Purulia, the western most district of West Bengal, covering land area of 6259 sq km is the natural treasure of vast number of plants having ethnobotanical importance. The present study enumerates some common and extensively used ethnomedicinal plants. During the ethnobotanical survey in the district, 57 plant species belonging to 57 genera and 40 families have been enumerated. The medicinal information have been collected by personal contact with the aborigines such as Bhumijs, Birhores Kherias, Mundas, Oraons and Santals. Plants with botanical name, family, local names, parts used, mode of preparation and administration are given. These plants may be useful under rural healthcare system & for herbal drug industry.

Key-words: Bhumijs tribe, Birhores Kherias tribe, Mundas tribe, Oraons tribe and Santals tribe, Ethnomedicine, Medicinal plants, Purulia, West Bengal, Healthcare practices, Livestock diseases

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The survey conducted during January 1997 to April 2003 involved field studies in terms of collection of the available information in detail for future application and scientific investigation.

Purulia is the westernmost district of West Bengal adjoining the state of Jharkhand (Fig. 1). It is situated between 22°51’N and 23°42’N and 85°51’E and 86°54’E, covering an area of 6259 sq km with variation in altitude from 250-700 m. The temperature falls up to 7°C in winter and rises up to 45°C in summer. The annual rainfall is approx 1701 mm. The forest covered area accounts for 889 sq km of total area and are of dry deciduous type. The district is inhabited by many tribals, which constitute about 20% of the total population of the district. The chief tribals are Bhumijs, Birhores, Kherias, Lodhas, Mundas, Oraons, Paharias, Santals, etc. (Figs. 2-4). They prefer to live in remote hilly jungles or at their base. About 210 plant species are used by the aborigines as medicine in Purulia district. Earlier studies on ethnomedicinal plants also revealed that local people prefer traditional medicine due to low cost and social prejudice.

Methodology

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information on medicinal uses of plant species, authenticated by voucher specimens. The information have been verified with tribals inhabited at different places of the district. The partially identified voucher specimens were identified by consulting CNH (CAL) herbarium. The recorded therapeutic uses have been compared with published literature.8–10,11

Results

Plants have been arranged alphabetically and for each species – botanical name, family, local name(s), parts used, mode of preparation & administration along with doses are provided. In general, tribals select the time and seasons for collection of medicinal plants depending on the parts used for their efficacy. The drugs in combination with black pepper (Piper nigrum) and long pepper (Piper longum) are believed to be more effective to cure ailments. The preparation of medicine is an art and is prepared in various forms like infusion, decoction, paste, powder, pill, syrup, juice, etc. The abbreviations (Bh, San, Mu, Kh, Lo, Or) have been used for Bhumij, Santal, Munda, Kheria, Lodha and Oraon tribes, respectively.

Enumeration

Abras precatorius L. (Fabaceae), Gunga (San), Kunch (Bh), Seed paste, prepared from 2 seeds and boiled cow milk (50 ml) is given once daily for 3 days as an abortifacient.

Achyranthes aspera L. (Amaranthaceae), Aphang (Bh), Sitirkad (San), Root paste (5 gm) with honey (2:1) is given twice daily for 7 days in pruritus, oedema, haemorrhoids and pneumonia.
Andrographis paniculata Nees (Acanthaceae), Kalmegh (Bh), Bhui-nimb (Lo); Leaf paste together with paste of black pepper is given in the morning once for 7 days in liver complaints, jaundice, malarial fever and stomach pain.

Annona squamosa L. (Annonaceae), Madar (Bh), Newa (San), Ata (Bh), Dried root powder (2 gm) with honey is given once daily for abortion. Leaf paste is applied on the scalp to remove lice from hairs.

Aristolochia indica L. (Aristolochiaceae), Ishermul (Bh), Bhedi-Janete (Mu) Root paste with paste of 7 long pepper is given as antidote to snakebite. Lukewarm leaf paste is applied on boils and blisters on skin.

Atylosia scarabaeoides (L.) Benth. (Fabaceae), Gaisani-lohara (Bh), Bankulthi (Lo), Birhara (San), Plant extract (250 ml) is given to cattle in dysentery.

