

Medicinal plants used by *Chakma* tribe in Hill Tracts districts of Bangladesh

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An ethnobotanical survey was carried out on the utilization of medicinal plants by *Chakma* tribe living in the remote hilly forest areas of Hill Tracts districts of Bangladesh by interviewing traditional herbalists, called *Baiddaya*, and various elderly men and women. Indigenous knowledge of herbal medicine remains an integral part of the healthy system among *chakmas* in the Hill Tracts area. 198 plant species with their local (*Chakma*) names were recorded for their uses for curing at least 78 ailments. These species, belonging to 74 families, are listed in alphabetical order, each with local names, methods of preparation, route of administration and uses.

Keywords: Medicinal plants, Ethnobotany, Indigenous knowledge, *Chakma* tribe, Hill Tracts, Bangladesh

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The use of medicinal plants as herbal remedy is a part of traditional heritage in many rural areas of Bangladesh, especially among forest inhabitants. The indigenous knowledge of use of plant resources for the cure of various human ailments, being used since immemorial time, are still believed to be persisted among both *Bengali* and tribal communities of Bangladesh living in Chittagong and Hill Tracts districts^{1,2}. Among 19 major tribes of Bangladesh, 14 namely, *Chakma*, *Marma*, *Murong*, *Thanchunga*, *Tripura*, *Chack*, *Bhome*, *Pangkhoa*, *Kheyang*, *Rheyang*, *Lushai*, *Kuki* and *Khumi* living in the Hill Tracts districts^{3,4}. Among them, *Chakma* is the largest tribe dominating by 1,50,000 populations. The Hill Tracts of Bangladesh, which includes three districts, viz, Bandarban, Khagrachari and Rangamati, are located in the Southeast corner of country with Kaptai watershed area between 21°25' and 23°45' N and between 91°45' and 92°52'E. It is bordered by Tripura and Mizoram of India in the North and Northeast, Lushai Hills and Arakan hill tracts of Myanmar in the Southeast and Chittagong and Cox's Bazar districts in the West. It is situated with tropical rain forests and rich biodiversity. The tribal people of these areas are mostly dependent on plant resources for their food and medicine. *Chakma* tribe has its own traditional system of herbal treatment for their primary

healthcare and is still dependent on it. Although it is yet difficult to get modern medical facilities for their day-to-day problems, the advancement of modernization including establishment of community health services in the remote hill areas is in rapid progress. However, it is alarming that the Indigenous Knowledge and practices are gradually disappearing day by day. The need for documentation of such Indigenous Knowledge System of herbal medicine available among both *bangalis* and tribal communities is being realized, and in recent years, some work has been done^{4,9}. The complete inventory and documentation of this indigenous knowledge system (IKS) has not yet been made. However, research under AU-CU Biodiversity Link Project towards the completion of inventory and documentation of this IKS from tribal communities is in progress.

Methodology

An investigation was conducted among *chakmas* under AU-CU Biodiversity Link Project I. The study area includes the entire Hill Tracts of Bangladesh consisting of Bandarban, Rangamati and Khagrachari districts. Documentation was made by taking random interviews of the herbalists, elderly men and women. Plants used by them were collected from the wild and preserved at the Herbarium of Chittagong University (HCU) as voucher specimens. Local or *chakma* names of plants and methods of use were recorded during

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interviews. The authenticity of information on each plant was confirmed through repeated interviews. For identification, plants were studied taxonomically by using a Long Arm Stereomicroscope at the Herbarium of Chittagong University and compared with the identified specimens available at DACB, HCU and Bangladesh Forest Research Institute, Chittagong (BFRIH). Local Floras were also consulted for current botanical nomenclature.

Enumeration

One hundred ninety eight plant species belonging to 74 families, used by *Chakma* tribe with their local names, preparation, route of administration and uses have been enumerated below:

Abelmoschus moschatus (L.) Medik. (Malvaceae); *Konigaas* and *Thladiantha cordifolia* (Blume) Cogn. (Cucurbitaceae); *Paranga ludi*

Uses: Paste of fresh leaves of both plants is applied to the affected areas for rapid healing of cuts and wounds.

Acacia farnesiana (L.) Willd. (Mimosaceae); *Kanta naksha*

Uses: To relieve headache, a fresh leaf paste mixed with mustard oil is rubbed on the forehead.

Achyranthes aspera L. (Amaranthaceae); *Upolengra*, *Ublengra*, *Ublengra*

Uses: To treat cancer, juice extracted from fresh leaves is taken orally twice daily; to treat boils, fresh leaf paste is supplied to the affected areas; a piece of freshly cut root is inserted to the vagina and kept for 2-3 hrs until abortion takes place.

Adina sessilifolia Hook. f. (Rubiaceae); *Kam gaas*

Uses: To treat skin infections, fresh leaf paste is applied to the affected area.

Aegle marmelos (L.) Corr. (Rutaceae); *Bel*

Uses: Fruit juice is given to drink frequently as a remedy for dysentery.

