
**INTERNATIONAL JOURNAL OF ADVANCES IN
PHARMACY, BIOLOGY AND CHEMISTRY**

Research Article

**A Study on Leaves and Fronds Consumed as
Vegetables and Salads in West Bengal State, India.**

Sauris Panda

Department of Botany, Charu Chandra College (University of Calcutta), 22 - Lake Road,
Kolkata, West Bengal, India - 700 029.

ABSTRACT

The present paper deals with 71 plant species / subspecies / varieties – the leaves and fronds of which are consumed as vegetable and salad in West Bengal State (India), provided with some notes and recommendations about their properties and uses. Leaves of a number of species of the families Cucurbitaceae and Cruciferae / Brassicaceae are edible. Among the genera, *Amaranthus* offering five species is the most significant one in the State as regards the number of species taken as a leaf-vegetable. The most commonly eaten leaf-vegetables are – *Marsilea minuta*, *Amaranthus tricolor*, *Azadirachta indica*, *Basella alba*, *Brassica oleracea* var. *capitata*, *Centella asiatica*, *Glinus oppositifolius*, *Ipomoea aquatica*, *Lagenaria siceraria*, *Raphanus sativus*, *Spinacia oleracea* and *Trigonella foenum-graecum*. 'Chikna-sak' (*Polygonum plebeium* var. *plebeium*) is eaten mainly in the rural areas of coastal West Bengal, where it is a very common weed in crop fields. It is remarkable that only a few people know the leaves of *Nyctanthes arbor-tristis* can be used as a tasty vegetable. The objective of this article is to make an appraisal of different species used as leaf-vegetables and leaf-salads. Further investigation in the closely related species of the here-enumerated 71 species might reveal their potential to be used as a leaf-vegetable and/or salad for human consumption across the world.

Key words: Fronds, India, Leaves, Plant species, Salad, Vegetable, West Bengal.

INTRODUCTION

Normal foliage leaves and fronds of the vascular plants (mainly dicotyledonous, a few monocotyledonous and pteridophytic species) which are consumed by the general public as a vegetable and salad in West Bengal state have been discussed in this paper. The modified leaves such as floral (e.g. sepal, petal, etc.), scale (e.g. in the bulb of garlic, onion, etc.), seed leaves (i.e. cotyledons), etc. are beyond the purview of the present article. Besides vegetable and salad, various other uses of leaves and fronds such as spices, masticatories, kitchen accessories (leafy cup / plate), medicinal, germicidal, etc. have been excluded from detailed discussion here. There were some sketchy reports about consumption of leaves and fronds as a vegetable and salad in the context of erstwhile Bengal¹, but no comprehensive report for the state was available so far regarding the relevant uses. Many such uses of leaves and fronds were not widely known beyond the state and the knowledge remained confined to the

rural areas only. The present comprehensive report on the leaves and fronds used as human food in West Bengal will be helpful to explore more food for the mankind and for an alternative food supply across the world.

METHODS

The data presented here are based on the present author's observation across the State of West Bengal (in eastern India), including the Himalayan part Darjeeling, covering all seasons over the last two decades, and supported by some literature¹⁻⁴. The nomenclature of the species dealt with in this article is according to the International Code of Nomenclature for algae, fungi, and plants⁵. Correct name (with family), synonyms (Syn.), Bengali / Hindi / English names, habit and habitat, distribution (firstly, within the State of West Bengal, then world), uses and relevant notes have been provided. The

species are enumerated in alphabetical order under 'observations' below.

OBSERVATIONS

The observations on the relevant uses of fronds and leaves have been discussed under the two broad groups – pteridophytes and angiosperms, as follows:

Pteridophytes

Ampelopteris prolifera (Retz.) Copel. (Thelypteridaceae).

Syn. – *Hemionitis prolifera* Retz., *Nephrodium proliferum* Keys

Bengali & Hindi – Dheki shak.

Habit & Habitat – A creeping and spreading herb, often rooting at the tips of the fronds. Fronds unipinnate. Sori along veins. It grows near water sources, edges of ponds and open moist places.

Distribution – Frequently found throughout the State, more common in the northern part. It is widely distributed in the tropics of the Old World, Africa, Madagascar, the Mascarene Islands, tropical mainland Asia to north-eastern Australia and New Caledonia.

