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Non-Timber Forest Products: Diversity and Used Pattern at Majuli the Brahmaputra River Island of Assam, India.

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Research Article

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ABSTRACT

The Brahmaputra valley is unique in its plant biodiversity. The natives of Majuli dependent on non-timber forest products for their daily livelihood needs. The present paper focus on 64 medicinal plant species belongs to 43 families and 22 wild edible plants belonging to 21 families that were used in different activities in day-to-day life.

INTRODUCTION

The north-eastern India along with its Eastern Himalayan region is considered on global level as a 'hotspot' of biological diversity and also has rich cultural as well as ethnic diversity. About 88% populations are living in rural areas that practices forest based livelihood systems [1]. Shifting cultivation is the main occupation of the people in north-eastern hill region that leads to shrinking of forest cover, [1,2]. Assam has only 33.44% forest cover, which supports variety of Non-Timber Forest Products (NTFPs) yielding species. The use of NTFPs is an old as human existence. In rural areas it plays the major role in socioeconomic upliftment and sustenance. NTFPs provide as source of food, fodder, fiber, herbal products, house construction materials, cultural needs etc. It is the oldest trade commodities in the world [3] that have recently gained a remarkable significance throughout the world in determining the rural economy [4,5] and simultaneously to conserve the biodiversity [6,7,8].

Although the forests of Assam are rich in NTFP yielding species, fragmentation of forest areas and clearing of natural habitat for agriculture and settlements is a regular phenomenon that leads reduction of natural forest cover and erosion of forest resources [8]. Disturbances of tropical rain forests decreases the natural habitat [9,10] and a large number of species being extinct [11]. The forest fringe villagers are chief user group of NTFPs [12,13,14]. Their degree of dependence varies with divergence of socio-economic conditions, distribution, cultural and religious norms, literacy etc. In respect of wild plants it is mostly seasonal. The present paper attempted to document on the diversity and utilization pattern of NTFPs especially medicinal plants and wild edible plants of world largest river Island Majuli.

MATERIALS AND METHODS

The study was carried out in Majuli, the largest river Island in this world. It is lies between 26^{0}45' to 27^{0}12N latitude and 93^{0}39 to 94^{0}35'E longitude with 85-95 m above sea level. The Island is about 80 km of length and for about 10-15 km north to south direction with a total area of about 875 sq km. Majuli is purely a region of fluvial geomorphology. It rises from the Brahmaputra basin and in course of time

turned into a flate-level alluvial plain. The Island is bounded by the river Subonsiri and her tributaries that make it unique vegetation. In present study extensive field surveys were made during 2013-2014. Detailed household surveys were done using a semi-structured questionnaire emphasizing on the used pattern of NTFPs. 20 percent households in each selected villages were sampled randomly. Information on NTFP plant species and their utilization pattern were collected through personal interview with the village headman and other villagers of different age group and sex. The collected specimens were preserved as herbarium and the voucher specimen were kept in the department of botany, D.R. College, Golaghat, Assam.

RESULT AND DISCUSSION

The indigenous knowledge on forest resources is unique to a given culture or a human society. NTFPs especially medicinal plants, wild edible plants and rattans and bamboos etc. are the alternative sources of livelihood system for the local people of Majuli. Conversely, agriculture is the major sources of livelihood economy in the study area where NTFPs take part in key role in daily life. Medicinal plants and wild edible NTFPs that were used by the people of Majuli were described below.

Medicinal plants

Natural barrier, higher average annual rainfall makes the region rich species diversity and more endemism. Medicinal plants the important NTFPs that have been utilizing by human beings for the treatment of different diseases such as – malaria, dysentery, jaundice, abdominal disorders, cut and wounds, fractures etc. Commonly used parts of the medicinal plants are leaves, barks, roots, rhizome, fruits, young twigs, whole plants etc. A total 64 species of medicinal plants belongs to 43 families and 59 genera were recorded in present study (Table 1).

Wild edible plants

Wild dibble plants are another set of NTFPs that provides variety of seasonal vegetable and fruits to the local people. A total 22 species of wild edible plants belongs to 18 families were recorded in present study (Table 2).

CONCLUSION

The increasing demand for medicinal plants threats the natural resource management for sustainable utilization [15,16]. Evidently, extraction of medicinal plants from the wild habitats causes ecosystem imbalance and extinction of sensitive plant species [8]. In the present study area NTFPs were collected from natural habit. Therefore, cultivation of wild species in homestead garden may not only be beneficial from economical viewpoint but also from ecological point of view. Domestication of wild species and their sustainable use has to be promoted for conservation of species diversity in general and Island plants species of Majuli in particular.