Aglaonema hookerianum Schott (Araceae); *Sikkachalal*

Uses: For conjunctivitis and constipation, root infusion is taken orally.

Albizia procera (Roxb.) Benth. (Mimosaceae); *Sikloroi*

Uses: For intestinal worms, fresh leaf juice is taken at night before sleep.

Allophyllus triphyllus (Burm.f.) Merr. (Sapindaceae); *Dhendrema*, *Jhandhara*; *Azadirachta indica* A. Juss (Meliaceae); *Neem*; *Hymenodictylon excelsum* (Roxb.) Wall. (Rubiaceae); *Pattyo mormoijja*

Uses: To treat goiter, paste of fresh leaves of *A. triphyllus* and *H. excelsum* is applied to the affected area; to treat scabies, infusion of *A. triphyllus* and *A. indica* leaves is used for washing the infected part daily twice for at least three days.

Allophyllus villosa (Roxb.) Blume (Sapindaceae); *Then brama*

Uses: For the treatment of partial deafness, bark extract is given as eardrop.

Alpinia conchigera Griff. (Zingiberaceae); *Khetranga*; *Carex continua* C. B. Clarke (Cyperaceae); *Daraglick*

Uses: To treat dysentery, *A. conchigera* rhizome juice extract is taken orally twice daily. To stop abdominal pain, 2 teaspoonfuls juice of *A. conchigera* rhizome and *C. continua* root is taken thrice a day.

Alpinia nigra (Gaertn.) Burt (Zingiberaceae); *Bhulchengi*, *khetranga*

Uses: Root extract is taken thrice daily to treat jaundice; for gastric ulcers, decoction of root is taken twice daily.

Amaranthus spinosus L. (Amaranthaceae); *Kanta narich*; *Mallotus roxburghianus* Muell. – Arg. (Myrsinaceae); *Ketaki*, *Hur al ladi*

Uses: Decoction of whole plant of *A. spinosus* is drunk twice daily to treat malarial fever. To stop bleeding from the nose and mouth, decoction of roots of both plants is drunk immediately.

Amischotolype mollissima (Bl.) Hassk. (Commelinaceae); *Cheyadiba*; *Physalis minima* L. (Solanaceae); *Pitting gul gaas*, *Pitus*

Uses: To treat malarial fever, paste of fresh leaves of both plants mixed with onion extract is taken thrice a day.

Amomum aromaticum Roxb. (Zingiberaceae); *Palachevi*; *Boehmeria glomerulifera* Miquel (Urticaceae); *Urmurpata*

Uses: To treat mumps, rhizome extract of *A. aromaticum* is taken thrice daily; to treat anaemia, infusion of fresh leaves of both plants is used in washing the whole body.

Amomum dealbatum Roxb. (Zingiberaceae);
Palachengay

Uses: To treat abscesses, rhizome extract is applied to affected areas.

Anisomeles indica (L.) Kuntze (Lamiaceae); *Jangli harinchi*, *Horinshing*

To treat child fever, leaf extract is given thrice daily.

Antidesma roxburghii Wall. ex Tul. (Euphorbiaceae);
Sadiraissya

Uses: To treat dyspepsia, fresh root juice is given twice daily.

Ardisia paniculata Roxb. (Myrsinaceae);
Barochulliya; *Persia villosa* (Roxb.) Kosterm (Lauraceae); *Sigrishik*

Uses: To treat madness, extract of roots of both the plants is given to drink three times a day.

Ardisia solanacea Roxb. (Myrsinaceae); *Barochulliya*

Uses: To treat boils, paste of fresh leaves is applied to the affected areas.

Argyreia capitiformis (Poir.) Ooster (Convolvulaceae); *Wun mimiar*

Uses: To treat bruising on the legs, leaf paste is applied to affected areas.

Aristolochia tagala Cham. (Aristolochiaceae);
Paranga ludi, *Tajjya ludi*, *Horin kan shak*; *Cissus adnata* Roxb. (Vitaceae); *Isswarmuli*

Uses: To relief abdominal pain, infusion of stems and roots of *A. tagala* mixed with warm water is given several times for rapid relief. To relief rheumatic pain, fresh leaf paste of *A. tagala* is applied to the affected areas; to treat tumour, paste of fresh leaves of both the plants is applied to affected areas and tied with a piece of cloth.

Asparagus racemosus Willd. (Liliaceae); *Sattis chara gaas*

Uses: For vaginitis, juice of root nodules is taken orally.

Begonia roxburghii DC. (Begoniaceae); *Khar tethoi*

Uses: To treat tongue abnormalities, stem extract is given to the children for drinking; to treat jaundice, whole plant extract is taken thrice daily.

Bidens sulphurea (Asteraceae); *Shumo phul*

Uses: To treat acne, paste of flowers and leaves is applied to affected area.

