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RESEARCH ARTICLE

CREDIBILITY ASSESSMENT OF ETHNOMEDICINAL PLANTS OF WARUD, DISTRICT AMRAVATI, MAHARASHTRA (INDIA)

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ABSTRACT

Traditional herbal medicine is a chief source of biologically active compounds needed for the treatment of human ailments. There are many more medicinal plant species used as folklore medicine, but very few attempts has been made so far to validate those claims. Credibility assessment of medicinal plants is necessary for wider acceptance all over the world. Authentication and scientific validation of medicinal plant is a fundamental requirement of industry and other organizations dealing with herbal drugs.

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INTRODUCTION

Different indigenous societies, with their traditional knowledge, have discovered various uses of natural resources around them. Use of medicinal plants is one of the components of this knowledge. Some of this knowledge has been widely tested, accepted and become a part of Indigenous System of Medicine (ISM) i.e. Ayurveda, Siddha and Unani in India. Lewis (2003) showed that the ethnomedicinal plants claimed to be antimalarial by the folk are more effective than other ethnomedicinal plants without such claims. Such studies on more ethnomedicinal plants, among diverse ethnic groups, could provide lead drug molecules for clinical research. Traditional knowledge of different tribal communities is based on their necessities, observations and long experience. Therefore, a multi-locational and multi-ethnic use of a particular plant species is a good criterion for scientific validation of credibility of plant species. Such studies for human and animal further authenticate the age-old wisdom of indigenous communities (Jain, 2004). The rural peoples have strong belief in local herbal healers practices which mainly relies on medicinal plants for treatment. As plants are readily available and affordable, these practices bring the cost of medication within the reach of rural people. Another reason is that, the patients are getting some sort of benefits out of these

local herbal practices from thousands of years. Therefore we can not avoid these practices at all. The medicinal plants used by the local healers/practitioners can be validated based on the available ethnomedicinal claims and the pharmacological characteristics of the plants. Validation or credibility assessment of medicinal plants is necessary for the formulation of traditional health care policies and wider acceptance. This will build up confidence among the local herbal healers and the patients. Proper documentation of traditional knowledge is important for validation or credibility assessment. All these things make the plant potentially useful candidate for discovery of new drugs (Shahriar *et al.*, 2014). Traditional herbal medicine (Indian System of Medicine) lack appropriate scientific documentation in modern day's knowledge (Shrivastava and Leelavathi, 2010). Peoples around the world, through critical research, raising the credibility of traditional knowledge in scientific studies and natural resource management. However, lack of recognition and value of traditional knowledge in science, this knowledge has been prevented from inclusion in areas like nutrition, medicine, environmental assessment and resource management practices. This is also due to lack of validation using quantitative analyses. To gain credibility to the traditional knowledge, the scientific studies that utilise it should be reliable and replicable. Using 'Consensus Analyses' traditional knowledge regarding medicinal plants used by 'Irulas' and 'Malasars' has been valorised. Consensus analysis provides a measure of reliability for any given claim. This will enhance society, nutrition, medicine and resource management (Raghupati and Newma, 2009).

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Traditional medicines are the best source of chemical diversity for finding new drugs and leads. India has potential to meet the global demand for them. However, for its globalisation and reinforcement, evidence based scientific validation of claims on traditional medicine is the need of the day. This is also possible by promotion and development of traditional medicine through global collaboration and co-ordination (Mukherjee *et al.*, 2016). The role of cross-cultural ethnobotanical study in credibility testing of folklore claims is prominent. Anticestodal efficacy of *Lasia spinosa* (L.) Thw. has been revealed by Temjenmongla and Yadav (2005) based on ethno-pharmacological screening. Motley (1994) investigated insecticidal, antibacterial and antifungal potential of *Acorus calamus* L. (Bora *et al.*, 2016). *Bombax ceiba* L. is used by different tribes for the treatment of gastrointestinal and skin diseases, gynaecological and urinogenital disorders, general debility, impotence and diabetes. Most of these claims have been validated scientifically in human and animal studies worldwide (Jain and Verma, 2014). Various physiological effects of herbal medicine are due to its phytochemical constituents. Through phytochemical screening and qualitative estimation of root tubers of six species of *Dioscorea*, its credibility has been confirmed (Sheikh *et al.*, 2013). Ghasemzadeh *et al.* (2010) validated the medicinal potential of leaves and the young rhizome of *Zingiber officinale* and the positive relationship between its total phenolics content and the antioxidant activity. Antimycobacterial activity of leaves of four plant species (*Apodytes dimidiata*, *Artemisia afra*, *Combretum hereroense*, *Lippia javanica*) has been scientifically validated (Masoko and Nxumalo, 2013). Thirty medicinal plants, used by the Yakka community in Nepal, have been validated scientifically for their antimicrobial and antioxidant activities (Subba *et al.*, 2016).

Study Area: Warud is a tahsil place in Amravati district in the Indian state of Maharashtra. It is situated between 21°28'0"N 78°16'0"E and 21.46°N 78.26°E. The weather conditions in Warud is very cool in winter (mini. 6°C) and very hot in summer (max. 44°C). Warud has an agriculture-based economy well supported by irrigation. The average rainfall is around 900mm/annum. Soil is most suitable for cotton and oranges. Light soil occurs all along the foot hills in the tahsil. Soil is calcareous, grayish-black in colour and of varying depths and texture (Dhore, 2002).

METHODOLOGY

Ethnomedicinal survey of Warud Tahsil in Amravati district of Maharashtra was carried out thoroughly during 2010-14. Total 62 local herbal healers were interviewed during the survey to collect the information regarding medicinal uses of plants. For credibility assessment of ethnic claims, multilocational and multiethnic criteria as well as experimental data both were taken into consideration. In ethnic practices crude drugs are used for the treatment. Here, while dealing with experimental data, only those experiments which were carried out using crude drugs or their extracts have been considered.

RESULTS

Abrus precatorius L. Syst. Nat. ed. 2, 2:472. 1767. (Fabaceae), 'Gunj'. Local Use: Seeds are used in the treatment of cataract and arthritic joint pain. Uses from Literature: Leaves are used as nerve tonic (Elisabetsky *et al.*, 1992). Seeds are used in sciatica, stiffness of shoulder joints, paralysis,

painfull swellings and other nerve diseases (Kirtikar and Basu, 1987; Arseculeratne *et al.*, 1985). Experimental Evidences: Pal *et al.* (2009) studied the anti-arthritic activity of seed extract. Umamaheshwari *et al.*, (2012) evaluated in-vitro anticataract and antioxidant activities of ethanolic seed extract.

Achyranthes aspera L. Sp. Pl. 204. 1753. (Amaranthaceae), 'Aghada'. Local Use: Roots are used in the treatment of skin diseases and jaundice; leaves in the treatment of piles and urinary diseases. Uses from Literature: Plant is diuretic and useful in skin diseases, piles, liver complaints, dysentery, stomachache (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidences: Whole plant extracts showed antioxidant, antimicrobial and antiulcer activities (Abi Beulah *et al.*, 2011). Aqueous root extract prevented urolithiasis (Aggarwal *et al.*, 2012). Whole plant extract and leaf extract showed hepatoprotective activity (Kartik *et al.*, 2010).

