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ETHNOBOTANICAL INVESTIGATION OF WILD EDIBLE PLANTS OF ARAMBAGH SUB-DIVISION OF HOOGHLY DISTRICT, WEST BENGAL, INDIA

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ABSTRACT:

Ethnobotanical investigation of wild edible plants has been carried out to document their use as medicine in addition to vegetable in Arambagh subdivision of Hooghly District, West Bengal, India. Frequent market survey as well as field survey of such wild edible plants results in their seasonal occurrence, which signifies a socio-economic importance of these plants to the peoples in this sub-division. The investigated taxa constitute 40 plant species belonging to angiosperms (97.50%), and pteridophyte (2.50%). Out of 39 angiospermic plants 3 (7.69%) are monocotyledons and 36 (92.30%) are dicotyledons. Leaves are used as a source of food as vegetables in maximum cases (72.50%) and fruits, seeds, corm and spathe are occasionally used (27.50%). Leaf parts of most of the plant species are used as source of herbal medicine for primary healthcare. Some wild plants (10 species) have been recorded for the first time in West Bengal to have their use as vegetable in addition to medicine. Such traditional ethnobotanical information of wild edible plants may help in formulation of new drug. Thus proper use of these plants is urgently needed, which highlights on their conservation for future benefit.

KEY WORD: *Ethnobotany, Arambagh, Wild edible plants, Herbal medicine.*

INTRODUCTION:

Plants are the main basis of our daily life and wild edible plants are extensively used in medicine (Ghosh, 2003; Biswas *et al.*, 2011) by the tribe and poor inhabitant peoples in different regions of the world. In India approximately 1500 vascular plant species are used by the ethnic group of peoples (Handa, 1998). Most of these plants are not cultivated and therefore, collected from wild sources for food. A number of plant species are also used as vegetables by the peoples of Arambagh subdivision which constitute a major nutrient source to their daily diet. The subdivision Arambagh (22°88'' North latitude and 87°78''

East longitude) is situated at the western part of Hooghly District (Figure 1) and ethnobotany of such wild edible plants have not been investigated and documented in this subdivision as well as in this district so far. Thus main objective of this work is to identification, documentation and exploration of ethnobotanical data, which may help in new drug discovery.

METHODOLOGY:

A field as well as market survey has been carried out during 2010-2011 in different seasons on regular basis at 6 community block (*viz.* Arambagh, Goghat- I and II, Khanakul- I and II and Pursurah Block) of Arambagh subdivision to document the information on ethnobotanical uses of wild edible plants. Some of the plant species were marketed in the different seasons throughout the year but some plant species constituted as non-marketing plants and also used as food. Enthobotanical information of such wild food plants were documented through questionnaires and practical uses of plant by the peoples of this subdivision. Such ethnobotanical informations were further crossed verified among the peoples of tribe and poor inhabitants especially with the elder persons, who were traditionally engaged with the knowledge and use of these plants. During survey photographs of plant specimen were taken for record of different morphological characters. The collected plant specimens were processed as voucher for herbarium preservation following the standard herbarium technique (Jain and Rao, 1977) and some for taxonomic work related to further identification with the help of authentic literature (Prain, 1963; Bennet, 1987). Further identification was checked verified from the Botanical Survey of India, Kolkata and identified herbarium sheets were kept in the departmental herbarium for further use.