Blumea clarkei Hook. F. (Asteraceae); *Monchoytta*, *Tora gas*; *Phrynium imbriactum* Roxb. (Marentaceae); *Keyang Kaytta*; Unidentified species, *Khedom gaas*

Uses: To treat bone fractures, paste of leaves of these plants is applied to affected areas and bandaged tightly with a piece of coarse cloth for several days. To treat jaundice, pills prepared from the leaf paste are taken thrice daily.

Blumea lanceolaria (Roxb.) Druce (Asteraceae);
Barotora gaas

Uses: Leaf paste diluted in cold water is applied on head and forehead to treat fever; leaves are applied directly to the forehead of children.

Borreria pusilla (Wall.) DC. (Rubiaceae); *Bishmijal*, *Mijlick kher*

Uses: To treat bone fracture, crushed plants are applied to affected areas and to treat scabies, leaf paste is applied to affected areas.

Brassiopsis palmate Kurz. (Araliaceae), *Jarua papey*; *Mussaenda roxburghii* Hooker, f. (Rubiaceae); *Ranirtak*, *Patto mormoijja*, *Sheodima*

Uses: To treat rheumatism, leaf paste of both the plants mixed with butter oil is applied to the affected part. To treat boils, leaf paste of *M. roxburghii* is applied, to treat infant sickness, pills prepared from crushed roots of *M. roxburghii* are given.

Bridelia retusa (L.) Blume. (Euphorbiaceae);
Shukujja gaas

Uses: To treat skin infections, leaf paste is applied to affected areas.

Bridelia stipularis (L.) Blume. (Euphorbiaceae);
Bangari bhanga gaas

Uses: To treat allergies, leaf extract is given to drink.

Buddleja asiatica Lour. (Buddlejaceae); *Adathora*, *Dhuptora*

Uses: To treat fever, leaf paste is applied on the forehead and warm root extract is rubbed all over the body.

Byttneria pilosa Roxb. (Sterculiaceae); *Sola ludi*, *Chala ludi*

Uses: To treat boils, stem paste is applied to affected areas and to treat scabies, leaf infusion is used in bath.

Caesalpinia bonduc (L.) Roxb. (Caesalpiniaceae); *Kumujja ludi*

Uses: To treat skin infections, young leaf paste prepared is applied to affected areas.

Callicarpa arborea Roxb. (Verbenaceae); *Jang gaas*, *Banitak*

Uses: Stem extract if given to drink frequently to treat diarrhoea; to treat bone fracture, paste of root, bark and leaf is applied on affected areas.

Callicarpa macrophylla Vahl. (Verbenaceae); *Dubhoza*; *Sterculia roxburghii* Wall. (Sterculiaceae); *Chirdhima*

Uses: Bark extract of both plants is taken orally to treat fever.

Calotropis gigantea (L.) R. Br. (Asclepiadaceae); *Angar pata*

Uses: To treat rheumatism, leaves are warmed and applied to affected areas.

Cardiospermum helicacabum L. (Sapindaceae); *Ketha boitta shak*

Uses: To treat mumps, fresh root extract is given to drink twice daily. To treat chicken pox, hot water extract of whole plant is given to drink 2-3 times daily and to treat coma, plant infusion is taken orally.

Cassia alata L. (Caesalpiniaceae); *Delong pata*

Uses: To treat eczema, leaf paste is applied to affected areas.

Caryatia trifolia (L.) Domin (Vitaceae); *Lodi mallang*; *Momordica cochinchinensis* (Lour.) Spreng (Cucurbitaceae); *Shejlock shak*

Uses: To treat heart disease, paste of both the plants together with garlic extract is given to drink. To treat abdominal pain, stem extract of *C. trifolia* is taken frequently; to treat fever, infusion of *C. trifolia* leaves is used in baths.

Celosia argentea L. (Amaranthaceae); *Ranga chuma*

Uses: To treat cancer, leaf extract is given to drink 2-3 times a day.

Chasalia curviflora var. *ophioxylodes* (Wall.) Deb & Krishna (Rubiaceae); *Hel gaas*

Uses: To treat snake and insect bites, crushed leaves are applied on wounds.

Clausena heptaphylla (Roxb.) Wight & Arn. (Rutaceae); *Alkatra*

Uses: For headache, extracts from crushed fruits is applied on the forehead.

Clerodendrum viscosum Vent. (Verbenaceae); *Bake pata*, *Beeg gaas*

Uses: To treat dental caries, root paste is applied to affected teeth; to treat abdominal pain, root extract is given to drink frequently.

Commelina paludosa Blume (Commelinaceae) *Bat boitta shak*

Uses: Leaf extract is taken orally 2-3 times a day to treat dysentery.

Cordia dichotoma Forst. f. (Boraginaceae); *Bongol gaas*

Uses: To treat vaginities, root extract is used.

Costus speciosus (Koenig) Sm. (Costaceae); *Ketoki*, *Ma laksmi ma*;

Uses: To stop bleeding from nose and mouth, root extract is taken orally 2-3 times a day. To treat dog bite, fresh root extract is taken orally twice daily for 3 days; for constipation, fruits are cooked as vegetable and eaten. Raw seeds are chewed several times for contraceptive purpose.