Uses & Notes – Young tips of fronds, which keep on growing, are cooked and eaten in rural areas; those are aperient.

Blechnum orientale L. (Blechnaceae).

Syn. – *Blechnum javanicum* Bl.

Bengali – Baro dheki shak. **Hindi** – Haththazori.

Habit & Habitat – A large, erect fern of hilly areas, with peculiar circinate veneration, grows up to ca. 6 m. Fronds pinnately compound. Sori linear, continuous along the costae. A terrestrial fern, usually grows in open sunny areas in hill slopes.

Distribution – Often seen growing in Terai, Duars and Darjeeling hills; not so common elsewhere. Throughout Asia, native to Australia.

Uses & Notes – Fresh fronds (also rhizomes) are cooked and consumed as a scarcity vegetable; the curry is believed to be very effective against constipation.

Ceratopteris pteridoides (Hook.) Hiern (Parkeriaceae / Pteridaceae).

Syn. – *Parkeria pteridoides* Hook.

Bengali & Hindi – Pani shak.

Habit & Habitat – Fronds dimorphic; sterile fronds usually simple, or palmately lobed, fertile fronds dissected. Sori protected by reflexed margin. An aquatic or semi-aquatic (fresh water) fern, often rooted on the substratum, prefers humus-rich deposits; also found in paddy fields.

Distribution – Occasionally seen across the State. The Indian subcontinent, Vietnam, China, Taiwan, Central, North and South America.

Uses & Notes – Fresh fronds, often with other fruit / stem-vegetables e.g. brinjal, potato, etc., are cooked and eaten in rural areas. The fresh fronds are also taken as a salad. This species is, however, less frequent than the following one – *C. thalictroides*.

Ceratopteris thalictroides (L.) Brongn.

Syn. – *Acrostichum thalictroides* L.

Bengali & Hindi – Pani shak. **English** – Indian fern, Water fern, Oriental water-fern.

Habit & Habitat – A tufted fern. Fronds dimorphic; sterile fronds lanceolate or deltoid, fertile fronds linear and dissected. Sori protected by reflexed margin. An aquatic or semi-aquatic (fresh water) fern, often rooted on the substratum, also grows in submerged paddy fields.

Distribution – It is common throughout the State, more common in the northern part. Pan-tropical.

Uses & Notes – The frond is cooked and eaten in rural areas, also taken as a salad (rarely consumed in urban areas); a scarcity food. Tribal people in the State consider it a laxative food.

Diplazium esculentum (Retz.) Sw. (Athyriaceae).

Syn. – *Hemionitis esculentum* Retz.

Bengali & Hindi – Dheki shak, Paloi shak.

Habit & Habitat – A herb or small shrub with stout caudex. Fronds bipinnate or tripinnate. Sori on both sides of the veins, with double indusia. The fern is common in moist and shady places, edges of water-bodies, often along streams in undisturbed areas. It also grows in the homestead areas.

Distribution – Throughout the State, frequent in the northern part, particularly in Terai, Duars and Darjeeling hill areas. India, Bangladesh, China, Taiwan, Cambodia, Laos, Thailand, Vietnam, Malesia, South-East Asia and Japan; pan-tropical.

Uses & Notes – Young fronds are cooked (often with small shrimps and other vegetables such as potato, brinjal, gourd, etc.) and eaten as a tasty curry; also eaten in salads. It is said to be a good appetizer and effective against constipation and leprosy.

Diplazium polyodioides Bl.

Syn. – *Athyrium asperum* (Bl.) Milde

Bengali & Hindi – Dheki shak.

Habit & Habitat – A large fern, somewhat looking like a tree fern. Fronds bipinnate or tripinnatifid. Sori in two oblique linear rows, with thin indusia. The fern is common in rocky areas at higher elevations, usually in undisturbed pockets, along water courses, also found on the forest fringes in the foot hill areas.

Distribution – Particularly occurring in northern part of the State – Terai, Duars and Darjeeling hills. India, Bangladesh, Sri Lanka, Indo-China, Malesia, north to Taiwan.

Uses & Notes – Young fronds are cooked (often with small shrimps or dried fishes, and other vegetables such as potato, brinjal, gourd, etc.) and eaten as a tasty curry by the native people.

Marsilea minuta L. (Marsileaceae).

Syn. – *Marsilea aegyptiaca* Wall.