RESUTLS AND DISCUSSIONS:

40 plant species belonging to 37 genera and 32 families have been documented medicinally important in addition to their edible properties in the Arambagh subdivision. The investigated taxa are arranged according to their voucher number, scientific name along with family, habit and ethnobotanical uses of plant part/parts (Table 1). Out of 40 plant species, 39 (97.50%) belonging to the angiospermic families which constitute 36 (92.30%) dicotyledonous and 3 (7.69%) monocotyledonous and remaining 1(2.50%) belonging to pteridophytic family. All the plant species are terrestrial except 6 plants (*viz.* *Nymphaea alba*, *Ottelia alismoides*, *Alternanthera philoxeroides*, *Enhydra fluctuans*, *Ipomoea aquatic* and *Marsilea quadrifolia*), which are aquatic in habitat (Table 1). Leaf part is used as vegetable in most cases (29 species or 72.50%) and fruits, seeds, corm and spathe are occasionally used (27.50%). Majority of the plant species are herbs (26) followed by tree (6), shrub (4) and climber (4). Six plant species belonging to the family Amaranthaceae. Other important families are Aizoaceae, Asteraceae Convolvulaceae, Portulacaceae and Moraceae with 2 species each.

Ethnobotanical investigation on edible plants was carried out in West Bengal and enlisted 102 plant species used as vegetable (Biswas et al, 2003). In the present investigation 10 plant species (viz. *Ottelia alismoides*, Figure 2A; *Alternanthera philoxeroides*, Figure 2B; *Polygonum plebeium*, Figure 2C; *Pithecolobium dulce*, Figure 2D; *Passiflora foetida*, Figure 2E; *Ipomoea obscura*, 2F; *Citrullus colocynthis*, Figure 2G; *Ceiba pentandra*, Figure 2I; *Corchorus aestuans*, Figure 2J and *Xanthium strumarium*, Figure 2K) have been recorded for the first time in West Bengal to have their use as vegetable in addition to medicine.

CONCLUSION:

The ethnobotanical study of wild edible plant can reveal an interesting information the interaction between the peoples and plants of a specific region. Majority of these plants are often overlooked and not vouchered in ethnobotanical studies. Some of these plants are collected from the wild sources by the local poor inhabitant and selling it in the local market for money. Therefore, these plants have social as well as economic importance to the daily livelihood pattern of the peoples in this region. But over exploitation of these plants may cause threatened in the wild. The major finding is to public awareness about importance of these plants species, which is to be carried out for new drug development and sustainable use of natural products. Thus ethnobotanical documentation of wild edible plants may useful in conservation and utilization of indigenous tradition knowledge of a specific region. In the present investigation 10 plant species are newly reported as edible in addition to their medicinal importance in West Bengal. Further research needs to be carried out on the investigation of conservation status, socio-economic importance and nutritional benefit of these plant species.

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Table: 1 List of wild edible plants of Arambagh subdivision.

Voucher Number	Scientific name and family	Habit	Local Name (Bengali)	Used plant part/ parts and ethnobotanical uses
PB 01	<i>Glinus oppositifolius</i> (L.) A. DC. (Aizoaceae)	Herb	Gima	Young stem and leaves used as vegetable. Whole plant used to treat cold and cough and in bechic.
PB 02	<i>Chenopodium album</i> L. (Chenopodiaceae)	Herb	Betho sak /Bathua	Young twig and leaves used as vegetable. It is used in dyspsia.
PB 03	<i>Polygonum plebeium</i> R. Br. (Polygonaceae)	Herb	Kezmi	Young stem and leaves used as vegetable for greater nutritional benefit. Leaf juice used as liver tonic.
PB 05	<i>Enhydra fluctuans</i> Lour. (Asteraceae)	Herb	Hingcha	Shoot used as vegetable and leaf used to prepare traditional bengali dish. It is used in pox and excoriation.
PB 06	<i>Alternanthera sessilis</i> R. Br. (Amaranthaceae)	Herb	Sanche sak	Young twig used as vegetable. Leaf juice and Bark juice used in jaundice. Bark juice used in snake bite. Fruit used in pox.
PB 07	<i>Hygrophila schulli</i> (Buch.-Ham.) M.R.et.S.M.Almeida (Acanthaceae)	Herb	Kulekhara	Young twig and leaves used as vegetable for weaknes. Leaf juice in anaemia and hypertensive.
PB 08	<i>Trigonella corniculata</i> L. (Papilionaceae)	Herb	Piring sak	Leaves used as vegetable and also used in anthelmintic.
PB 10	<i>Azadirachta indica</i> Juss. (Meliaceae)	Tree	Neem	Young leaves used as vegetable. Neem stick used as tooth brush to prevent caries. Leaf juice used in diabetes Leaves mixed with paste of turmeric and used in small pox. Leaves juice used as carminative and as insect repellent.
PB 11	<i>Ipomoea aquatica</i> Forsk. (Convolvulaceae)	Herb	Kalmi sak	Young twig and leaves used as vegetable. Stem juice used in

