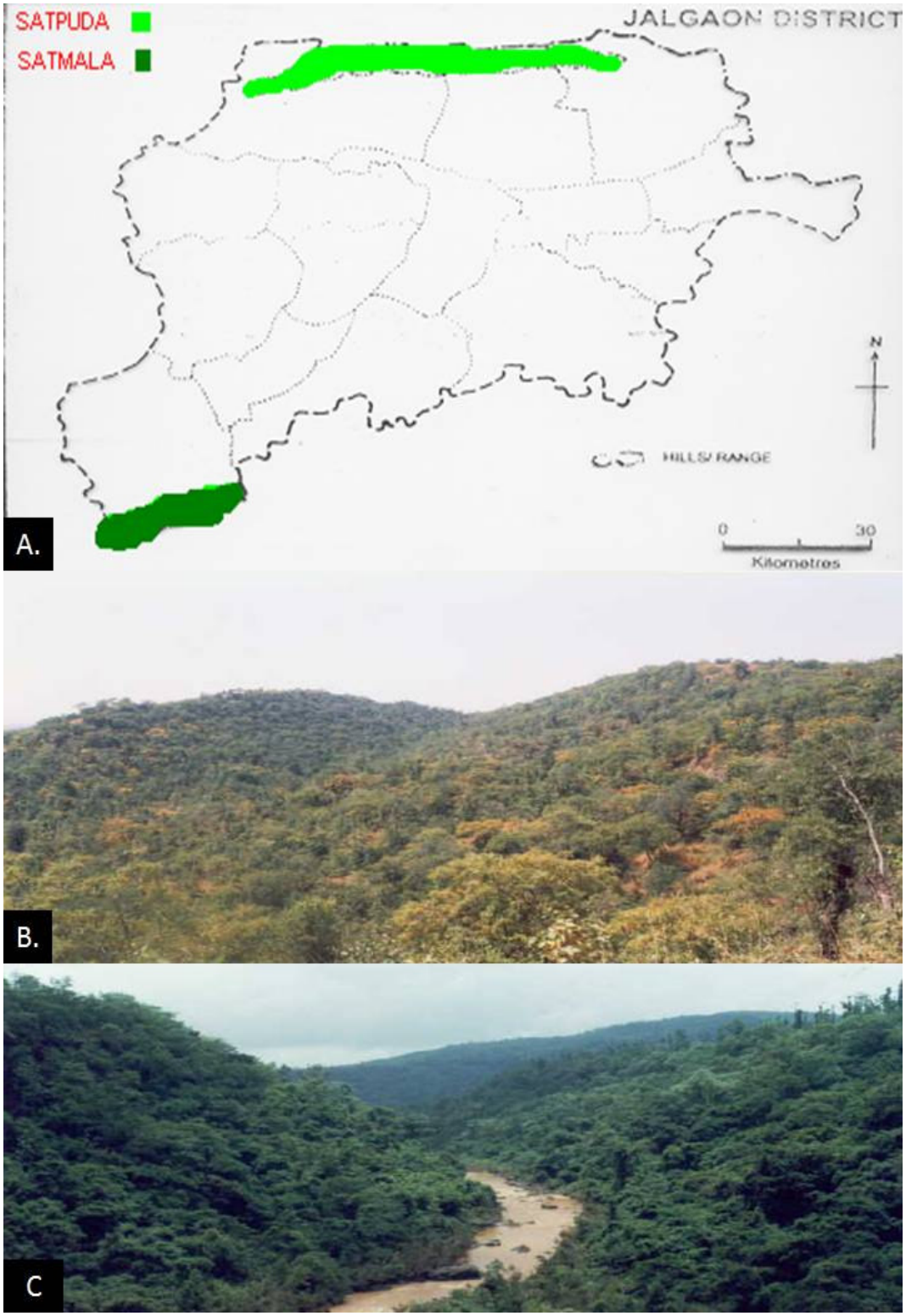

Figure 1. A) Map Showing Study area; B) A Forest view Manudevi; C) Forest view Vaijapur.

Status (medicine man, nurse, doctor), Forest type where plant was found & its availability in nature (Common, Frequent, Rare, Occasional etc), Plant part used to treat part used, Mode of administration (oral, external) & dosages given with, & How many times& days the drugs prepared roughly given (glassful, teaspoonful, paste.).

Observations

The given plant species are enumerated alphabetically with their botanical names, family in parenthesis, local names, locality and folklore claims (Fig. 2).

1) Abrus precatorius L., Fabaceae, Gunja, RMB131, Malapur.

Uses: - Root paste mixed with mustard oil and applied externally daily once in a sunlight for thirty days to cure Body swellings.

2) Aloe vera (L.) Burm. f., Liliaceae, Korphad, RMB 199, Jamnya, Yaval.

Uses: - Fresh leaf gel is taken orally thrice to four times a day for piles and Stomache.

***3) Annona squamosa* L.** Annonaceae. Sitaphal, RMB 201, Morchida, Chopda.

Uses: - Leaf paste is applied externally on hairs whole day for three days to remove lice.