Bengali & Hindi – Shusni shak. **English** – Dwarf water clover, Small water clover.

Habit & Habitat – A small fern, with creeping rhizome. Fronds quadrifoliolate, with a long stalk. Sporocarps many, wall hard. Sori enclosed in a sporocarp. An aquatic or semi-aquatic herb, grows at the edges of ponds and fresh water bodies, abundant in moist areas and paddy fields. Sporocarps are usually produced in amphibious condition.

Distribution – It is very common across the State. Throughout the tropical regions of Asia and Africa, lately introduced to the New World; widely cultivated as well.

Uses & Notes – The fronds are cooked (mostly boiled, then fried with mustard oil) and eaten. It has a special taste and flavour – a very popular leaf-vegetable, and commonly consumed both in rural and urban areas. Many of the floras refer this plant to *M. quadrifolia* L., which occurs only in Kashmir³.

Angiosperms

Allium cepa L. (Liliaceae).

Bengali & Hindi – Pyanj. **English** – Onion.

Habit & Habitat – A bulbous small herb. Terrestrial, prefers loamy soil.

Distribution – Throughout the State. Widely cultivated in the Indian subcontinent and most parts of the world; in tropical regions, it is cultivated mainly in winter months for commercial purposes – for their leaves and bulbs.

Uses & Notes – The leaves are popularly eaten as a vegetable, also used as a spice for having spicy flavour. Local people believe it is an energetic leaf-vegetable.

Allium sativum L.

Bengali – Rosun. **Hindi** – Lasan. **English** – Garlic.

Habit & Habitat – A bulbous small herb. Terrestrial, prefers loamy soil.

Distribution – Throughout the State. Widely cultivated in the Indian subcontinent and most parts of the world; in tropical regions it is cultivated particularly in winter months for commercial purposes – for their leaves and bulbs.

Uses & Notes – Like *A. cepa*, the leaves of *A. sativum* are also commonly taken as a vegetable and spice, especially during the cold season. The garlic leaves and bulbs are stimulant and have tremendous medicinal properties for which it is considered as ‘ambrosia’ (in Bengali it is called “mortyer amrita”).

Amaranthus blitum L. var. *oleracea* Duthie (Amaranthaceae).

Bengali – Sada-notey, Sada-notia, Notiya shak.

Hindi – Chaulai, Marsa, Natiya sag.

English – White Amaranth.

Habit & Habitat – A tall, stout, succulent, annual herb. It grows well in loamy soil, in sunny areas.

Distribution – Cultivated in many areas. India, Bangladesh, Sri Lanka, cultivated elsewhere in the tropics.

Uses & Notes – Leaves are cooked and eaten. The herb is fairly rich in minerals³. The older plants / leaves are fed to the cattle.

Amaranthus caudatus L.

Bengali – Ramdana-maris. **Hindi** – Ramdana.

English – Cat-tail, Inca Wheat, “Love Lies Bleeding”, Tumble weed.

Habit & Habitat – An erect herb, stem striate, tinged with purple. It grows well in moist loamy soil in sunny areas.

Distribution – Occasionally cultivated as an ornamental in the State, sometimes a garden escape; not seen in the wild. India, elsewhere in the tropics.

Uses & Notes – Used as a pot-herb; tender leaves are occasionally cooked and eaten.

Amaranthus spinosus L.

Bengali – Kanta-notey, Kanta-maris shak. **Hindi** – Kantaili chaulai. **English** – Prickly Amaranth.

Habit & Habitat – An erect, prickly, annual herb. The plant is common in wastelands, cultivated fields, ditches, edges of forests, around building sites, in open areas, etc.

Distribution – Throughout the plains. The Indian subcontinent and cosmopolitan in warmer regions; of presumed American origin. Cultivated and naturalized.

Uses & Notes – A tasty curry is prepared with its leaves and tender stems along with other vegetables; sometimes cooked with small shrimps. It is said to cure night blindness.

Amaranthus tricolor L.

Syn. – *A. tristis* L., *A. gangeticus* L., *A. polygamus* L., *A. mangostanus* L.

Bengali – Lal shak, Lal-notey, Lal-maris. **Hindi** – Lal sag. **English** – Joseph’s Coat.

Habit & Habitat – An erect, much leafy, stout, annual herb; very variable in shape, size and colour of leaves. It prefers moist loamy soil in open sunny areas, also found in waste places, roadside ditches, etc.