Crassocephalum crepidioides (Benth.) Moore; (Asteraceae); *Teolang*

Uses: To treat abdominal pain, fresh stem extract is given to drink at least 3-4 times.

Crinum asiaticum L. (Amaryllidaceae); *Koba rashun*

Uses: To treat boils, fresh root paste is applied to the affected areas.

Crotalaria pallida Ait. (Papilionaceae); *Kudug jhunjhuni*

Uses: Seeds are taken with ripe bananas at least twice daily to treat rheumatism.

Crotalaria verrucosa L. (Papilionaceae); *Kuduk juhunjhuni*; *Stephania japonica* (Thunb.) Miers. (Menispermaceae); *Patalpur*, *Kala patalpur*;

Uses: To treat skin allergies, *C. verrucosa* leaf extract is applied to the affected areas. To treat rheumatism, warm leaves of *S. japonica* are applied to affected areas one by one for several times; to treat piles, warm leaves of *S. japonica* are pressed over piles. To treat tetanus, fresh juice of leaves and stems of both plants is given to drink thrice daily.

Curculigo orchiodes Gaertn. (Hypoxidaceae); *Milni pata*

Uses: To treat snakebite, petiole paste is taken orally.

Cuscuta reflexa (Roxb.) (Cuscutaceae); *Pagasa*

Uses: To treat eczema, plant paste is applied to affected areas until recovery.

Cyclea barbata Miers. (Menispermaceae); *Patalpur*

Uses: To treat allergy, fresh leaf extract is given to children fro drink twice daily.

Cymbidium aloifolium (L.) Sw. (Orchidaceae); *Surimas*; *Drynaria quercifolia* (L.) J. Sm. (Polypodiaceae); *Chiloba*

Uses: For fever, *C. aloifolium* leaf extract is taken thrice daily. To treat tetanus, infusion of both plants is used for bath. To treat jaundice, root extract of *D. quercifolia* is taken thrice daily until recovery. Root paste of both the plants is taken with palm molasses to treat chest pain.

Dalbergia spinosa Roxb. (Papilionaceae); *Baghadara*

Uses: To treat styes, warm leaf is pressed to affected areas.

Dendrophoe falcate (L.f.) Etting (Loranthaceae); *Porsal*

Uses: To treat rheumatism, leaf paste is applied to affected areas.

Derris robusta Benth. (Papilionaceae); *Dumurjja*; *Grewia serrulata* DC. (Tiliaceae); *Monricca*; *Mallotus philippensis* (Lam.) Muell.-Arg), (Euphorbiaceae)*Kuruar gaas*

Uses: Fresh leaf paste of both the plants is applied externally to affected limbs to treat wounded limbs.

Desmobium gangeticum (L.) DC. (Papilionaceae); *Hizing haba pata*; *Piper nigrum* L. (Piperaceae); *Gol morich*

Uses: Paste of *D. gangeticum* leaves and *P. nigrum* fruits is applied to affected areas to treat tumours.

Desmodium motorium (Houtt.) Merr. (Papilionaceae); *Tardirmaton*; *Mussaenda roxburghii* Hooker, f. (*Ranirtak*, *Patto mormojja*, *Sheodima*; *Scindapsus officinalis* (Roxb.) Schott (Araliaceae); *Gstaytta*

Uses: To treat rheumatism, paste prepared from fresh leaves of these plants is applied to affected areas.

Desmodium triquertrum (C.) DC. (papilionaceae); *Juri manda kher*

Uses: To treat epilepsy, root extract is given to drink and also rubbed over veins. To treat hysteria, root extract is taken orally thrice daily.

Dioscorea belophylla Voigt. (Dioscoreaceae); *Muumujja amiala*

Uses: To treat jaundice, fresh leaf juice is given to drink and also rubbed over veins. To treat mumps, fresh leaf extract in hot water is taken twice daily.

Dioscorea pentaphylla L. (Dioscoreaceae); *Bhutta ludi*

Uses: To treat rheumatism, leaf paste mixed with mustard oil is rubbed on the affected parts.

Dracaena spicata Roxb. (Agavaceae); *Kadorateng*

Uses: To treat measles, pills prepared from leaf plates are taken with warm water twice daily.

Eclipta alba L. Mant. (Asteraceae); *Kalashona*

Uses: To treat boils, fresh leaf paste is applied on boils

Elatostema papilosum Wedd. (Urticaceae); *Shilajhar*; *Hedyotis scandens* Roxb. (Rubiaceae); *Bishma*, *Bhuitida*, *Basachilla*; *Tacca integrifolia* Ker Gawler (Taccaceae); *Kiangpitta*

Uses: To treat hysteria, extract of leaves and stems of these plants is given to drink. To treat abdominal pain, leaf infusion of *H. scandens* is taken frequently; to treat styes, warm leaf paste of *H. scandens* is pressed to affected areas.

Embeila ribes Burm. f. (Myrsinaceae); *Long dhama shak*

Uses: Lleaf infusion is taken twice daily to treat jaundice.