***4) Aristida adscensionis* L.**, Poaceae, Bhuti, Borajanti

Uses: - Ash prepared by burning whole plant and applied externally on itching and ringworms.

***5) Balanites aegyptica* .**L. (Del.), Balanitaceae, Hinganbet, RMB 502, Langda Amba.

Uses: - Fruit paste made in to the water and use externally after menstruation to prevent conception.

6) Butea monosperma (Lam) Taub. Fabaceae, Palas, RMB 203, Deogad

Uses:-Paste of the bark is made in to water applied on fractured parts externally.

7) *Calotropis gigantia* (L) R.Br.**,** Asclepidiaceae, Rui, RMB 302, Amalwadi, Raver.

Uses: - Root paste is made in to water and taken orally twice a day on Jaundice up to Seven days.

8) Calotropis procera (Aiton.) R.Br. Asclepidiaceae, Ruchkin, RMB 431, Vaijapur.

Uses: - Dried flowers powder is taken with water orally on Asthma.

***9) Celosia argentea* L.**, Amaranthaceae, Aghada, RMB 235, Varad.

Uses: - Seed Powder one teaspoonful mix with water and taken orally to stop kidney troubles' for seven days.

***10) Cissus quadrangularis* L.**, Vitaceae, Kandwel, RMB 265, Manudevi.

Uses: - Paste of the fresh stem part is grounded with water is bandaged on fractures till cure.

***11) Datura inoxia* Mill,** Solanaceae, Kaladhotra, RMB 95, Khadgaon

Uses: - Ash prepared from roots is smoked daily twice and at the time of asthmatic attack.

12) *Diospyros melanoxylon Roxb*, Ebenaceae, Tembhurni, RMB 233, Unabdev.

Uses: - The ripen or unripe but matured fruit pulp is mixed with milk and given thrice a day for dysentery.

13) *Echinops echinatus Roxb*. Asteraceae, Udkata, RMB 10, Adavad.

Uses: - Root powder is taken with water orally twice a day on headache.

14) *Gloriosa superba L.*, Liliaceae. Khadyanag, RMB 140, Devziri.

Uses: - Root paste is made into water and use to kill fishes.

***15) Holarrhena antidysentrica* (BuchHam) Wall.** Ex G.Don. , Apocynaceae, Kuda, RMB 305, Karjane.

Uses: - Roots Paste was made with 20g root bark & mixed equally with fruit pulp of Punica granatum & a pinch of salt added & given orally for controlling diarrhea

16) Merremia emerginata (Burn. F) Hall.f. , Convolvulaceae, Undirkani, RMB246, Pal, Raver

Uses: - Leaf juice made into water and applied on hairs externally to kill Lice.

***17) Tylophora fasciculata* Buch. Ham.** Asclepidiaceae, RMB419, Mohrale.

Uses: - Dried powder is made with whole plant and applied internally for menstruation problems.

18) *Triemfetta rhomboidea* Jacq. Tiliaceae, Zila, RMB276, Kingaon.

Uses: - Root extract is made into water and by adding a pinch of sugar and applied orally on vomiting.

19) *Ougenia oogenensis* (Roxb) Hachret. Fabaceae, Tiwas, RMB174, Devhari.

Uses: - Leaf paste is applied externally for wound healing.

***20) Phyllanthus amarus* Sc.** & Thonn. RMB222, Euphorbiaceae

Uses: - dried powder of whole plant is given with water thrice a day to cure jaundice.

21) Pterocarpus marsupium Roxb, Fabaceae, Bibha, RMB155, Vaijapur.

Uses: - A glass type sized hole is made in to Wood and filled with water. Early in the morning a glassful of water is taken orally up to one month for diabetics.