Distribution – Commonly cultivated throughout the plains. The Indian subcontinent, throughout the tropics of South and South-East Asia; native area blurred by cultivation; introduced and/or cultivated in Africa, West Indies, etc.

Uses & Notes – The leaves and tender shoots are preferably fried or a curry is prepared with other vegetables such as potato, brinjal, etc.; tasty and sweetish, it is a very popular vegetable in the State. It is rich in Vitamin A (2,500-11,000 I.U. / 100 g) and Vitamin C (173 mg / 100 g), and contains fatty oil³. Forms with purplish coloured leaves are often grown as an ornamental.

Amaranthus viridis L., *pro parte, excl. syn.*

Syn. – *A. gracilis* Desf.

Bengali – Ban-notey, Tuntuni-notey. **Hindi** – Jangli Chaulai. **English** – Green or Wild Amaranth.

Habit & Habitat – An erect, slender, glabrous, annual herb; stem often tinged with purple. It is common in wastelands, along roads, in open areas, sometimes a weed of cultivation.

Distribution – Throughout the plains. Pantropics; wild and sometimes cultivated.

Uses & Notes – Leaves are cooked and eaten – tasty and little sweetish (like spinach). Also, used as cattle fodder.

Andrographis paniculata (N. Burm.) Wall. *ex* Nees (Acanthaceae).

Syn. – *Justicia paniculata* N. Burm.

Bengali – Kalmegh (also called ‘Badmouri’ in some villages). **Hindi** – Kirayat, Mahatita. **English** – Creat. **Habit & Habitat** – An erect, much branched, annual herb. It is common in open places, forest clearings, on slopes, between rock boulders, etc.

Distribution – In all the districts. India, Bangladesh, Sri Lanka. Wild and cultivated.

Uses & Notes – The leaf (and the whole plant) is extremely bitter in taste, occasionally pasted and fried to prepare ‘badas’, and few leaves are added to other vegetables to make a bitter curry – an appetizer. The plant is anthelmintic and very effective against ailments of liver.

Azadirachta indica A. Juss. (Meliaceae).

Syn. – *Melia azadirachta* L.

Bengali & Hindi – Nim. **English** – The Margosa or Neem tree.

Habit & Habitat – A medium to large, deciduous tree, with dark and bitter wood. It is a mesophyte.

Distribution – Commonly planted throughout the plains, from coastal belt northwards to Terai-Duars. It is a native of Myanmar, China and India; naturalized throughout the area extending to Malaysia.

Uses & Notes – Tender leaves, bitter in taste, are fried or made curries (with other vegetables, e.g. potato, brinjal, fruits of the Drumstick tree – *Moringa oleifera*, etc.), which have a typical mild flavour, and are popularly served as a starter in lunch (bitter dishes are usually avoided in dinner). However, those should not be eaten frequently, as it may cause stomach upset.

Bacopa monnieri (L.) Penn. (Scrophulariaceae).

Syn. – *Lysimachia monnieri* L., *Bramia indica* Lam., *Herpestis monniera* Kunth., *nom. illeg.*

Bengali – Brahmi shak. **Hindi** – Brahmi sag. **English** – Thyme Leaved Gratiola.

Habit & Habitat – A creeping-ascending, perennial, semi-succulent herb, rooting at the nodes. Found in marshy places.

Distribution – Common all over the plains. Pantropical.

Uses & Notes – Leaves are occasionally made curries. Leaf-juice is famous as a brain tonic, it improves intellect. It contains alkaloids – brahmine and herpestine, and a saponin – hersaponin, which has cardio-tonic action.

Basella alba L. (Basellaceae).

Syn. – *B. rubra* L.

Bengali – Pui, Pui shak, Bon-pui. **Hindi** – Poi sag. **English** – Indian Spinach, Malabar Spinach, Ceylon Spinach, Climbing / Creeping Spinach, Vine Spinach.

Habit & Habitat – A perfectly glabrous, branched, twinning or creeping, fleshy and succulent, perennial herb; stems purplish or greenish. It can grow in a wide range of soils – loamy, clayey, lateritic, sandy and rocky situations.