Erythrina variegata L. (Papilionaceae); *Madal gaas*

Uses: To expel intestinal worms, a gold ornament is dipped in fresh leaf juice for an hour and then is given to drink twice daily for three days.

Euphorbia hirta L. (Euphorbiaceae); *Dutta Ludi*; *Piper longum* L. (Piperaceae), *Pipul*

Uses: For lactation, after childbirth, root extract of *E. hirta* is taken twice daily and cooked leaves are eaten. Pills prepared from paste of *E. hirta* whole plant and *P. longum* fruits are given twice daily. To treat mumps, stem extract of *P. longum* with hot water is given to children.

Eurya acuminata DC. (Theaceae); *Monraiccha*

Uses: Fresh root extract is given 3-4 times a day for treating diarrhoea.

Ficus heterophylla L.f. (Moraceae); *Ludi sarbua*

Uses: To treat rheumatism, leaf paste is applied externally to affected areas for several days; to treat ear infection, leaf paste is applied to affected areas.

Ficus heteropleura Blume (Moraceae); *Ludi sharbo*

Uses: For constipation, leaf extract in warm water is taken orally.

Ficus hirta Vahl. (Moraceae); *Teng bhang gaas*

Uses: To treat snakebite, root and fruit paste is applied to wounds.

Ficus mollis Vahl. (Moraceae); *Chongralace*

Uses: To treat boils, crushed leaves are applied to affected areas.

Ficus racemosa L. (Moraceae); *Norpudi tida*

Uses: To treat tonsillitis, root is given to chew.

Flemingia bracteata (Roxb.) Wight. (Papilionaceae); *Harsanga*

Uses: To treat tetanus, root extract is taken and leaf paste is applied to whole body.

Flemingia stricta Roxb. (Papilionaceae); *Uskura*, *Khaskura*, *Harsanga*

Pteris vitata L. (Pteridaceae); *Dhekishak*

Uses: To treat polio, stem extract of *F. stricta* is taken thrice daily, and leaf paste is applied to affected areas. To treat goiter, root extract of *F. stricta* is taken orally and paste is applied to affected areas. To treat bone fractures, paste prepared from both the plants mixed with eggs is applied to affected areas. To treat cough, extract of *P. vitata* whole plant is given to children frequently.

Gardenia latifolia Aiton (Rubiaceae); *Bor sudma*

Uses: To treat caries, stem bark crushed and boiled in water is applied to affected areas.

Gymnema acuminatus Wall. (Ascepiadaceae); *Lodianang*

Uses: Leaf paste is applied on chest to treat chest pain.

Hedygium thyriforme Ham. (Zingiberaceae); *Palachebhi*

Uses: To treat anaemia, leaf infusion is used for bath.

Hedyotis corymbosa (L.) Lamk. (Rubiaceae); *Bhuti tida*

Uses: To treat abdominal pain, fresh leaf juice is given to drink frequently.

Hydyotis scandens Roxb. (Rubiaceae); *Bishma*, *Basachilla*, *Bhui tida*

Uses: Infusion of leaves is taken 2-3 times a day to treat stomach pain.

Heptapleurum hypoleucum Kurz (Araliaceae); *Jharobbo hogoeya*

Uses: To treat diarrhoea, stem and leaf extract is taken.

Holarrhena antidysenterica (Roxb. Ex Fleming) Wall. (Apocynaceae) *Kuruk gaas*

Uses: To treat jaundice, bark infusion is given to drink twice daily.

Hoya parasitica Wall. (Asclepiadaceae); *Fessya gaas*

Uses: To alleviate fever and body pain, leaf extract is applied to the body.

Hyptis suaveolens (L.) Poit. (Lamiaceae); *Janguli jangol*, *chonga dana*

Uses: To treat fever, root extract is taken repeatedly; for urinary complications, seed decoction is given empty stomach in the morning.

Ichnocarpus frutescens (L.) R. Br. (Apocynaceae); *Borduttya*, *Dutta ludi*

Uses: To treat bone fracture, whole plant paste is applied to affected parts.

Impatiens flavida Colebrooke (Balsaminaceae); *Haturi nola kher*

Uses: To treat boils, crushed leaf paste is applied to affected area.

Ixora nigricans Br. Ex Wight & Arn. (Rubiaceae); *Dikranga Chuillya*; *Ophirrhiza mungos* L.

(Rubiaceae); *Kalashona*, *Kelarazi*; *Pterospermum acerifolium* Willd. (Sterculiaceae); *Sohralum*

Uses: To treat diarrhoea, root extract of *I. nigricans* is given to drink frequently; to treat ear infection, *I. nigricans* root extract warmed by dipping a burnt iron rod in it is applied to as eardrop. To treat paralysis, leaf paste of these plants is rubbed onto the affected areas 2-3 times a day.

Ixora pubirama Breneck. (Rubiaceae); *Jharbua puishak*

Uses: To treat insect bite, leaf paste is applied to infected area.