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Table 1: Medicinal used NTFPs

Botanical name	Family	Vernacular name	Used pattern
Abrus precatorus L.	Poaceae	Kourimoni	It is used as ornamental flower in the garden
Acorus calamus L.	Araceae	Boch	It is used as treatment of fever and cough, indigestion.
Alocasia fornicate.Schott.	Araceae	Bez kachu	it is used as medicine
Alpinia nigra (Gaertn) B.L.Burtt.	Zinziberaceae	Tora	Used to make rope and also applied bone ache
Alsotonia scholaris.L.	Apocyanaceae	Satiana	Latex is used on the wounds, it also used in stomach
Alternanthera sessilis (L)R.Br.ex Dc	Amaranthaceae	Matikanduri	It is used as medicine and also whole plant is edible
Aristolochia saccata L.	Acanthaceae	Nilokontha	It is used as treatment of cough
Artocarpus lacucha Buch-Ham.	Moraceae	Bohot	It is used for treating piles, diarrhea and malaria, fever.
Asperagus racemosus Willd.	Liliaceae	Sotmul	Young shoots are used as vegetables, roots are used in urinary problem
Averrhoacarambola L.	Averrhoaceae	Kordoi	Fruits used for treatment for jaundice
Azeratum conizoides L.	Asteraceae	Gudhuabon	This plant is used treatment of
Baslla alba L.	Basellaceae	Puroi hak	It is used as rheumatic problems.
Boerhaavia repens L.	Nyctagianaceae	Ponownowa	It is used as antidotes of snakebite.
Callicarpa arborea Roxb.	Verbinaceae	Bonmala	It is used for treatment of fever.
Chenopodium album L.	Chenopodiaceae	Jilmil hak	Leaves is used as vegetables and also anthelmintic.
Citrus bergamaia L.	Rutaceae	Kazi nemu	It is used as treatment of maturation cycling problems
Curcuma aromatic Salisb.	Zinziberaceae	Katuri	It is used as cut and burns
Curcuma caesia L	Zinziberaceae	Kala haldhi	Used as gastric and stomach problem.
Cyperus brevifolius L.	Cyparaceae	Keya bon	Used as treatment of mouth fresher.
Dillenia indica L.	Dilaniaceae	Outenga	The jelly like substance is used for treatment of dysentery.
Dioscorea alata L.	Disoscoreaceae	Kathallu	It is used for treating low blood pressure, rheumatism and also used as birth control.
Drymaria cordata L.	Caryophylaceae	Laizabori	it is used as tonic at the time of dysentery of cattle

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Eclipta prostate L.	Asteraceae	Keheraj	It is used as anti coagulating agent during bleeding, used as hair dye, making black colour ink.
Ficus species L.	Moraceae	Pani dimoru	used as medicine and cattle food
Flacoutia jangomas Raeusch.	Flacourtaceae	Poniol	Ripe fruits edible, fruits pressed with thumb for a minute reduces toughness.
Flemingia strobilifera L.	Papilionaceae	Makhioti	It prevents excess bleeding during period time of women
Garcinia kydia Roxb.	Clusiaceae	Kujithekera	It is used in treatment of stomach problems
Garcinia pedunculata Roxb.	Clusiaceae	Bor-thekera	Fruit is eaten for stomach infection and diarrhea and also as control of intestinal worms.
Grewia hirsute Vahl.	Tiliaceae	Kukurhuta	It is used in dysentery.
Hediotis korimbosa L	Rubiaceae	Bonjaluk	It is used as vegetables and medicine.
Jatroffa species L.	Euphorbiaceae	Verena	It is used in piles problems, teeth trouble. The root is also used in treatment of snake bite.
Lasia spinosa L.	Araceae	Sengmora	Used as vegetables and used as uric acid problem.
Leucas aspera L.	Lamiaceae	Doron	It is considered medicinal for liver ailment, snake bite
Mellustoma melabothricum L.	Tiliciaceae	Futuka	Roots and leaves are used as medicine. Ripe fruits are eaten.
Menya spinosa Roxb.	Rubiaceae	Kotkora	Ripe and dried fruits are eaten with salts.
Moringa oleifera Lamk.	Moringaceae	Sogina	Fruits when unripe used as vegetables.
Murrya koenigii L.	Rutaceae	Norasingha	Used as stomach problem.
Oroxylum indicum Vent.	Bignoniaceae	Bhat ghila	Seeds are used for stomach problem
Oscimum americanum L.	Lamiaceae	Bontulokhi	It is used as teeth problem
Oxalis acetosela H.B.K.	Oxaladiaceae	Tengesi	It is used in treatment of ear problem
Paedaria fotida L.	Rubiaceae	Bhedailota	Whole plant is used for treatment of pain and urine problem.
Passiflora edulis Sims.	Passcifloriaceae	Rashna tenga	Used as food
Physalis minima L.	Solanaceae	Pok moue	Used as food
Piper longum L	Aristolochiaceae	Pipoli	It is used for treating pimples, asthma, cough and cold.
Piper species Hook.	Piparaceae	Aouni pan	It is used at the time of cough and it is supplied to