Azadirachta indica A. Juss. (Meliaceae), Nim (Bh), Bokom-dare (San), Stem bark extract (10 ml) is given after menstruation for 3 days as contraceptive. Leaf extract (10 ml) is prescribed as febrifuge and seed oil is applied on scalp as hair promoter.

Bombax ceiba L. (Bombaceae), Shimul (Bh), Simal-dare (San), Fresh root paste with cow milk (1:3) is prescribed to regulate irregular menstruation and against leucorrhoea. Fruit paste is applied on body during small pox for quick relief.

Butea superba Roxb. (Fabaceae), Lata palash, Patal kumra (Bh), Leaf paste is applied on piles to stop bleeding. Leaf paste together with paste of Haldi (Curcuma longa) is also applied on skin eruptions to get relief from irritation.

Caesalpinia bonduc (L.) Roxb. (Caesalpiniaceae), Kant-Karanj (Bh), Nata (Mu), Seed powder together with paste of black pepper is prescribed twice daily in malarial fever. Seed paste with mustard oil (2:1) is applied during scabies.

Calotropis gigantea (L.) Br. (Asclepiadaceae), Parkha (San), Akand (Bh), Root decoction with paste of long pepper (2:1) is prescribed in leucorrhoea. Warm fresh leaf is applied on legs during rheumatic pain.

Careya arborea Roxb. (Lecythidaceae), Kumvi (Bh), Kumbir (San), Stem bark decoction is used for washing septic wounds of cattle. Paste with Nim seed oil (4:2) is applied to treat leucoderma.

Cayratia pedata (Wall.) Gagnep. (Vitaceae), Goali-lata (Bh), Dhabir (Or), Stem paste is applied for healing bone fracture. Lukewarm leaf juice (1ml) is put twice daily as ear drop to cure fungal infection.

Celastrus paniculatus Willd. (Celastraceae), Kujrilata (Bh), Munjui (San), Root bark paste is given for abortion. Seed oil is rubbed to reduce leucoderma.

Cissampelos pareira L. (Menispermaceae), Chokipar (Bh), Tijumala (San), Root paste with long pepper (10 gm) is prescribed once daily for 5 days as an antidote to snakebite. Crushed rhizome (10 gm) is given twice daily in chest pain.

Cleistanthus collinus (Roxb.) Benth. (Euphorbiaceae), Parasi (San), Parasu (Mu), Stem bark paste is applied on wounds as antiseptic and also on hoof sores of cattle.

Costus speciosus (Koening.) Sm. (Zingiberaceae), Kewa-Kanda (San), Bao-ada (Bh), Warm rhizome paste is applied on waist and legs to cure rheumatic pain.

Curculigo orchioides Gaertn. (Hypoxidaceae), Talmuli (Or), Shetmul (Kh), Rhizome paste with curd (3:1) is given for 10 days in leucorrhoea. Decoction (30ml) is given once daily to stop nasal bleeding.

Cynodon dactylon Pers. (Poaceae), Durba (Bh), Dhobigas (San), Plant paste is applied to stop bleeding of piles.

Datura metel L. (Solanaceae), Datura (San), Dhuto (Bh), Root paste is applied to tooth caries to get relief from pain. Dried leaf with seed is smoked to treat asthma.

Desmodium gangeticum DC. (Fabaceae), Salpani (Bh), Oterai (San), Root paste with long pepper (5 gm) is given thrice daily for 7 days to cure typhoid.

Elephantopus scaber L. (Asteraceae), Majur Junti (Bh), Samdulum (Or), Root paste with black pepper (3:1) is given for 5 days as antidysmenorrhoeic. Leaf paste is administered to cattle in diarrhoea.

Evolutus alsinoides L. (Convulvulaceae), Shanka Puspi (Bh), Latagas (Kh), Plant decoction (100 ml) is prescribed once daily to regain loss of memory, in chronic bronchitis and general weakness.

Gardienia gummifera L. (Rubiaceae), Burkura (Bh), Bhuru (San, Or), Lukewarm gum (10 gm) with mustard oil is applied for rheumatic swelling, backache and chronic pain.