Voucher Number	Scientific name and family	Habit	Local Name (Bengali)	Used plant part/ parts and ethnobotanical uses
				insect bite.
PB 12	<i>Spondias pinnata</i> (L. f.) (Anacardiaceae)	Tree	Amra	Fruits are used to prepare sour soup, which is a Source of vitamin C and used to cure digestive problem.
PB 13	<i>Portulaca oleracea</i> L. (Portulacaceae)	Herb	Nuna sak	Shoot used as vegetable. Whole plant used in asthma, dysentery and scurvy.
PB 14	<i>Ficus hispida</i> L. (Moraceae)	Tree	Dumur	Fruits used as vegetable. White milky latex used in urethristis and gastropathy.
PB 15	<i>Amaranthus viridis</i> L. (Amaranthaceae)	Herb	Ban notey	Young twig and leaves used as vegetable. Leaf also used in heartburn.
PB 16	<i>Amaranthus spinosus</i> L. (Amaranthaceae)	Herb	Kata notey	Leaves used as vegetable. Root used in piles and diarrhoea.
PB 17	<i>Centella asiatica</i> (L.) Urban. (Apiaceae)	Herb	Thankuni	Leaf is directly eaten and leaf juice used in diarrhoea and stomachic.
PB 18	<i>Murraya koenigii</i> Spreng. (Rutaceae)	Shrub	Kaipata	Leaf parts used to prepare curry for flavors. Young leaf used in dysentery and vomiting.
PB 19	<i>Commelina benghalensis</i> L. (Commelinaceae)	Herb	Karos sak	Young twig and leaves used as vegetable. Stem juice used in insect bite. Leaf juice used in the blister problem of eye.
PB 20	<i>Talinum portulacifolium</i> Aschers. ex Schwf. (Portulacaceae)	Herb	Tak pui	Young twig and leaves used as vegetable and leaf parts used as an aphrodisiac.
PB 21	<i>Ceiba pentandra</i> L. (Bombacaceae)	Tree	Swet Simul	Seeds are edible and also used as laxative, leprosy and rheumatism.
PB 22	<i>Colocasia esculenta</i> Schott. (Araceae)	Herb	Kachu	Corm used as vegetable. Leaf used in scorpion bite and pile.
PB 24	<i>Syzygium cumini</i> (L.) Skeels. (Myrtaceae)	Tree	Kada jam	Ripe fruit is edible. Seeds dust used in diabetes.
PB 28	<i>Paederia foetida</i> L. (Rubiaceae)	Climber	Gandol pata	Leaves used as vegetable and also use in fever, dysentery and diarrhea.
PB 30	<i>Artocarpus lakoocha</i> Roxb. (Moraceae)	Tree	Madar	Mature fruit used as vegetable. Leaf juice used in worm disease.
PB 32	<i>Corchorus aestuans</i> L. (Tiliaceae)	Herb	Bon-khetay	Leaves used as vegetable. Seed used in pneumonia and stomachic.
PB 34	<i>Citrullus colocynthis</i>	Climber	Ban-kakur	Fruit used as vegetable. Ripe