Adansonia digitata L. Sp. Pl. 1190. 1753. (Malvaceae), 'Gorakhchinch'. Local Use: Stem bark is used in eczema. Leaves are used in the treatment of inflammations and bone fracture. Fruits are used in acidity. Uses from Literature: Plant is cooling, refrigerant, antiseptic (Khare, 2007; Jain, 2012). Stem bark is used in wound healing; fruits are useful in hepatic disorders (Kamatou *et al.*, 2011). Fruit pulp and powdered seeds are used in the treatment of dysentery. Fruit pulp is used internally with buttermilk in diarrhoea and dysentery (Singh *et al.*, 2013). Experimental Evidences: Ethanol and chloroform extract of stem bark showed antimicrobial activity (Yusha *et al.*, 2010). Leaves and fruits extract showed anti-inflammatory activity (Vimalnathan and Hadson, 2009). Aqueous extract of fruit pulp exhibited hepatoprotective activity (Al-Qarawi *et al.*, 2003).

Aerva lanata (L.) Juss. ex Sch. in Syn. *Achyranthes lanata* L. (Amaranthaceae), 'Pandharphala'. Local Use: Leaves and flowers are used in the treatment of asthma. Uses from Literature: Whole plant is useful in cough, bronchitis and as expectorant (Goyal *et al.*, 2011; Chowdhary *et al.*, 2002; Sundarajan *et al.*, 2014). Experimental Evidence: Ethanolic extracts of aerial parts showed anti-asthmatic activity (Kumar *et al.*, 2009).

Albizia procera (Roxb.) Benth. Syn. *Mimosa procera* Roxb. (Mimosaceae) 'Pandhara Siras'.

Local Use: Seeds are used in the treatment of leucoderma. Uses from Literature: Seeds are used in skin diseases (Sivakrishnan and Muthu, 2014a).

Experimental Evidence: The ethanolic extract of aerial parts showed hepatoprotective activity (Shivakrishnan and Muthu, 2014b).

Alocasia macrorrhiza (L.) G. Don. Syn. *Alocasia indica* (Laur.) Spach. (Araceae), 'Bhramha-Rakas'. Local Use: Rhizome is used in the treatment of stomach pain and fissures.

Uses from Literature: Entire plant has been used in jaundice and constipation (Rahaman *et al.*, 2012). Rootstock is mild laxative, diuretic and useful in disorders of abdomen and spleen (Khare, 2007) and in piles (Chatterjee and Pakrashi, 2001). Experimental Evidence: Leaf juice has shown hepatoprotective activity (Patil *et al.*, 2011).

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill. & Perr., Syn. *Conocarpus latifolia* Roxb. ex DC. (Combretaceae), 'Dhavada'. Local Use: Stem bark is used in the treatment of arthritis. Uses from Literature: Stem bark is useful in vitiated conditions of *Kapha* and *Vata* (Warrier, 1994). Plant is useful in rheumatism; gum is used in arthritis (Yadav *et al.*, 2017). Experimental Evidence: Anti-inflammatory activity of hydroalcoholic extract of stem bark has been studied by Agnihotri *et al.*, (2015).

Argemone mexicana L. (Papaveraceae), 'Kakbhilai'. Local Use: Roots and leaves are used in the treatment of psoriasis, leucoderma and other skin diseases; also in wound healing and athlete's foot. Uses from Literature: Plant is useful in skin diseases, leprosy and inflammations (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidences: Whole plant possesses hepatoprotective activity (Das *et al.*, 2009). Essential oil from roots and aerial parts showed antifungal and antibacterial activities (Osho and Adetunji, 2010). Wound healing effects of leaf extracts has been investigated (Das and Murthy, 2011). Aqueous leaf extracts exhibited anti-inflammatory and analgesic activities (Sourabie *et al.*, 2012).

Argyrea nervosa (Burm. f.) Bojer, Syn. *Aegyria speciosa* (L.f.) Sweet; *Convolvulus nervosus* Burm. f. (Convolvulaceae), 'Sandarshok'. Local Use: Roots are used in the treatment of arthritis and chronic ulcers. Leaves are used in wound healing. Uses from Literature: Plant is useful in stomach complaints. In Yunani medicine, roots are used in the treatment of inflammations, rheumatoid arthritis, wounds and ulcers. Tender leaves are used in wound healing (Anonymous, 1985; Kirtikar and Basu, 1918; Warrier *et al.*, 1996; Khare, 2007; Jain 2012). Experimental Evidences: Alcoholic root extract showed anti-inflammatory activity (Bacchav *et al.*, 2009). Leaf extract possesses anti-inflammatory, anti-arthritic (Gokhale *et al.*, 2003) and wound healing (Singhal *et al.*, 2011) activities. Hydroalcoholic leaves extract showed antiulcer activity (Bhalke *et al.*, 2014).

Aristolochia bracteolata Lam. Encycl. 1:258. 1783. Syn. *Aristolochia bracteata* Retz. (Aristolochiaceae), 'Kidamari'. Local Use: Leaves are used in snake-bite and treatment of eczema. Uses from Literature: Plant is useful in leprosy and other skin diseases. Leaves are used in snake bite and eczema, (Warrier *et al.*, 1996; Jain, 2012). Experimental Evidences: Aqueous extract of leaf showed antibacterial activity (Parveen and Rao, 2012). Aqueous root extract elongated duration of survival of animals after application of Russell's viper venom (Bhattacharjee and Bhattacharyya, 2013).

Bacopa monnieri (L.) Penn. Syn. *Lysimachia monnieri* L., *Herpestis monnieri* H. B. & K., *Moniera cuneifolia* Michx. (Scrophulariaceae), 'Bramhalonya'. Local Use: Leaves are used in the treatment of asthma. Uses from Literature: Whole plant is useful in asthma (Khare, 2007; Jain, 2012). Experimental Evidence: Ethanolic extract of plant showed broncho-vasodilatory activity (Dar and Channa, 1997).

Balanites aegyptiaca (L.) Del. Syn. *Xemenia aegyptiaca* L., *Balanites roxburghii* Planch. (Balanitaceae), 'Hinganbet'. Local Use: Seeds are used to treat worm infestation and stomachache. Uses from Literature: Fruits are used to treat dysentery, constipation, liver disease, stomachache and as purgative and laxative (Barley, 1962; Ojo *et al.*, 2006). Seeds are anthelmintic and purgative (Chothani and Vaghasiya, 2011;

Jain, 2012). Experimental Evidences: Alcoholic and aqueous fruit extracts showed hepatoprotective activities (Supriya and Shivalinge, 2017). Aqueous root extract showed vermifugal activity (Dwivedi *et al.*, 2009).