Distribution – Abundant in the plains, occasionally found at a very high altitude; mostly cultivated, sometimes escaped, rarely wild. It is widely cultivated in the Indian subcontinent, tropical Asia, Africa and America. *B. alba* – is native to the Indian subcontinent, South-East Asia and New Guinea.

Uses & Notes – The mucilaginous leaves and stems make a delicious curry (often with potato and gourd), which is nutritious and it can remove constipation; very commonly eaten both in rural and urban areas.

Benincasa hispida (Thunb.) Cogn. (Cucurbitaceae).

Syn. – *B. cerifera* Savi

Bengali – Chal kumra. **Hindi** – Petha. **English** – Ash Gourd.

Habit & Habitat – A large climber. It grows best in humus rich loamy soil, also found in other soils.

Distribution – Cultivated generally. India, Bangladesh, elsewhere in the tropics.

Uses & Notes – Chiefly cultivated for its fruit-vegetable; the leaves and stems are also cooked and eaten.

Boerhavia repens L. (Nyctaginaceae).

Bengali – Punni-shak, Punarnaba. **Hindi** – Sant. **English** – Spreading Hog-weed.

Habit & Habitat – A diffusely branched creeping herb. It is common in waste places, roadsides, dry or moist open areas, post-harvest paddy fields, secondary forests, etc.

Distribution – Common throughout the State. Pantropics.

Uses & Notes – The leaves are commonly cooked and eaten, little sweetish curry. Active constituent is an alkaloid – punarnavine. The correct spelling of the genus is *Boerhavia*, not *Boerhaavia*, since Linnaeus used the former.

Brassica juncea (L.) Czern. (Cruciferae / Brassicaceae).

Syn. – *Sinapis juncea* L.

Bengali – Rai-sarisha, Chanchi, Jhuni. **Hindi** – Rai. **English** – Indian Red Mustard.

Habit & Habitat – An erect, annual herb. It can grow in a variety of soils, e.g. loam, clay, laterite, etc.

Distribution – Cultivated, also found as an escape in waste places and fields. India, Bangladesh, China, cultivated across the world.

Uses & Notes – Leaves are prepared delicious curries (having a typical flavour), which is said to be nutritious; also pickled.

Brassica nigra (L.) Koch

Syn. – *Sinapis nigra* L.

Bengali – Kalo rai. **Hindi** – Banarasi rai. **English** – Black or True Mustard.

Habit & Habitat – An erect, annual herb. It can be grown well in loam, clay, etc.

Distribution – Cultivated, also found as an escape. It is grown throughout the world.

Uses & Notes – Young leaves consumed as a vegetable. Seedlings are added to salads.

Brassica oleracea L. var. *capitata* L.

Bengali – Bandha-kofi, Bandha. **Hindi** – Band-gobi, Patta-gobhi. **English** – Cabbage.

Habit & Habitat – A stout, annual herb. It can be grown in various soil types, e.g. loam, clay, rocky, saline, etc.

Distribution – Thoroughly cultivated across the State. It is cultivated worldwide; native to the Mediterranean region.

Uses & Notes – The leaves are one of the most popular vegetables in West Bengal; usually cooked, sometimes eaten as a salad. Red cabbage is preferred for pickling. A large number of cabbage varieties are now cultivated in West Bengal. The red cultivars are a fairly good source of vitamins A, B and C and minerals. Normally, it is a cold season crop; sometimes leaves are preserved dried for use in out of season. Also used as feed for livestock and chicken.

Brassica rapa L. ssp. *campestris* (L.) Clapham var. *campestris*

Syn. – *B. rapa* L., *B. campestris* L., *Sinapis dichotoma* Roxb.

Bengali – Kalo sorse. **Hindi** – Kala sarson. **English** – Black Mustard.

Habit & Habitat – An erect, annual, glaucous herb, roots tuberous. It can grow in diverse soil types, e.g. loam, clay, rocky, etc.

Distribution – Cultivated, also found as an escape in waste places and fields. It is cultivated throughout the world; native to the Mediterranean region.

Uses & Notes – Leaves are employed to make a tasty curry. The leaves of *Brassica rapa* L. ssp. *campestris* (L.) Clapham var. *glauca* (Roxb.) Watt. (Hindi – Pila sarson sag) is also commonly cultivated and used as a vegetable.

Centella asiatica (L.) Urban (Umbelliferae / Apiaceae).

Syn. – *Hydrocotyle asiatica* L.