Voucher Number	Scientific name and family	Habit	Local Name (Bengali)	Used plant part/ parts and ethnobotanical uses
	Schrad. (Cucurbitaceae)			fruit after drying is used to cure fever and also used to build up the body immune system.
PB 35	<i>Mentha arvensis</i> L. (Lamiaceae)	Herb	Pudina	Leaves used in vegetable for flavor. Whole plant used in vomiting, acidity problems and an expectorant.
PB 37	<i>Marsilea quadrifolia</i> L. (Marsileaceae)	Herb	Susni sak	Leaves used as vegetable. Leaf juice used in skin disease.
PB 39	<i>Trianthema portulacastrum</i> L. (Aizoaceae)	Herb	Sapuna sak	Young twig and leaves used as vegetable. Root used in gastric problems.
PB 42	<i>Flacourtia indica</i> (Burm.f.) Merr. (Flacourtiaceae)	Shrub	Bauch	Mature fruits are edible. Leaf used in dysentery and bark used in intermittent fever.
PB 44	<i>Zizyphus oenoplia</i> Mill. (Rhamnaceae)	Shrub	Sekul	Young and Mature fruits are edible. Stem used in stomachic disorder.
PB 45	<i>Ipomoea obscura</i> (L.) Ker-Gawl. (Convolvulaceae)	Herb	Danga kalmi	Leaves used as vegetable. Leaf juice used as an antidote against insect bite.
PB 52	<i>Pithecolobium dulce</i> Benth. (Mimosaceae)	Shrub	Jilapi phal	Fruits are edible. Leaf used in enema. Bark used as astringent.
PB 53	<i>Alternanthera philoxeroides</i> (Mart.) Griseb. (Amaranthaceae)	Herb	Santi sak	Young twig used as vegetable. Leaf used in eye and hair problems.
PB 64	<i>Bacopa monniera</i> (L.) Fennell. (Scrophulariaceae)	Herb	Bramhi	Leaf used as vegetable. Leaf juice used to improve brain memory. Leaf used as laxative and carminative.
PB 67	<i>Boerhaavia diffusa</i> L. (Nyctaginaceae)	Herb	Kum kum sak	Leaves used as vegetable. Root used in diuretic gonorrhoea and jaundice.
PB 71	<i>Oxalis corniculata</i> L. (Oxalidaceae)	Herb	Amrul	Leave are used to prepare sour and salty vegetable. Leaf used in indigestion, ischuria and dysentery.
PB 76	<i>Xanthium strumarium</i> L. (Asteraceae)	Herb	Okra phal	Young twig used as vegetable. Whole plant used in chronic malaria, ulcers, syphilitic and piles.
PB 79	<i>Passiflora foetida</i> L. (Passifloraceae)	Climber	Jali phal	Ripe fruits are edible. Whole plant used as diuretic and liver tonic.
PB 86	<i>Ottelia alismoides</i> (L.) Pres.	Herb	Parmikalla	Spathe is used as vegetable. Leaf juice used in blister

Voucher Number	Scientific name and family	Habit	Local Name (Bengali)	Used plant part/ parts and ethnobotanical uses
	(Hydrocharitaceae)			problems.
PB87	<i>Nymphaea alba</i> L. (Nymphaeaceae)	Herb	Sada saluk	Leaf petiole used as vegetable. Flower used in vomiting, cardiac tonic and hemorrhage discharge. Seeds used in diabetes. Leaf used in bleeding problems.