Ixora villosa Roxb. (Rubiaceae); *Bhantihara phul*
Rauwolfia serpentina(L.) Kurz (Apocynaceae);
Surshan

Uses: To treat abdominal pain, leaf and fruit extract of both the plants is given to drink frequently. To treat high blood pressure, *R. serpentina* root extract is given to drink 2-3 times a day.

Jasminum scandens Vahl. (Oleaceae)*SÉ Monriccha ludi*

Uses: To treat typhoid fever, extract of whole plant chopped and put into the hole of a bamboo shoot and burnt, is given to drink.

Justicia simplex Don. (Acanthaceae) *Bashoke pata, Gasraja*

Uses: To treat chest pain, paste of leaves mixed with butter is rubbed on to the affected area; to treat rheumatism, fresh leaf paste is applied to affected area.

Kalanchoe pinnata (Lam.) Pers. (Crassulaceae); *Gios*

Uses: To treat body inflammation, decoction of root is drunk.

Laportea crenulata Gaud. (Urticaceae); *Kadam gaas*;
Ophiorrhiza mungos L. (Rubiaceae); *Kalashona, Kellarazi*;
Tectaria vasta (Blume) Copel. (Dryopteridaceae); *Baro bandortola, bandortola*

Uses: For heart burning, root extract of all these plants is taken orally. To treat abdominal tumours, root paste of *T. vasta* is applied to affected area.

Launaea sarmentosa (Willd.) Sch.-Bip ex Kuntze (Asteraceae); *Bhoshmula*

Uses: To treat urinary problems, root extract mixed with sugar is given to drink in empty stomach.

Leea indica (Burm.f.) Murr. (Leeaceae); *Kurobockchora, Hoti gaas*

Uses: To treat painful joints, warm leaf paste is applied.

Leea macrophylla Roxb. Ex Hornemann (Leeaceae); *Ash gaas*

Uses: To treat tonsillitis, leaf extract mixed with warm water is used to gargle and drink. To treat tetanus, root extract is taken and leaf paste is applied to the whole body.

Leucas aspera (Willd.) Link. (Lamiaceae); *Gussy dangor*

Uses: Crushed leaves are applied as paste and leaf extract is taken orally for curing toothache.

Limnophila repens Benth. (Scrophulariaceae); *Maittya anos*;
Mimosa pudica L. (Mimosaceae); *Lajuri hada, Lajurikher*

Uses: To treat leucoderma, paste of both the plants is applied to affected area. To treat boils fresh roots of *M. pudica* are crushed into paste and applied to boils 2-3 times. Fresh root extract of *M. pudica* is taken twice daily to treat dysentery. To treat insect bite, leaf paste is applied to affected areas.

Litsea lancifolia (Roxb. Ex Nees.) Hook. F. (Lauraceae); *Ludijaylla*

Uses: Root extract burnt by using heated iron rod is taken frequently to treat diarrhoea.

Litsea sebifera Pers. (Lauraceae); *Kushum gaas*

Uses: To treat urinary problems, stem or root extract is given to drink 2-3 times a day. To treat rheumatism, leaf paste is applied to affected area.

Ludwigia prostrata Roxb. (Opnagraceae); *Gangku maichya*

Uses: Stem juice is taken 3 times a day to treat whooping cough.

Macaranga peltata (Roxb.) Muell.-Arg. (Euphorbiaceae); *Nainna bichi gaas*

Uses: To treat boils, warm bark paste is applied; to treat piles, root extract is taken orally twice daily.

Macrosolen cochinchinensis (Lour.) Van teign (Loranthaceae); *Orsallu*

Uses: fresh leaf juice is taken twice daily to treat jaundice.

Maesa acuminata A. DC. (Myrsinaceae); *Leddushibang, Muruli*

Uses: To treat diarrhoea, leaf extract is given to drink frequently. To treat boils, leaf paste is applied to affected area; to treat rheumatism, leaf paste is rubbed on to the affected area.

Maesa ramentacea Wall (Myrsinaceae); *Kurua tethoi*

Uses: To treat diarrhoea, leaf juice is given to drink, especially children.

Melia azedarach L. (Meliaceae); *Sadi raissya*

To treat dyspepsia, root extract burnt by a heated iron rod is given to drink.

Merremia vitifolia (Burm.f) Hallier, f. (Convolvulaceae); *Babhoi toring*

Uses: To treat eczema, fresh leaf paste is applied to affected areas 3-4 times daily.

Mikania micrantha Kunth (Asteraceae); *Asham ludi*

Uses: To treat cuts and wounds, leaf paste is applied on the affected area.

Mimosa intisia L. (Mimosaceae); *Shada lajurikhe*;

Smilax zeylanica L. (Similacaceae); *Kankokumaicha*

Uses: To treat boils, root paste of both the plants is applied.

Morinda angustifolia Roxb. (Rubiaceae); *Koba bena*

Uses: Extract of stems and roots is taken twice daily to treat urinary problems.