Bengali – Thankuni. **Hindi** – Thol-khuri sag. **English** – Indian Pennywort.

Habit & Habitat – A prostrate or creeping herb, with perennial root stock, rooting at nodes. It prefers wet places, near nals, ponds, at river banks, etc.

Distribution – Common throughout the plains, less common at higher elevations. It is widespread in warmer regions of the world; also cultivated.

Uses & Notes – Leaves are pasted and made 'badas' / curries / soups, which has a pleasant flavour and taste, are good for liver and blood as well. Also, used as a salad. It is one of the most popular leaf-vegetables, and eaten throughout the State.

Chenopodium album L. (Chenopodiaceae).

Bengali – Betho-shak, Bethua-shak. **Hindi** – Bathua sag. **English** – Lamb's Quarters, Goose foot, Fat-hen.

Habit & Habitat – An erect or ascending, annual herb; leaves variable in shape and size, white mealy when young. Often a weed in cultivated ground and found in waste places.

Distribution – In all districts in the plains, commonly cultivated in winter months (Dec.– Jan.). The Indian subcontinent; a native of Europe.

Uses & Notes – The leaves are cooked and eaten; the curry is said to be laxative and anthelmintic. The plant contains carotene and Vitamin C. The closely related species – *C. ambrosioides* L. (English name – Mexican tea), which is also a common weed in the State, however, is not seen to be eaten as a vegetable.

Cicer arietinum L. (Leguminosae / Fabaceae).

Bengali – Chola. **Hindi** – Chana, Choley. **English** – The Gram, Bengal Gram, Chick-Pea.

Habit & Habitat – A small herb. It grows well in loamy soil, and improves fertility of the land.

Distribution – Cultivated in the plains. *C. arietinum* – originated in South-East Turkey. It is now cultivated in the warmer regions worldwide.

Uses & Notes – Leaves, with other vegetables e.g. potato, brinjal etc., are made a curry, which is said to be nutritious.

Citrullus lanatus (Thunb.) Matsum. et Nakai (Cucurbitaceae).

Syn. – *C. vulgaris* Schrad.

Bengali & Hindi – Tarbuj, Tarmuj. **English** – The Water-Melon.

Habit & Habitat – An annual creeper. Best yield is in sandy and loamy soils.

Distribution – Thoroughly cultivated in the plains, particularly along the coastal zones. It is a native of South-West Africa; now widely cultivated in the warmer world for its fascinating fruit.

Uses & Notes – Young leaves are pasted and made 'badas' (local cakes) and curries are eaten mainly in villages. After harvest of fruits, the plant is fed to the cattle.

Coccinia grandis (L.) Voigt (Cucurbitaceae).

Syn. – *Bryonia grandis* L., *Cephalandra indica* (Wt. et Arn.) Naud.

Bengali – Telakucha, Bon-kundri. **Hindi** – Ban-kundri. **English** – Ivy gourd.

Habit & Habitat – A monoecious, climbing herb. It grows best in moderate climate.

Distribution – Frequently found on the hedges, in waste places, in the outskirts of villages, etc. Pantropical.

Uses & Notes – Leaves are pasted (preferably with potato) and made 'badas', which are little bitter but tasty, served as an appetizer; also made curries and

given in soups. It is good for liver and is effective against bilious affections, usually taken after stomach upsets.

Colocasia esculenta (L.) Schott (Araceae).

Syn. – *Arum esculentum* L., *C. antiquorum* Schott

Bengali – Kachu shak. **Hindi** – Saru sag, Arvi. **English** – Cocoyam.

Habit & Habitat – A rhizomatous, erect, perennial, succulent herb. A water-loving plant; it grows abundantly in marshy places, edges of water bodies, along the banks of nalahs, streams, etc.

Distribution – Common throughout the State, less common at higher elevations. India, Bangladesh, Nepal, Sri Lanka. Widely cultivated, often seen to escape. Now many cultivars are grown.

Uses & Notes – Young leaves (and especially the rhizomes) are cooked and eaten; sometimes cooked with small shrimps or preferably with the head portion of the Hilsa fish.

Corchorus capsularis L. (Tiliaceae).

Bengali – Tita-pat shak. **Hindi** – Narcha sag. **English** – White Jute.

Habit & Habitat – A slender, unbranched undershrub. It grows best in loam.