Baliospermum montanum (Willd.) Muell.-Arg. Syn. *Jatropha montana* Willd., *Baliospermum axillare* Bl. (Euphorbiaceae), 'Jamalgota'. Local Use: Roots are used in the treatment of jaundice. Uses from Literature: Roots are useful in jaundice (Warrier *et al.*, 1996; Jain, 2012). Experimental Evidence: Methanolic root extract showed hepatoprotective activity (SureshKumar and Mishra, 2009).

Barleria prionitis L., Sp. Pl. 636. 1753. (Acanthaceae), 'Katakoranta'. Local Use: Leaves are used in the treatment of toothache and bleeding gums. Uses from Literature: Whole plant is useful in toothache, dental caries and hepatic obstruction. Roots are used in toothache and bleeding gums (Khare, 2007; Jain, 2012). Experimental Evidences: Methanolic extract of stem bark showed antibacterial activity against clinical bacteria (Aneja *et al.*, 2010). Leaf extract possesses antibacterial (Gangopadhyay *et al.*, 2012) activity.

Basella alba L. Sp. Pl. 272. 1753. Syn. *Basella rubra* L. (Basellaceae), 'Poi/Vavding'. Local Use: Leafy twigs and leaves are used in the treatment of anaemia, skin burns and constipation. Uses from Literature: Plant is useful in the treatment of anaemia (Bamidele *et al.*, 2010). Leaves are laxative and useful in constipation and skin-burns (Khare, 2007; Jain, 2012). Experimental Evidences: Aqueous leaf extract showed positive effect on the haemopoietic system (Bamidele *et al.*, 2010). Leaf extract also showed burned wound healing activity (Mohammed *et al.*, 2012). Aqueous leaf extracts showed hepatoprotective activity (Das *et al.*, 2015).

Bauhinia variegata L., Sp. Pl. 375. 1753. Syn. *Phanera variegata* (L.) Benth. (Caesalpinaceae), 'Koylar'. Local Use: Roots are used in wound healing. Uses from Literature: Whole plant is useful in wound haling (Kirtikar and Basu, 1918; Asima and Satyesh, 1992). Experimental Evidence: Aqueous and ethanolic root extracts showed wound healing activity (Sharma, 2010).

Boerhaavia repens L., Sp. Pl. 3. 1753. var. *diffusa* Hook. f. Fl. Brit. Ind. 4:709. 1885. Syn. *Boerhavia diffusa* L. (Nyctaginaceae), 'Vasu'. Local Use: Roots are used in jaundice. Uses from Literature: Plant is highly beneficial in worms, jaundice, constipation and blood purification. Roots are useful in jaundice (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidence: Aqueous root extract showed hepatoprotective activity (Rawat *et al.*, 1997).

Bombax ceiba L., Sp. Pl. 511. 1753. Syn. *Bombax malabaricum* DC. (Malvaceae), 'Katesavar'. Local Use: Roots are used in spermatorrhoea, weakness and impotence. Uses from Literature: Young roots are stimulant and useful in low vitality, debility and impotency (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidence: Aqueous extract of roots induced spermatogenesis in rats (Bhargava *et al.*, 2011). *Boswellia serrata* Roxb. ex. Colebr. in *Asiat. Res.* 9. 379. t. 5. 1807. (Burseraceae), 'Salai'. Local Use: Leaves are used in treatment of burnt skin. Uses from Literature: Leaves are used in wound healing (Jain, 2012) and skin burns (Jagtap *et al.*, 2008a). Experimental Evidence: Plant extract is effective in wound healing and could accelerate burnt wound healing process (Sahinfard *et al.*, 2015).

Bridelia retusa (L.) Spreng. Syst. Veg. 3: 48. 1826. Syn. *Clutia retusa* L. (Euphorbiaceae), 'Katya-Ain. Local Use: Stem bark paste is applied around the wound to reduce muscle inflammations. Uses from Literature: Paste of stem bark is applied on wounds (Khare, 2007). Experimental Evidence: Aqueous and alcoholic extracts of stem bark showed anti-inflammatory activity (Mehare and Hatapakki, 2014).

Cadaba fruticosa (L.) Druce in Rep. Bot. Exch. Club. Soc. Brit. Isles 3:415. 1914. Syn. *C. fruticosa* L., *C. indica* Lam., *C. farinosa* Forssk. (Capparidaceae), 'Kalitakal'.

Local Use: Leaves are used to treat skin diseases and weakness. Uses from Literature: Also used in skin diseases (Kuru *et al.*, 2011). Experimental Evidence: Methanolic extract of leaves showed antimicrobial activity (Udhaya *et al.*, 2014).

Caesalpinia bonduc (L.) Roxb., Fl. Ind. 2: 362. 1832. Syn. *Guilandina bonduc* L., *Caesalpinia bonducella* (L.) Flem. (Caesalpinaceae), 'Gajaga, Sagargoti'. Local Use: Leaves and seeds are used in stomach-pain and worm infestation. Uses from Literature: Leaves and seeds are anthelmintic and useful in liver disorders and colic (Kirtikar and Basu, 1918; Warriar *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidences: Methanol, ethanol, hexane and aqueous extracts of leaves showed anthelmintic activity (Karthi *et al.*, 2011). Hydro-alcoholic and petroleum ether extracts of leaves showed hepatoprotective activity (Rodda *et al.*, 2013). Seed extract has shown antibacterial (Saeed and Sabir, 2001) and hepatoprotective (Parthasarthy *et al.*, 2007) activities.

Calotropis gigantea (L.) R. Br. in Ait., Hort. Kew (ed. 2) 2:78. 1811. Syn. *Asclepias gigantea* L. (Asclepiadaceae), 'Mothi Rui'. Local Use: Roots are used in the treatment of jaundice; flowers in cough and latex in arthritis. Uses from Literature: Whole plant is expectorant and useful in bronchitis and asthma. Dried root bark is expectorant and laxative. Flowers are anti-asthmatic; milky latex is purgative and useful in rheumatism (Khare, 2007; Jain, 2012).

Experimental Evidences: Alcoholic extract of root bark showed hepatoprotective activity (Deshmukh *et al.*, 2008). Ethanolic root extract showed anti-asthmatic activity (Mayee *et al.*, 2011). Petroleum ether (40-60°), ethyl acetate, ethanol and aqueous extracts of leaves showed anti-arthritis activity (Patil *et al.*, 2007). Aqueous extract of flower has shown antitussive effect and anti-asthmatic activity; ethanol extract showed expectorant activity (Jaliwala *et al.*, 2011).

Capparis zeylanica L., Sp. Pl. Ed. 2:720. 1762. Syn. *Capparis horrida* L. f. (Capparidaceae), 'Waghate'. Local Use: Roots are used in worm infestation, asthma and skin disease treatment. Uses from Literature: Plant is appetizer and useful in immune disorders. Root bark is bitter and stomachic. Fruits are useful in dysentery (Kirtikar and Basu, 1918; Chopra *et al.*, 1996; Dhanukar *et al.*, 1999; Khare, 2007; Mishra and Singh, 2011; Jain, 2012). Experimental Evidences: Alcoholic extract of aerial parts showed immunomodulatory activity (Agrawal *et al.*, 2010). Root extracts showed antimicrobial activity (Chopade *et al.*, 2008). Crude ethanolic extract and aqueous extracts of root showed anthelmintic activity (Bendgude *et al.*, 2011).