Nauclea sessilifolia (Rubiaceae); *Kam gaas*

Uses: To treat fungal and bacterial infections, leaf paste is applied between toes at night.

Nyctanthes arbor-tristis L. (Oleaceae); *Shinguri phUl gaas*

Uses: Stem extract is taken 3-4 times a day to treat dysentery.

Onychium siliculosum (Desv.) C. Chr. (Cryptogammaceae); *Sabarang*

Uses: To treat blood dysentery, root decoction is taken thrice daily; to treat earache, leaf juice is applied as eardrop.

Ophirrhiza rugosa Wall. Var. *argentea* (Hook, f.)

Deb & Mondal (Rubiaceae), *Kalashona*, *Kelarazi*

Uses: To treat fracture, plant paste is applied to the affected area and bandaged.

Oroxylum indicum (L.) Benth. Ex Kurz (Bignoniaceae); *Taita*

Uses: Bark extract is given to drink 2 times a day to treat jaundice.

Oxalis corniculata L. (Oxalidaceae); *Amilani*

Uses: For infant sickness, root extract is given to drink.

Peliosanthes teta Andrews (Liliaceae); *Fuji ghash*

Uses: To treat earache, 2-3 drops of leaf extract is put several times.

Persicaria chinensis (L.) H. Gross (Polygonaceae); *Bangori bhanga gaas*

Uses: To treat snakebites, fresh leaf extract is taken orally; to treat allergies, leaf extract is given to drink 2-3 times a day.

Phyllanthus reticulatus Poir. (Euphorbiaceae); *Kamboli lodi pata*

Uses: To treat caries, plant extract is applied to teeth several times.

Piper boehmerifolium Wall. (Piperaceae); *Bhuth shan*

Uses: To treat mumps, stem extract mixed with hot water is given to twice daily.

Plumbago indica L. (Plumbaginaceae); *Agunitita*

Uses: To treat dysentery, pills prepared from leaf-paste are taken twice daily for 2-3 days and to treat tumours, leaf paste is applied to affected area.

Pouzolzia sanguinea (Blume.) Merrill (Urticaceae); *Mog jangaillya shak*

Uses: For the treatment of flatulence, leaf extract is taken with sugar thrice daily. For irregular menstruation, pills prepared from leaf-paste are taken twice daily and to treat skin disease, leaf extract is applied to affected area.

Premna esculenta Roxb. (Verbenaceae); *Silazra*, *Lelom pada*

Uses: To treat fungal/bacterial infections, leaf paste is applied to affected area.

Phychotria adenophyllai Wall. (Rubiaceae); *Baro sudma*

Uses: To treat tetanus, root extract is taken orally twice daily.

Pteris vitata L. (Pteridaceae); *Boiddonath*, *Dhekishak*

Uses: For the treatment of coughs and bronchitis, stem infusion is given frequently.

Ricinus communis L. (Euphorbiaceae); *Lal bherol*

Uses: To treat splenomegaly, pills prepared from the leaves are taken twice daily.

Rourea minor (Gaertn) Leench. (Connaraceae); *Kurochick shak*

Uses: To treat diarrhoea, leaf infusion is given to drink frequently.

Saraca asoca (Roxb) De Wipe (Caesalpiniaceae);
Kurochick shak

Uses: To treat diarrhoea, stem extract is taken with sugar frequently; to treat rheumatism, leaf paste is applied to affected area.

Sarcochlamys pulcherrima Gaud. (Urticaceae);
Jangaillya shak

Uses: To treat boils and fever blisters, leaf paste is applied to the affected area. To stop itching of eyes, fresh leaf extract is applied as eye drop.

Saurauia roxburghii Wall. (Actinidiaceae); *Bhola Kadam*

Uses: To treat boils, leaf infusion is used in baths, especially for children.

Schefflera roxburghii Gamble (Araliaceae); *Den anno*

Uses: For insomnia, leaf paste is taken internally.

Silvianthus bracteatus Hook. f. (Rubiaceae); *Paitto mormoijja*

Uses: To treat leprosy, crushed leaves and roots are applied to affected area.

Spilanthes calva DC. (Asteraceae); *Ozonshak*

Uses: For toothache, leaf extract is taken orally, flowers are chewed and kept in touch of teeth for a while to get relief. To treat tuberculosis, root juice is given to drink 2-3 times daily for at least 7 days.

Stephania glabra (Roxb.) Miers. (Menispermaceae); *Khbukka ludi*

Uses: To treat hysteria, root extract is taken 2-3 times a day.

Sterculia villosa Roxb. Ex DC. (Sterculiaceae); *Udul pata*

Uses: To treat rheumatism, water extract of petioles is given to drink with sugar; root extract is taken as a source of vitamins.

Stereospermum chelonoides (L.F.) DC. (Bignoniaceae); *Hamarang gaas*

Uses: To treat tuberculosis, pills prepared from young leaf paste is taken with warm water thrice daily.