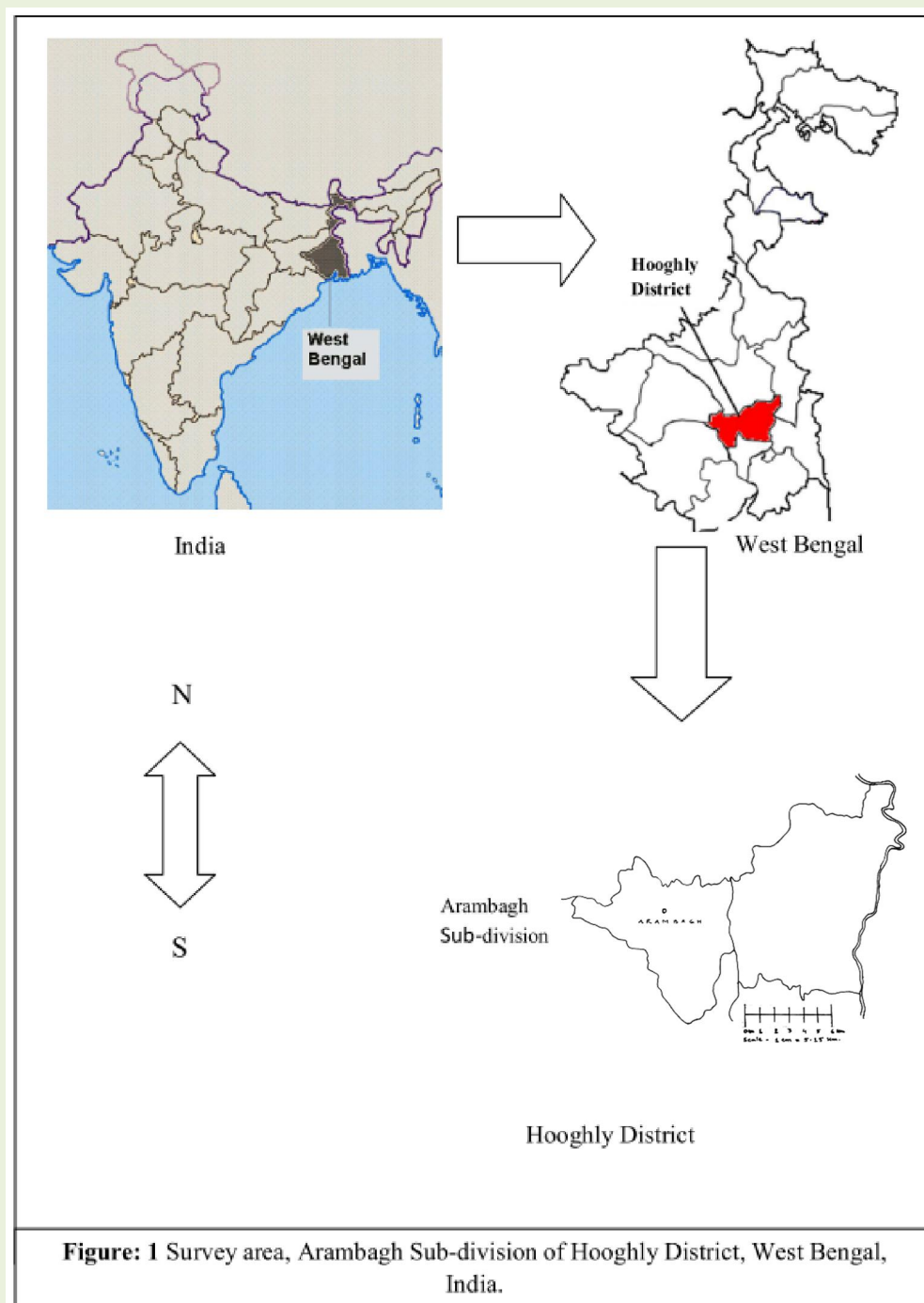




Figure:2 A. *Ottelia alismoides*- Flower with edible spathe; B. *Alternanthera philoxeroides*- Young edible shoot and white flower; C. *Polygonum plebeium*- A twig; D. *Pithecolobium dulce*- Ripe edible fruit; E. *Passiflora foetida*- Flower and ripe edible fruit; F. *Ipomoea obscura*- Flower with ripe fruit; G. *Citrullus colocynthis* -Young twig and fruits; H. *Glinus oppositifolius*- Plant parts selling in market; I. *Ceiba pentandra*- Herbarium sheet and edible seeds; J. *Corchorus aestuans*- Young shoot and fruits and K. *Xanthium strumarium*- Herbarium sheet and young edible shoot.