Careya arborea Roxb. Pl. Cor. 3:14, t. 218. 1819. (Lecythidaceae), 'Kumbhi'. Local Use: Stem bark is used in toothache and bleeding gums. Fruits are used in dysentery and fever. Uses from Literature: Plant is used in dysentery,

eruptive fever, diarrhoea, pyrexia, toothache, haemorrhoids. Stem bark is antipyretic; useful in diarrhoea and dysentery with blood (Kirtikar and Basu, 1918; Warriar *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidences: Antimicrobial and antioxidant activities of stem bark methanol extract has been evaluated (Ramnathan *et al.*, 2006). Stem bark is analgesic (Ahmed *et al.*, 2002) and anti-diarrhoeal (Rahman *et al.*, 2003). Methanolic extract of the fruits showed anti-allergic activity (Chothani and Patel, 2014). Antibacterial activity of ethyl acetate, ethanol and hexane extracts of the fruits (fresh and dry) has been studied (Prabhakaran *et al.*, 2014).

Cassia fistula L., Sp. Pl. 377. 1753. (Caesalpinaceae), 'Bahava'. Local Use: stem bark is used to treat tonsils. Uses from Literature: Roots are used in swelling of throat. Stem bark is used in swellings. Flowers and pods are febrifugal. Seeds are used in swollen throat (Warriar *et al.*, 1995; Chopra *et al.*, 1996; Kirtikar and Basu, 1918; Khare, 2007; Jain, 2012). Experimental Evidences: Methanolic and aqueous stem bark extracts possesses anti-inflammatory and anti-oxidant properties (Ilavarasan *et al.*, 2005). Methanol extract of stem bark (Jana *et al.*, 2010) and pods (Singh *et al.*, 2012) showed antipyretic activity.

Catunaregam spinosa (Thunb.) Tirveng. in, Bull. Mus. Hist. Nat. Paris 3, 35:13. 1978 & in Taxon 27:515. 1978. Syn. *Gardenia spinosa* Thunb, *Randia dumetorum* (Retz.) Poir., *Xeromphis spinosa* (Thunb.) Keay. (Rubiaceae), 'Phetar'. Local Use: Fruit pulp is used to treat dysentery. Uses from Literature: Leaf is used in dysentery and diarrhoea (Kamble *et al.*, 2008). Fruits are useful in dysentery (Jain, 2012). Experimental Evidence: Fruit pulp showed antibacterial activity (Dharmishtha and Falguni, 2009).

Cissampelos pareira L. var. *hirsuta* (Buch.-Ham. ex DC.) Forman in Kew Bulletin. 22:356. 1968. Syn. *C. hirsuta* Buch.-Ham. ex DC., *C. pareira* L. (Menispermaceae), 'Pahadvel, Laghupatha, Pahadmul'. Local Use: Roots and stem are used to treat stomach-pain. Uses from Literature: Infusion of roots and stem is useful in diarrhoea, dysentery, ulcers, colic, intestinal worms and digestive complaints (Amresh *et al.*, 2004). Roots are stomachic; useful in cramps and piles (Khare, 2007; Jain, 2012). Experimental Evidence: Aqueous extract of whole plant showed anthelmintic activity (Shukla *et al.*, 2012).

Citrullus colocynthis (L.) Schrad. in Linnaea 12:414. 1838. Syn. *Cucumis colocynthis* L. (Cucurbitaceae), 'Kadu vrundavan, Indrayan, Indravan'.

Local Use: Seeds are used in stomach pain. Uses from Literature: Fruits are purgative and useful in stomachache (Jain, 2012). Experimental Evidences: Fruit extract showed hepatoprotective activity (Dar *et al.*, 2011). Methanolic extract of ripe deseeded fruits showed anti-mycobacterial activity (Mehta *et al.*, 2013).

Cleome viscosa L., Sp. Pl. 672. 1753. (Capparidaceae), 'Tilvan'. Local Use: Leaves are used in malaria treatment. Uses from Literature: Whole plant is useful in malarial fever. Leaves are sudorific. Fruits and seeds are used in fever (Warriar *et al.*, 1995; Chopra, *et al.*, 1996; Khare, 2007; Jain, 2012). Experimental Evidence: Methanolic extract of whole plant showed antimalarial activity (Olayemi and Ojogbane, 2015).

Cordia dichotoma Frost. f., Prodr. 18. 1786. Syn. *Cordia obliqua* Willd., *C. myxa* auct. plur. non. L. (Boraginaceae), 'Bhokar'.

Local Use: Stem bark is used in liver dysfunction. Uses from Literature: Stem bark is used in dyspepsia. Leaves useful in severe colic pain, stomachache and constipation (Warrier *et al.*, 1995; Khare, 2007; Jain, 2012). Experimental Evidence: Methanolic extract of dried bark showed effect in management of ulcerative colitis (Ganjare *et al.*, 2011).

Cordia macleodii (Griff.) Hook. f. & Thoms. in Jr. Linn. Soc. 2:128. 1858. Syn.

Hemigymnia macleodii Griff. (Boraginaceae), 'Dahipalas'. Local Use: Leaves are used in rheumatism. Uses from Literature: Leaves are used in wound healing (Sen *et al.*, 2005) Experimental Evidence: Ethanolic extract of leaves showed analgesic and anti-inflammatory (Qureshi *et al.*, 2010) activities.

Costus speciosus (Koen.) J. E. Smith in Trans. Linn. Soc. 1:249. 1800. Syn. *Banksia speciosa* Koen. apud Retz. (Zingiberaceae), 'Kost, Jangali-Adrak'. Local Use: Whole plant and rhizome are used in the treatment of weakness and arthritis. Uses from Literature: Plant is useful in arthritis. Rhizomes are used in rheumatism and as tonic (Khare, 2007; Jain, 2012); also in weakness (Mishra and Broker, 2009). Experimental Evidences: Hepatoprotective and adaptogenic activities of ethanolic rhizome extract has been evaluated (Verma and Khosa, 2009). Methanolic extract of rhizome possess anti-arthritis activity (Kala *et al.*, 2015).

Crateva magna (Laur.) DC. Prodr. 1:243. 1824. Syn. *Capparis magna* Lour., *Crateva religiosa* var. *nurvala* (Buch.-Ham.) Hook f. & Thoms. (Capparidaceae), 'Vayvarna, Varuna, Varna-varni'. Local Use: Stem bark is used in the treatment of urine stone, urinary disorders, wound healing and snake bite. Leaves are used in the treatment of psoriasis and fissure. Flowers are useful as appetizer.