Streblus asper Lour. (Moraceae); *Sharbo gaas*

Uses: For earache, bark extract is applied as eardrop. To treat dysuria, fresh leaf juice is taken with sugar.

Tabernaemontana recurva Roxb. (Apocynaceae);
Kasto dagor

Uses: To treat fever, root extract is given to children to drink and warmed root extract is rubbed on to the whole body.

Tarenna campaniflora (Hook. f.) Balak. (Rubiaceae);
Rebek phUl gaas, Haru lodi, Barochallya

Uses: To treat eczema: leaf extract is applied externally to affected area. To treat abdominal pain caused by diarrhoea, root extract is taken. To treat fever, root extract is given to children to drink 2-3 times a day; to treat scabies, leaf infusion is used for bathing. To treat warts, leaf paste is applied to affected area; to treat dysmenorrhoea, crushed stem is taken with sugar.

Tetrastigma bracteolatum (Wall.) Planch (Vitaceae);
Khurangul ludi

Uses: For headache, leaf paste is applied to the forehead.

Thunbergia grandiflora Roxb. (Acanthaceae); *Deldi pata, Del ladi*

Uses: To treat eye infections, watery sap of stem is applied as eye drop.

Thysanolaena maxima (Roxb.) O. Kuntz (Poaceae);
Jharu phul

Uses: To treat tuberculosis, pills prepared from leaf paste are taken twice daily.

Torenia travancoria Gamble (Scrophulariaceae);
Noligaas

Uses: To treat bone fracture, fresh leaf paste is applied to affected area.

Trevesia palmata (Roxb.) Visiani (Araliaceae);
Jharobbo hogoeya

Uses: To treat bruising, root paste is applied.

Trichosanthes anguina L. (Cucurbitaceae); *Horinkan shak, Faranga ludi Khagrachari*

Uses: To treat boils, leaf paste is applied to affected areas; to treat cancer, fruits are eaten as vegetable. To treat insect bites, root extract is taken orally and root-paste is applied on to the whole body.

Uraria hamosa Wall. (Papilionaceae); *Bilai lengur*

Uses: To treat hysteria, leaf extract is taken, and leaf paste is applied on to the whole body.

Uraria prunellaefolia Grah. (Papilionaceae); *Belio lengur*

Uses: To treat epilepsy, root extract is given to drink twice daily; to treat jaundice, root extract is given to drink 2-3 times daily.

Vernonia patula (Dryand.) Merrill (Asteraceae); *Dando uppai*

Uses: To treat conjunctivitis, plant extract is applied as eyes drop; for tonsillitis, leaf extract is taken for several days.

Vitex peduncularis Wall. (Verbenaceae); *Aash mul gaas*

Uses: To treat jaundice, bark paste is used.

Vitis pedata (Vitaceae); *isswar muli*

Uses: To treat abdominal tumour, root extract is given to drink 2-3 times daily.

Vitis pentagona (Roxb.) Lawson (Vitaceae); *Hajjang ludi*

Uses: To treat eczema and skin disease, leaf extract is applied to affected area.

Wendlandia paniculata DC. (Rubiaceae); *Lodiannol*

Uses: To treat chest pain, crushed leaves are rubbed on to the chest

Willughbeia edulis Roxb. (Apocynaceae); *Surjamukhi ludi*

Uses: To treat snakebite, leaf paste is taken; to reduce swelling, root decoction is taken orally.

Xanthium indicum J. Koenig (Asteraceae); *Bengal lenger*

Uses: To treat infections of fingers, leaf paste is applied to affected area.

Discussion and conclusion

The results show that *Chakmas* of the Hill Tracts areas are dependent on herbal treatment for both common and complicated diseases. They have vast knowledge of herbal treatments for a wide range of physical ailments. In the study, about 78 diseases were recorded which have been treating by about 198 indigenous plant species. A number of plants are used for a single disease, such as rheumatic pain by 18 plants, cold fever by 17, boils by 16, jaundice by 13, abdominal pain by 9 and diarrhoea by 9 plants. On the other hand, different parts of a single species are used for the cure of several ailments in different ways like, *Tarenna campanifolia* for 6 diseases, *Costus speciosa* for 4 and *Maesa acuminata* for 3 diseases. For example, leaf extract of *T. campanifolia* is used for

the treatment of eczema while root extract is used for fever and crushed stems are used for dysmenorrhoea. During field investigation and documentation of ethnobotanical data, it has been found that the tribal herbalists play a significant role in sustaining primary healthcare by herbal treatment in the community. Elderly women have also been found to possess better knowledge about plants and their medicinal uses than men. They possess sufficient knowledge about the toxicity of poisonous plants, and are cautious about the therapeutics and effective doses.

The indigenous knowledge system of herbal practices is still very rich and available among *Chakma* community, concentrated mostly in Rangamati area. The establishment of modern medicinal health centers is in progress in many rural areas, and that may gradually change the existing pattern of indigenous knowledge system of healthcare. Hence, it is necessary to document the indigenous knowledge of useful plants and their therapeutic uses before being lost forever from the community.

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