Gloriosa superba L. (Liliaceae), Languli lata (Bh), Ulatchandal, Tuber paste is applied on body in smallpox, leprosy and the juice is applied to kill lice.

Helicteres isora L. (Sterculiaceae), Ga-Machra (Bh), Kukurbichia (Or), Boiled fruit in mustard oil (1:3) is applied all over the body of children for strength and scabies.
Hemidesmus indicus R. Br. (Asclepiadaceae), Anantamul (Bh), Analings (San), Root paste is applied as an antidote for snakebite.

Holarrhena pubescens Wall. ex G. Don (Apocynaceae), Kurchi (Bh), Hat (San), Stem bark decoction with honey (3:1) is prescribed for 10 days as cure for chronic amoebic dysentery and fever. Dried seed powder (2 gm) is given once to children as an anthelmintic.

Ichnocarpus frutescens R. Br. (Apocynaceae), Shyamalata (Kh), Dudhilata (Bh), Plant paste is applied on bone fracture and latex is applied on scabies.

Jatropha gossypifolia L. (Euphorbiaceae), Lal Varenda (Bh), Rajiked (San), Latex is applied to tooth caries to ally toothache.

Litsea glutinosa (Lour.) C.B. Robins (Lauraceae), Kukur-chita, Garur (Bh), Harila (San), Stem bark paste is applied in bodyache and as content of plaster for treating bone fracture.

Madhuca longifolia (Koening.) Maeb. (Sapotaceae), Mahua (Bh), Mahul (Mu), Seed oil is rubbed during rheumatic swelling and skin diseases.

Mallotus philippensis Muell. Arg. (Euphorbiaceae), Ban-Sindur (Bh), Gara-Sinduri (Lo), Fruit decoction (10 ml) is prescribed to children to cure enlarged spleen and as anthelmintic.

Martynia annua L. (Martyniaceae), Bagh nakh (Bh), Gaymukhi (Lo), Seed oil is rubbed to treat rheumatic swelling, scabies and ringworm.

Minusops elengi L. (Sapotaceae), Bakul (Bh), Bohur (San), Stem bark paste is applied twice daily in toothache and in gum inflammation. Seed oil (5 ml) is prescribed as laxative.

Moringa oleifera Lam. (Moringaceae), Saajina (Bh), Munga-Sag (San), Stem bark paste is applied on sores as antinflammatory and as emollient. Seed oil (5 ml) is given as purgative.

Nyctanthes arbor-tristis L. (Oleaceae), Sheuli (Bh), Saparom (San), Leaf juice (20 ml) with common salt is prescribed twice daily in malarial fever, cough and cold. Seed powder with mustard oil (3:2) is applied on scalp for removing dandruff.

Ocimum sanctum L. (Lamiaceae), Bir Tulsi (Bh), Malmalgin (San), Leaf paste is applied with common salt (2:1) on skin as curative to ring worm and powdered seed with mustard oil on boils for suppuration.

Oxalis corniculata L. (Oxalidaceae), Amruli (Bh), Ambotii (San), Plant paste is given as an antidote to poison caused by Datura metel seeds and Thevetia peruviana fruits, Lukewarm seed paste is applied on piles to stop bleeding and to get relief from pain.

Pterospermum acerifolium Willd. (Sterculiaceae), Muchkunda (Bh), Muskundu-daru (San), Infusion of petals (100 ml) with sugar (3:1) is given once daily for 5 days against indigestion, dehydration and in haemotouria.

Schleichera oleosa (Lour.) Oken. (Sapindaceae), Kusum (Bh), Pusar (San), Seed oil is applied to treat scabies and for hair growth.

Semecarpus anacardium L.f. (Anacardiaceae), Bhela (Bh), Sosobili (San), Lukewarm seed oil is applied on swelling of limb joints in rheumatism and on leprotic wounds.

Shorea robusta Gaertn.f. (Dipterocarpaceae), Roli (Bh), Sakhu (San), Powdered resin with hot cow milk (1:3) is given twice daily during chest pain and indigestion.

Solanum surattense Burm.f. (Solanaceae), Setgot baigun (Bh), Rambaigun (San), Root decoction with long pepper paste (2:1) is given as preventive to pox. Seed paste is applied to teeth caries.