Uses from Literature: Plant is appetizer, diuretic and litholytic (Khattar and Wal, 2012). Stem bark is diuretic and is useful to treat edematous wounds (Khare, 2007; Jain, 2012). Leaves are used in piles (Benniamin *et al.*, 2004), and also in skin diseases (Warrier *et al.*, 1995). Experimental Evidences: Decoction of plant showed anti-lithogenic and anti-crystallization activities (Agarwal *et al.*, 2010). Ethanolic plant extract possess potent snake venom neutralizing capacity (Chidambaram *et al.*, 2011). In-vitro antioxidant and wound healing activities of leaf extracts (petroleum ether, chloroform, methanol) has been evaluated (Pattanaik *et al.*, 2012). Methanol extract of leaves showed hepatoprotective (Pattanaik *et al.*, 2013) and wound healing (Pattanaik *et al.*, 2014) activities.

Curculigo orchioides Gaertn. Fruct. 1:63. t. 13. 1788. (Hypoxidaceae), 'Kali-Musali'. Local Use: Rhizome and tuberous roots are used in wound healing, asthma, jaundice, piles, weakness, indigestion and constipation. Uses from Literature: Plant is tonic, restorative, rejuvenating and useful in piles, asthma loss of appetite, worm infestation and stomach ailments (Dhar *et al.*, 1968; Warrier *et al.*, 1995; Chopra *et al.*, 1996; Jain, 2012). Rhizome and tuberous roots are useful in jaundice and wound healing (Khare, 2007). Also used in constipation (Chaudhary *et al.*, 2008). Experimental

Evidences: Methanol extract of rhizome showed hepatoprotective activity (Venukumar and Latha, 2002). Ethanolic extract of rhizomes showed antiasthmatic activity (Pandit *et al.*, 2008a). Methanolic extract of root tubers showed wound healing activity (Agrahari *et al.*, 2010).

Cuscuta reflexa Roxb. Pl. Corom. 2:3, t. 104. 1798. (Cuscutaceae), 'Amarvel'. Local Use: Whole plant is used in the treatment of jaundice. Stem is used in skin care and hair care. Uses from Literature: Whole plant is useful in jaundice, skin itches and bilious disorders; as hair growth promoter and wash for sores. Stem is used in constipation and liver complaints. Seeds are tonic, carminative, hepatic and laxative (Khare, 2007; Jain, 2012). Experimental Evidences: Petroleum ether extract of stem showed hair growth activity (Pandit *et al.*, 2008b). Methanol extract of stem showed hepatoprotective activity (Balakrishnan *et al.*, 2010). Aqueous stem extract showed hepatoprotective (Katiyar *et al.*, 2015).

Cynodon dactylon (L.) Pers. Syn. Pl. 1: 85. 1805. Syn. *Panicum dactylon* L. (Poaceae), 'Durva, Harali'. Local Use: Whole plant is used in the treatment of piles and otitis media. Uses from Literature: Plant is useful in bleeding dysentery, piles and diarrhoea (Warrier *et al.*, 1995; Khare, 2007; Jain, 2012). Also used to treat otitis media (Singh and Bharti, 2015). Experimental Evidences: Whole plant extract showed antipyretic and analgesic (Garg and Khosa, 2008), hepatoprotective (Singh *et al.*, 2009) and anti-inflammatory (Dhande, 2013) activities.

Cyperus rotundus L. Sp. Pl. 45. 1753. ssp rotundus Cl. in Hook. f. Fl. Brit. India 6: 614. 1893. (Cyperaceae), 'Nagarmotha'. Local Use: Rhizomes and tuberous roots are used in the treatment of epilepsy and to augment lactation in lactating mother. Uses from Literature: Plant is nervine tonic, emmenagogue; useful in psychotic diseases, metabolic disorders. Rhizomes are used in deficient lactation, loss of memory and delirium (Warrier *et al.*, 1995; Chopra *et al.*, 1996; Khare, 2007; Jain, 2012; Sivapalan, 2013). Experimental Evidences: Whole plant extract antinociceptive (Iman and Sumi, 2014) activities. Ethanolic extract of roots and rhizomes showed anticonvulsant activity (Pal *et al.*, 2009) Aqueous extract of rhizomes showed lactogenic activity (Badgujar and Bandivdekar, 2015).

Datura metel L. Sp. Pl. 179. 1753. Syn. *Datura fastuosa* L. (Solanaceae), 'Kala Dhotra'. Local Use: Leaves are used in the treatment of muscle inflammations. Seeds are used to treat eczema. Uses from Literature: Plant is used in the treatment of skin diseases, rheumatic pains, skin-ulcers, wounds and skin-burns. Leaves are antitumour, antirheumatic and anti-inflammatory. Crushed leaves are applied to relieve pain. Roots, leaves and seeds are antidermatosis and used in leprosy. Flowers are used in skin disease (Warrier *et al.*, 1995; Khare, 2007; Jain, 2012). Experimental Evidences: Methanol and chloroform extracts of aerial parts showed antimicrobial activity (Vadalapudi and Kaladhar, 2012). Aqueous and methanolic extracts of the leaves showed antioxidant capacity and anti-inflammatory activity (Matcha *et al.*, 2013).

Echinops echinatus Roxb. Fl. Ind. 3:547. 1832. (Asteraceae), 'Utkant, Utkatari, Utkatara'.

Local Use: Roots are given in weakness. Uses from Literature: Whole plant is liver stimulant, nervine tonic and useful in

sexual disorders. Roots are tonic, aphrodisiac and useful in spermatorrhoea, impotence (Gupta *et al.*, 2010; Kumari and Charantimath, 2011; Patel *et al.*, 2011; Khare, 2007). Experimental Evidences: Whole plant extract exhibited protective effect (Vashisth *et al.*, 2013). Hepatoprotective activity of ethanol extract of aerial parts has been studied (Eram *et al.*, 2013).

Eclipta prostrata (L.) L. Mant. 2:286. 1771. Syn. *Verbesina prostrata* L., *E. alba* (L.) Hassk., *E. erecta* L. (Asteraceae), 'Maka, Bhrungraj, Kala-Maka'.

Local Use: Leaves are used in jaundice and arthritis. Uses from Literature: Whole plant is used in jaundice, hepatitis, spleen enlargement, chronic skin diseases, painful swelling and liver cirrhosis (Warrier *et al.*, 1995; Khare, 2007; Jain, 2012). Experimental Evidence: Aqueous and ethanolic extracts of leaves showed anti-inflammatory activity; aqueous leaf extract showed hepatoprotective activity (Peraman *et al.*, 2011).

Ehretia laevis Roxb. Pl. Corom. 1:42. t. 65. 1798. (Ehretiaceae), 'Datrang, Khanduchakra'.

Local Use: Leaves are used in arthritis. Uses from Literature: Leaves are useful in muscle-pain (Jain, 2012). Experimental Evidence: Methanolic extract of leaves showed antiarthritic activity (Velappan and Thangaraj, 2014).

Embelia ribes Burm. f. Fl. Ind. 62 t. 23. 1768. (Myrsinaceae), 'Vavding, Vaivrang'.
Local Use: Fruits are used in the treatment of ageing, wound healing and worm infestation.

Uses from Literature: Fruits are anthelmintic, brain tonic, digestive, carminative, stomachic, rejuvenating, stimulant, laxative, tonic and useful in nervous debility and general debility, worms (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012).