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			mother after child birth.
pogostemom bengahalensis kuntze.	Lamiaceae	Hukloti	It is used at the time of stomach and urinary problems.
Polygonam microcephalum D.Don	Polygonaceae	Madhusulang	It is used as vegetables
Rhynchostylis retusa Bl	Orchidaceae	Kopou phool	It is used for treating wounds, rheumatism and dysentery.
Ricinus communis L	Euphorbiaceae	Araghos	it is used in rheumatism, urine problem, headache
Scopularia dulcis L.	Scrophulariaceae	Cinibon	It is used for special for diabetic patient.
Solanum anguivi Lamk.	Solanaceae	Titabhekuri	It is used in skin diseases, cough
Solanum torvum.Sw	Solanaceae	Hatibhakuri	It is used in treatment of cough
Spondias pinnata Kurz.	Anacardiaceae	Amora	Fruits are eaten by making curry.
Stelaria media L.	Euphorbiaceae	Morolia	This plant is used as vegetables
Stenochlaena palustris L.	Blechraceae	Dhekia lota	Used as vegetables.
Stephenia hernandifolia L.	Menispermaceae	Tubuki lota	used as medicine
Tamarindus indica L.	Caesalpinaceae	Tetali	Fruits are sour, eaten fresh or by drying prepare jelly, pickles or eaten in curries and chutneys.
Termanalia chebula Retz.	Combretaceae	Silikha	The both unripe and ripe fruits as eaten raw or used as medicine, it is used as digestive.
Terminalia arjuna Roth.	Combretaceae	Arjun ghos	It is used for bone facture
Tetrastigma thomsonianum L.	Vitaceae	Noltenga	Shoots and leaves are eaten which are acedic,it is very tasty when it is cooked with fish.
Tinospora sp. L.	Menispermiaceae	Haguni lota	Used as medicine
Vitx nigundo L.	Verbinaceae	Pochotia	It is used on wounds and body pain
Xanthium strumarium L.	Ateraceae	Aogora	Saplings, young shoots and leaves are used as vegetable usually with potato and other vegetable

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Table 2: Wild edible NTFPs

Botanical name	Family	Vernacular name	Used pattern
Alpinia malaccensis (Brum.f.)Rosc.	Zingiberaceae	Tora	Young shoots for vegetable
Amaranthus spinosus L.	Amaranthaceae	Khutura	Young shoots for vegetable
Amorphophalus campanulatus (Roxb).	Araceae	Ol-kachu	Young shoots and tubers for vegetable
Antidesma bunius (L.) Spre.	Euphorbiaceae	Pani heloch	Young shoots and tubers for vegetable
Calamus leptospadix Griff.	Aracaceae	Jati bet	Young shoots for vegetable
Calamus tenuis Roxb	Aracaceae	Jati bet	Young shoots for vegetable
Clerodendrum colebrookianum Walp.	Verbenaceae	Nefafu	Young shoots and leaves for vegetable
Colocasia esculenta (L.) Schott.	Araceae	Pani kachu	Young shoots and tubers for vegetable
Dillenia indica L.	Dilleniaceae	Ooutenga	For pickle
Dioscorea alata L.	Dioscoreaceae	Moa alu	Tubers for vegetable and food
Dioscorea pentaphylla L.	Dioscoreaceae	Paspotia alu	Tubers for vegetable and food
Diplazium esculentum (Retz). Swertz.	Dryopteridace	Dhekia sak	Young shoots and leaves for vegetable
Eugenia bracteata Roxb.	Myrtaceae	Luklukijamuk	Fruits edible
Eugenia malaccensis L.	Myrtaceae	Pani jamuk	Fruits edible
Ficus glomerata Roxb.	Moraceae	Dimoru	Fruits edible
Flacourtia indica (Burm. f.) Merr.	Flacourtiaceae	Bon-poniol	Fruits edible
Garcinia pedunculata Roxb.	Clusiaceae	Bor-thekera	Fruits edible
Houttuynia cordata Thunb	Saururaceae	Mosondari	Young shoots and leaves for vegetable
Lasia spinosa (L) Thw.	Araceae	Sengmora kachu	Young shoots and leaves for vegetable
Sarcochlamys pulcherrima Gand	Urticaceae	Mesaki	Young shoots and leaves for vegetable
Solanum nigrum L.	Solanaceae	Bhekuri	Young shoots and leaves for vegetable
Spondius mangifera Willd.	Anacardiaceae	Amora	Fruits edible

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