Sphaeranthus indicus L. (Asteraceae), Murmuri (Bh), Khardhani Ghas (Mu), Leaf juice (5 ml) with long pepper and common salt (3:1:1) is given for 10 days in elephantiasis.

Symplocos racemosa Roxb. (Symplocaceae), Lodh (Lo), Titikar (San), Stem bark decoction (15 ml) with long pepper paste (3:1) is prescribed once for 5 days for inducing abortion.

Tamarindus indica L. (Caesalpiniaceae), Tetul (Bh), Jogos (San), Fruit infusion with cow milk (3:2) is given as an antidote to poison caused by opium and fruits of Thevetia peruviana & Datura metel.

Tephrosia purpurea Pers. (Fabaceae), Nilkanta (Bh), Anuraida (San), Stem is used as tooth brush against pyorrhoea. Crushed seed is applied with mustard oil (2:1) on eczema.

Terminalia arjuna (Roxb.) Wight & Arn. (Combretaceae), Arjun (Bh), Kabua (Lo), Stem bark decoction (30ml) is given once daily for 30 days, in ischemic heart diseases. Crushed fruits (5 gm) is given twice daily as stomachic.

Terminalia crenulata Roth (Combretaceae), Asan (Bh), Atana (San), Stem bark decoction (15 ml) is given once daily to women in anaemia.

Tinospora cordifolia (Wild.) Miers ex. Hook f. & Thoms (Menispermaceae), Latgulancha (Bh), Cunchi (San), Stem paste is prescribed as emollient for
cracked bone and stem extraction (10 ml) is given once daily after delivery for vitality. *Uraria picta* Desv. (Fabaceae), *Mahadevjata* (Bh), *Ishwarjata*, Root paste with honey (4:2) is given once daily for 5 days as abortifacient. Leaf paste is given twice daily as antidote to snakebite. *Ventilago denticulata* Willd. (Rhamnaceae), *Rairui* (Bh), *Bonga-Sarjom* (San), Two drops of root juice is put in the ear against pus formation. Bark paste with ginger (4:2) is applied in cracking bone. *Vetiveria zizanioides* (L.) Nash (Poaceae), *Khas-Khas* (Bh), *Siromu* (San), Root paste is applied on forehead for the treatment of headache and with honey (3:2) is administered orally to control vomiting. *Vitex negundo* L. (Verbenaceae), *Begna* (Bh), *Sinduhari* (San), Sun dried powdered leaves (3 gm) after overnight soaking in water is prescribed once in the morning for one month to cure rheumatism and body pain. *Woodfordia fruticosa* Kurz. (Lythraceae), *Dhai phul* (Bh), *Dhadki* (Mu), Leaf infusion (10 ml) with black pepper (3:1) is given twice daily for a week in indigestion. Flower paste with honey (2:1) is administered to prevent nausea and cough. 

Ziziphus mauritiana Lam. (Rhamnaceae), *Kul* (Bh), *Jom-Janum* (San), Seed powder (3 gm) is given to children as anthelmintic and antiemetic.

**Discussion**

A good number of plants are used by the tribal communities of Purulia district as medicines but their full potential have not yet been utilized scientifically. Most of the recorded plants have no or less toxic effects to human body. The plant species have tremendous medicinal potentialities and may be the subject of study through various methods of clinical trials and pharmacological studies. These information may be used for adopting the proper healthcare measures by the policy makers and may provide a lead in the development of new drugs. So, there is urgency of recording information of plants used for medicinal purpose by tribals before depletion of these Traditional Knowledge. Some recorded plants, e.g. *Aristolochia indica* L., *Costus specious* (Koen) J.E.Smith, *Litsea glutinosa* (Lour.) C.B.Rob., *Mallotus philippensis* (Lamk.) Mueller–Arg., *Uraria picta* (Jacq.) Desv. ex DC, etc. are becoming locally endangered as a result of over exploitation, pollution, tampering of soil, lack of pollinating agents, etc. Only a consistent effort and the participation of the local inhabitants through awareness programme can stop such an irreparable damage of plants. In addition to their medicinal aspects, there is also a crying need for preservation of the germplasm of such locally endangered plant species for further exploitation.

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**References**