Experimental Evidences: Ethanolic extract of fruits showed neuroprotective effect (Ansari *et al.*, 2008). Alcoholic extract of fruits showed antioxidant activity (Vaghela, 2011). Ethanolic fruit extract possess wound healing property (Akbar, 2012). 50% ethanolic extract of seeds showed hepatoprotective activity (Tabbassum and Agrawal, 2003). Ethanolic extract of the seeds showed anthelmintic activity (Choudhary, 2012).

Encostemma axillare (Lam.) Raynal in Adansonia 2, 9:75. 1969. Syn. *Gentiana axillaris* Lam., *Encostemma hyssopifolium* (Willd.) I. C. Verdoorn, *E. littorale* non Bl. (Gentianaceae), 'Chota chirayat, Nad-Pala, Nad'. Local Use: Whole plant is used in the treatment of diabetes. Uses from Literature: Plant is bitter, carminative, blood purifier, stomachic, laxative, liver tonic, and useful in diabetes mellitus, (Warrier *et al.*, 1996; Khare, 2007; Upadhyay and Goyal, 2004). Experimental Evidences: Aqueous extract of whole plant showed antidiabetic (Jyoti *et al.*, 2003; Bhatt *et al.*, 2009) activity.

Evolvulus alsinoides (L.) L. Sp. Pl. ed. 2: 392. 1762. Syn. *Convolvulus alsinoides* L. (Convolvulaceae), 'Vishnukranta, Bramhi, Nil-Bramhi'.

Local Use: Whole plant and leaves are used to stop bleeding from the wounds. Uses from Literature: Flowers are useful in internal hemorrhages and uterine bleeding (Khare, 2007; Nadkarni, 2013).

Experimental Evidence: Crude ethanolic extract of whole plant showed wound healing and antimicrobial activity (Dhanalekshmi *et al.*, 2010).

Ficus racemosa L. Sp. Pl. 1059. 1753. Syn. *F. racemosa* Roxb. (Moraceae), 'Umbar'.

Local Use: Fruits are used in the treatment of indigestion and constipation.

Uses from Literature: Fruits are used in constipation and stomachache (Sonawane *et al.*, 2012a).

Experimental Evidence: Fruit extract showed gastro-protective effect (Rao *et al.*, 2008). *Ficus religiosa* L. Sp. Pl. 1059. 1753. (Moraceae), 'Pipal'. Local Use: stem bark is used in the treatment of fissures. Uses from Literature: Stem bark is cooling, laxative and useful in ulcers and piles (Chopra *et al.*, 1996; Warrier, 1996; Khare, 2007). Experimental Evidence: Methanolic extract of stem bark exhibited hepatoprotective activity (Suryawanshi *et al.*, 2011).

Gloriosa superba L. Sp. Pl. 305. 1753. (Liliaceae), 'Kal-lavi'.

Local Use: Tuber paste is given as an antidote in snake-bite. Uses from Literature: Root tubers are useful in snake-bite (Jain, 2012). Experimental Evidence: Tuber possesses anti-venom activity (Kumarappan *et al.*, 2011).

Gomphrena serrata L. Sp. 224. 1753. Syn. *G. celosioides* auct. non Mart. (Amaranthaceae), 'Pandhara Vasu'.

Local Use: Roots are used in the treatment of malarial fever. Uses from Literature: Leaves are useful in malaria (Adjanohoun *et al.*, 1989). Experimental Evidence: Whole plant showed antimalarial activity (Gessler *et al.*, 1994).

Gymnema sylvestre (Retz.) R. Br. & Schultes in R. & S. Syst. Veg. 6:57. 1819. Syn. *Periploca sylvestris* Retz. (Asclepiadaceae), 'Gudmar-patti, Kala-Ishakatak'.

Local Use: Whole plant is used in snake-bite and to treat dysentery. Stem is given in eczema. Roots are given in stomach-pain.

Uses from Literature: Plant is stomachic; roots are stomachic. Leaves are anthelmintic, laxative; useful in snake bite, digestion, stomach ailments and liver diseases (Khare, 2007; Jain, 2012).

Experimental Evidences: Plant shows anti-snake venom activity (Kini and Gowda, 1982). Hydro-alcoholic extract of leaves showed hepatoprotective activity (Srividya *et al.*, 2010). Aqueous extracts of stem, leaves and flowers showed anti-diarrhoeal activity (James, 2014).

Holoptelea integrifolia (Roxb.) Planch. in Ann. Sci. Nat. Bot. (Ser. 3) 10:269. 1848. Syn. *Ulmus integrifolia* Roxb. (Ulmaceae), 'Papal, Chirel'. Local Use: Stem bark is used to treat loose motion and stomach pain. Uses from Literature: Stem bark is used to treat loose motion and stomach pain (Sharma and Singh, 2012). Experimental Evidence: Benzene, chloroform, methanol and aqueous extract of the stem bark showed anthelmintic activity (Nadella and Paraakh, 2010).

Homonoia repara Lour. Fl. Cochinch. 2: 637. 1790. (Euphorbiaceae), 'Jangli-nilgiri, Jangli-Kaner'. Local Use: Roots are used in constipation, urine stone and piles. Uses from Literature: Roots are diuretic, antilithic, laxative (Warrier *et al.*, 1996; Khare, 2007). Experimental Evidences: Ethanol extract of roots showed antiurolithiatic activity (Prasad *et al.*, 1997). Methanol and ethanol root extracts showed anthelmintic activity (Satishkumar *et al.*, 2011).

Lawsonia inermis Lam. Sp. Pl. 349. 1753. Syn. *L. alba* Lam. (Lythraceae), 'Mehandi'. Local Use: Stem bark and leaves are used in skin diseases and leucorrhoea. Uses from Literature: Stem bark and leaves are useful against pathogenic bacteria and fungi; in leucorrhoea, jaundice and skin affections (Chopra *et al.*, 1996; Khare; 2007; Jain, 2012).

Experimental Evidences: Alcoholic extract of stem bark showed hepatoprotective activity (Bhandarkar and Khan, 2003). Methanolic leaf extract showed antibacterial activity (Raja *et al.*, 2013).

Leonotis nepetifolia (L.) R. Br. Prodr. 504. 1810. Syn. *Phlomis nepetifolia* L. (Lamiaceae), 'Deepmal'.

Local Use: Inflorescence is used in wound healing.

Uses from Literature: Inflorescence is used in wound healing (Ayanwuyi *et al.*, 2009; Kuvar and Bapat, 2010).

Experimental Evidence: Methanolic extract flowers showed antibacterial activity (Sinha, 2012).

Luffa acutangula (L.) Roxb. Fl. Ind. 3:713. 1832. Syn. *Cucumis acutangula* L., *L. acutangula* var. *amara* (Roxb.) C. B. Cl., *L. amara* Roxb. (Cucurbitaceae), 'Kadu Dodka, Randodka'.

Local Use: Fruits are used in the treatment of jaundice.

Uses from Literature: Dried fruit powder is used in form of snuff in jaundice. Fruit juice is used in hepatic congestion, irritation and inflammation of gastric mucosa (Warrier *et al.*, 1996; Khare, 2007; Jain, 2012).