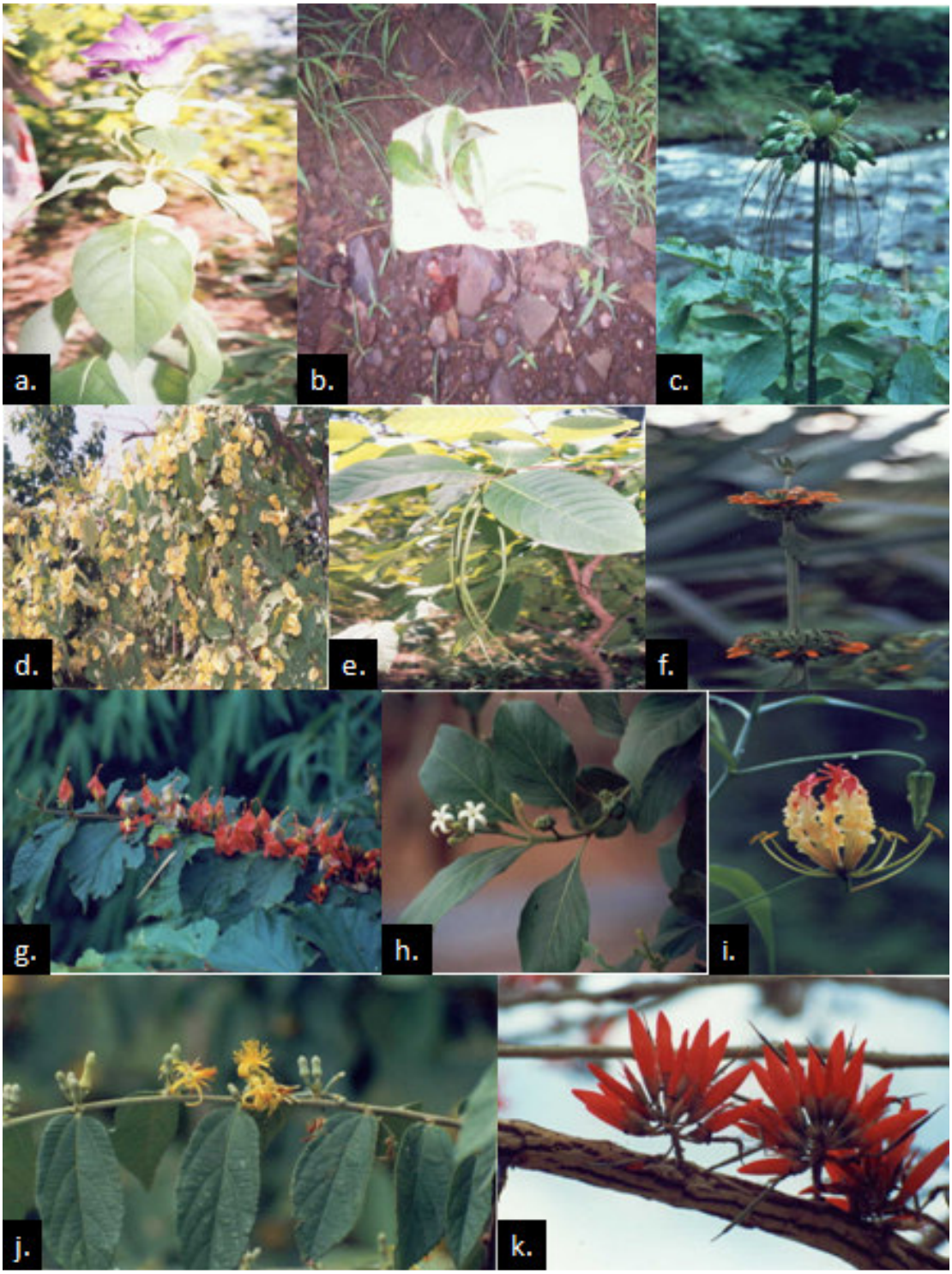

Fig.2. a) ***Barleria gibsoni*****; b)** ***Drimia indica*****; c)** ***Tacca leontapetaloids*****; d)** ***Terminalia chebula*****; e)** ***Wrightia tinctoria*****; f)** ***Leonites nepetifolia*****; g)** ***Helicres isora;*** **h)** ***Morinda pubescenc*****; i)** ***Gloriosa superba*****; j)** ***Gravia tilifolia k) Erythrina indiaca***

22) Ricinus communis L., Euphorbiaceae, Erandi, RMB256, Gorgavale.

Uses: - Leaf decoction of water is givern early in the morning for seven days to cure jaundice.

23) Solanum virgianum L., Solanaceae, Bhuiringani, RMB563, Chopda

Uses: - Seed powder is filled in tooth cavity in toothache.

24) Soymida febrifuge (Roxb.) A.Juss. Meliaceae, Ragat roda, RMB 354, Melane.

Uses: - Stem bark powder is given orally with warm water to cure red discharge of women for seven days.

25) Tridax procumbens **L.**, Asteraceae, Ekdandi, RMB 123, Malapur

Uses: - Fresh leaf paste is applied externally on wound healing and also to stop blooding.

26) ***Vitex negundo*** **L***.,* Vierbinaceae, Nirgudhi, RMB 115, Deoziri.

Uses: - Leaf paste is applied like bandage on bone fracture. Leaf juice drop is given externally to cure half headache.

27) Terminalia chebula **Retz.** Combrataceae, Sadada, RMB 171, Dhanora.

Uses: - 05-10 g of dried bark powder mix with a glass of warm water given daily once in the morning to cure uneasy feelings.

DISCUSSION

The observation shows record of some new traditional uses of medicinal plants as medicines, e.g. Antijaundice property of *Calotropis procera*, Use of *Annona squqmosa* and *Merremia emerginata* leaves in lice killing, use of *Gloriosa superba* in killing fishes, *Celosia argentea* in kidney troubles *Terminalia chebula* for uneasy feelings & *Aloe vera* in Stomache. Some plants are appreciably used on asthma, Gynic disorders, wound healing diarrhea and dysentery, ring worms, omitting, headache, bone fractures.

The survey reveals that many of the herbs used by the tribal peoples for the treatment of various diseases are very common and easily available at lowest cost and hence affordable. The mode of preparation and admistration of drugs are very simple and harmless to the patients without any side effects. Surprisingly these local peoples are aware of the continuous and conservative use of medicinal plants.

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