Experimental Evidence: Aqueous ethanol extract of fruits showed hepatoprotective activity (Jadhav *et al.*, 2010).

Mimosa pudica L. Sp. Pl. 518. 1753. (Mimosaceae), 'Lajalu, Lajvanti'.

Local Use: Roots are used in piles.

Uses from Literature: In Unani Healthcare System, roots are used in piles. It arrests bleeding and fastens the wound healing process. Leaves are used in piles, fistula and wounds (Warrier *et al.*, 1997; Khare, 2007; Jain, 2012).

Experimental Evidence: Methanolic root extract showed hepatoprotective activity (Suneetha *et al.*, 2011).

Mitragyna parvifolia (Roxb.) Korth. Obs. Naucl. Ind. 19. 1839. Syn. *Nauclea parviflora* Roxb., *Stephegyne parviflora* Korth. (Rubiaceae), 'Kalamb'.

Local Use: Stem bark is used in dysentery.

Uses from Literature: Stem bark is bitter, stomachic and useful in gastropathy and colic (Warrier *et al.*, 1997; Jain, 2012). Experimental Evidences: Methanol extract of dried stem bark showed anthelmintic activity (Badgujar and Surana, 2010). Methano extract of stem bark showed antibacterial activity (Pundir and Bishnoi, 2011).

Morinda pubescens J. E. Sm. in Rees, Cyclop. 24, n. 3. 1813. Syn. *M. tinctoria* Roxb. var. *tomentosa* (Heyne ex Roth) Hook. f., *M. tomentosa* Heyne ex Roth. (Apocynaceae), 'Aal'.

Local Use: Stem bark and leaves are used in arthritis and rheumatic fever.

Uses from Literature: Plant is useful in fever (Jain, 2012). Leaves are febrifuge and useful in inflammation (Warrier *et al.*, 1997).

Experimental Evidences: Ethanolic extract of whole plant showed anti-inflammatory activity (Srinivasan *et al.*, 2012). Leaf extracts showed antimicrobial and anti-inflammatory activities (Sivaraman and Muralidharan, 2010).

Ocimum gratissimum L. Sp. Pl. 1197. 1753. (Lamiaceae), 'Ran-tulas'.

Local Use: Leaves are used in skin diseases, muscle toning and arthritic joint-pain.

Uses from Literature: Whole plant is anti-inflammatory; used in neurological and rheumatic diseases. Oil is anti-bacterial (Khare, 2007; 2009; Jain, 2012). Leaves are also used in skin diseases (Das *et al.*, 2012).

Experimental Evidences: Aqueous extract of leaves showed hepatoprotective activity (Arhoghro *et al.*, 2009). Ethanolic leaf extract showed anti-arthritic activity (Madhu and Harindran, 2014). Essential oil exerts relaxant effects on intestinal smooth muscle (Madeira *et al.*, 2002). Essential oil showed analgesic (Aziba *et al.*, 1999) and anti-inflammatory (Sahouo *et al.*, 2003) activities.

Operculina turpethum (L.) S. Manso, Enum. Subst. Bras. 16. 1836. Syn. *Convolvulus turpethum* L., *Ipomoea turpethum* (L.) R. Br., *Merremia turpethum* (L.) Shah & Bhatt. (Convolvulaceae), 'Nishottar'.

Local Use: Roots are used in constipation.

Uses from Literature: Roots are bitter, purgative, carminative, hepatic stimulant and useful in jaundice and hepatic diseases (Warrier *et al.*, 1997; Khare, 2007).

Experimental Evidence: Root extract showed hepatoprotective activity (Kumar *et al.*, 2006). *Ougeinia oojeinensis* (Roxb.) Hochr. in Bull. Soc. Bot. Geneve 13-14:51. 1909. Syn.

Dalbergia oojeinensis Roxb., *Ougeinia dalbergioides* Bth. (Fabaceae), 'Tiwas, Kalapalas, Tiwsal'.

Local Use: Stem bark is used in wound healing.

Uses from Literature: Stem bark is anti-inflammatory and spasmolytic (Warrier *et al.*, 1996; Khare, 2007). Experimental Evidence: Sahu *et al.*, (2010) had investigated the wound healing potency of ethanol and aqueous stem bark extracts.

Pergularia daemia (Frossk.) Chiov. Result. Sc. Miss. Stefan. Paoli Somal. Ital. 1:115. 1916. Syn. *Asclepias daemia* Forssk., *Daemia extensa* R. Br. (Asclepiadaceae), 'Utran'.

Local Use: Roots are used in stomach-pain and leaves in cough.

Uses from Literature: Root bark is purgative. Leaves are expectorant and used in asthma. (Kirtikar and Basu, 1918; Nadkarni, 2013).

Experimental Evidences: Ethanol extract of roots exhibited hepatoprotective activity (Bhaskar and Balakrishnan, 2010). Ethyl acetate crude extract of leaves showed antibacterial activity against pathogenic bacteria (Ignacimuthu *et al.*, 2009).

Phoenix sylvestris (L.) Roxb. Fl. Ind. Carey ed. 787. 1832. (Arecaceae), 'Tad, Tadi, Shindi'.

Local Use: Roots are used to treat dysuria.

Uses from Literature: Roots are used in venereal diseases (Jain, 2012).

Experimental Evidence: Methanol extract showed diuretic effect (Howlader *et al.*, 2006).

Pueraria tuberosa (Roxb. ex. Willd.) DC. Prodr. 2:240. 1825. Syn. *Hedysarum tuberosum* Roxb. ex Willd. (Fabaceae), 'Bhuikohala'.

Local Use: Root tubers are used in spermatorrhoea.

Uses from Literature: Plant is aphrodisiac, rejuvenative, tonic, vital energy booster, spermatogenic and immune booster. Root tubers are useful in sexual debility, promoting semen and as restorative tonic (Warrier *et al.*, 1997; Pullaiah, 2006; Khare, 2007; Jain, 2012).

Experimental Evidence: Ethanolic extract of tubers showed androgenic effect (Chauhan *et al.*, 2013).

Quirvelia frutescens (L.) M. R. & S. M. Almeida in J. Bombay Nat. Hist. Soc. 90:427. (1993) 1994. Syn. *Apocynum frutescens* L., *Ichnocarpus frutescens* (L.) R. Br., *I. ovatifolius* A. DC. (Apocynaceae), 'Dudhkandi, Bijmar-vel, Dudhbel'.

Local Use: Roots and leaves are used in the treatment of skin diseases and fever.

Uses from Literature: Roots are antipyretic; beneficial in chronic skin diseases, fever. Leaves are used in fever (Chatterjee and Pakrashi, 1995; Khare, 2007; Jain, 2012). Experimental Evidences: Chloroform and methanolic extracts of whole plant showed hepatoprotective activity (Das *et al.*, 2007). Methanolic extract of roots showed anti-pyretic (Pandurangan *et al.*, 2008).

Santalum album L. Sp. Pl. 349. 1753. (Santalaceae), 'Chandan'.

Local Use: Wood paste is applied in muscle inflammations.

Uses from Literature: Wood paste is used in local inflammations (Khare, 2007).

Experimental Evidence: Anti-inflammatory and sedative effect of sandalwood oil has been evaluated (Sivaramakrishnan and Shankaranarayana, 1990).

Schrebera swietenoides Roxb. Pl. Cor. 2:101. 1798. (Oleaceae), 'Padar, Mokha'.

Local Use: Stem bark powder is given to treat diabetes.

Uses from Literature: Stem bark is bitter, appetizing, digestive; useful in wounds healing (Kirtikar and Basu, 1918). Fruits are used to treat diabetes (Warrier *et al.*, 1997).

Experimental Evidences: Aqueous and ethanolic extracts of stem bark showed wound healing activity (Rasal *et al.*, 2009). Ethanolic extract of fruits showed antidiabetic and antioxidant activities (Bagli and Jalalpure, 2010).

Securinega virosa (Roxb. ex. Willd.) Baill. in Adansonia 6:334. 1866. Syn. *Phyllanthus virosus* Roxb. ex Willd., *Fluggea microcarpa* Bl. (Euphorbiaceae), 'Pandharphali, Pithondi'.

Local Use: Leaf juice is used for wound healing.

Uses from Literature: Leaves are used in diabetes, painful swellings and bone fracture (Khare, 2007; Jain, 2012).

Experimental Evidences: Methanolic leaf extract showed analgesics and anti-inflammatory activities (Yerima *et al.*, 2009). Plant extract showed wound healing activity (Dickson *et al.*, 2007).

Solanum nigrum L. Sp. Pl. 186. 1753. (Solanaceae), 'Kanguni'.

Local Use: Whole plant extract is given as liver tonic.

Uses from Literature: Plant is digestive, laxative, tonic and useful in liver and spleen enlargement and liver cirrhosis. Leaves are laxative; used in liver complaints and stomachache (Khare, 2007; Jain, 2012).

Experimental Evidence: Aqueous extract of whole plant showed hepatoprotective activity (Elhag *et al.*, 2011).

Solanum virginianum L. Sp. Pl. 187. 1753. Syn. *S. surattense* Burm. f., *S. xanthocarpum* S. & W. (Solanaceae), 'Bhui-Ringani, Ran-vangi'.

Local Use: Root is given to treat dysuria.

Uses from Literature: Roots are diuretic and useful in difficult urination and urinary complaints (Khare, 2007; Jain, 2012).

Experimental Evidence: Aqueous extract of roots showed diuretic potential (Ranka *et al.*, 2013).

Soymida febrifuga (Roxb.) A. Juss. in Mem. Mus. Paris 19:251. t. 22. f. 26. 1830. Syn. *Swietenia febrifuga* Roxb. (Meliaceae), 'Rohan, Rohini'.

Local Use: Whole plant extract is applied to stop bleeding from cuts and wounds. Stem bark is given to treat liver inflammation.

Uses from Literature: Stem bark is tonic; used in rheumaticswelling, uterine bleeding, haemorrhage and body inflammations (Malarkodi *et al.*, 2009; Jain, 2012).

Experimental Evidences: Wound healing activity of stem bark has been evaluated (Palei, 2013). Ethanolic extract of leaves possesses hepatoprotective activity (Teja *et al.*, 2014).

Sphaeranthus indicus L. Sp. Pl. 1314. 1753. (Asteraceae), 'Gorakhmundi'.

Local Use: Paste of whole plant powder is applied on piles.

Uses from Literature: Plant is useful in hepatic and gastric disorders, piles. Stem bark is useful in piles. Root bark is used in bleeding piles (Warrier *et al.*, 1997; Jain, 2012; Nadkarni, 2013).

Experimental Evidences: Methanol extract of whole plant showed hepatoprotective activity (Mathews *et al.*, 2012). Alcoholic extract of floral heads showed wound healing activity (Jha *et al.*, 2009).

Spilanthus calva DC. in Wight, Contrib. Bot. Ind. 19. 1834. Syn. *S. acmella* auct. non Murr. Hook f. Fl. Brit. India 3: 307. 1881. (Asteraceae), 'Akkalkadha'.

Local Use: Floral heads are given to treat toothache.

Uses from Literature: Flowers are used in toothache (Jain, 2012).

Experimental Evidence: Aqueous extract of whole plant showed anti-inflammatory and analgesic activities (Chakraborty *et al.*, 2004).

Terminalia bellirica (Gaertn.) Roxb. Pl. Cor. t. 198. 1805. Syn. *Myrobalanus bellirica* Gaertn. (Combretaceae), 'Behada'. Local Use: Fruit powder is given for asthma. Seeds kernel paste is used to treat cataract

Uses from Literature: Fruits are laxative; used to treat cough, cold, hoarseness of voice, asthma, bronchitis (Warrier *et al.*, 1997; Kirtikar and Basu, 1918; Khare, 2007; Jain, 2012).

Experimental Evidences: Fruit extract possesses antispasmodic and bronchodialatory activities (Gilani *et al.*, 2008). Fruits showed anti-cataract activity (Shastri *et al.*, 2012).

Tribulus terrestris L. Sp. Pl. 387. 1753. (Zygophyllaceae), 'Gokharu, Sarata'.

Local Use: Fruit powder is given to increase sperm count.

Uses from Literature: Whole plant is given in impotence. Fruits are given in infertility disorders and as tonic in sexual inadequacy (Khare, 2007; Jain, 2012).

Experimental Evidence: Hydroalcohol extract of fruits showed stimulating effect on primary spermatocyte (Karimi *et al.*, 2012).

Vernonia cinerea (L.) Less. in Linn. 4:291. 1829. Syn. *Conyza cinerea* L. (Asteraceae), 'Sahdevi'.

Local Use: Roots are used in malarial infection.

Uses from Literature: Plant is useful in fever. Plant is febrifuge and infusion is given in malaria (Khare, 2007; Jain, 2012).

Experimental Evidence: Aqueous extract of whole plant showed anti-malarial activity (Chea *et al.*, 2007).

Woodfordia fruticosa (L.) Kurz. in J. Asiat. Soc. Bengal 40:56. 1871. Syn. *Lythrum fruticosum* L., *Woodfordia floribunda* Salisb. (Lythraceae), 'Dhayati'.

Local Use: Fruits are used to treat dysentery and skin diseases.

Uses from Literature: Roots and leaves are used in skin diseases. Dried flowers are useful in dysentery, diarrhoea skin diseases (Warrier *et al.*, 1997; Khare, 2007; Jain, 2012).

Experimental Evidence: Methanol extract of flower showed antibacterial activity (Parekh and Chanda, 2008).

Conclusion

Above results confirms the credibility of medicinal plant species used by local herbal healers of Warud Tahsil in Amravati district of Maharashtra. Such studies on more ethnomedicinal plants, among diverse ethnic groups, could provide lead drug molecules for clinical research. This will build up confidence among the local herbal healers and the patients and will help us to include these plant species in areas like nutrition, medicine, environmental assessment and resource management practices.

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