Distribution – Cultivated in various parts of the State. The Indian subcontinent and cultivated in tropical countries. Also, found in waste places as an escape from cultivation.

Uses & Notes – Young leaves, bitter in taste, are prepared curries with other vegetables, also pasted to make 'badas' usually served as a starter.

Corchorus olitorius L.

Bengali – Mitha-pat shak, Desi-pat. **Hindi** – Mitha-pat sag. **English** – Jew's Mallow.

Habit & Habitat – A slender, unbranched undershrub. It grows best in loam.

Distribution – Cultivated in the plains (like *C. capsularis*). The Indian subcontinent, Africa and cultivated elsewhere in the tropics. Also, found in waste places as an escape from cultivation.

Uses & Notes – Young leaves, which are sweetish, are prepared delicious curries with other vegetables, e.g. potato, gourd, brinjal, etc.

Coriandrum sativum L. (Umbelliferae / Apiaceae).

Bengali – Dhonia-pata, Dhoney-pata. **Hindi** – Dhanya-patta. **English** – Coriander.

Habit & Habitat – A glabrous, aromatic, annual herb. It prefers to grow in loamy soil.

Distribution – Cultivated across the State all the year round, particularly in winter months (Dec. – Jan.).

Widely cultivated throughout the Indian subcontinent.

Uses & Notes – The leaves are added to curries (as a flavouring agent), prepared chutneys and sauces, also used as a salad; consumed throughout the State.

Cucumis melo L. var. *melo* (Cucurbitaceae).

Bengali – Kharbuj, Kharmuj. **Hindi** – Kharbuja.

English – Musk Melon, Sweet Melon.

Habit & Habitat – An annual creeper. It prefers sandy and loamy soils.

Distribution – Commonly cultivated in the plains. It is widely cultivated in the tropics.

Uses & Notes – Leaves are cooked and eaten especially in rural areas. Leaves of *C. melo* L. var. *momordica* Duthie et Fuller (Bengali & Hindi – Phuti) and *C. melo* L. var. *utilissimus* Duthie et Fuller (Bengali – Kakur; Hindi – Kakri; English – Snake Cucumber) are also sometimes used as a vegetable.

Cucumis sativus L.

Bengali – Sasa, Khira. **Hindi** – Khira. **English** – Cucumber.

Habit & Habitat – An annual creeper. It prefers sandy and loamy soils.

Distribution – Widely cultivated. Pantropical in cultivation.

Uses & Notes – Leaves are occasionally used as a vegetable. Now different cultivars of *C. sativus* are grown; their leaves are also cooked and eaten.

Cucurbita maxima Duch. ex Lam. (Cucurbitaceae).

Bengali – (Misti-) Kumra / Kumro. **Hindi** – Mitha-kaddu. **English** – The Gourd, Red Gourd.

Habit & Habitat – An annual creeper or climber. It can be grown well in loam, clay, etc.

Distribution – Cultivated abundantly in the plains, sometimes at higher elevations. India, Bangladesh, cultivated elsewhere in the tropics.

Uses & Notes – Young leaves are often cooked with other vegetables and eaten; rarely eaten as a salad.

Cucurbita moschata Duch. ex Poir.

Bengali & Hindi – Safra kumrah.

Habit & Habitat – An annual creeper or climber. It prefers loam and sand.

Distribution – Cultivated. India, Bangladesh, elsewhere in the tropics.

Uses & Notes – Tender shoots are cooked and eaten especially in rural areas.

Cucurbita pepo L.

Bengali – Sada-kumra, Gol-lau. **Hindi** – Safed-kaddu. **English** – The Pumpkin, Field Pumpkin.

Habit & Habitat – An annual creeper or climber. It grows well in loam, clay, red-soil, etc.

Distribution – Cultivated generally. India, Bangladesh, elsewhere in the tropics.

Uses & Notes – Young leaves and stems are cooked and eaten.

Dregea volubilis (L. f.) Benth. ex Hook. f. (Asclepiadaceae). Syn. – *Asclepias volubilis* L. f., *Wattakaka volubilis* (L. f.) Stapf

Bengali – Titakunga. **Hindi** – Nak-ehhikni.

Habit & Habitat – A stout, perennial climber. Found in scrub forests, along roads on bushes.

Distribution – Common in the plains. India, Bangladesh, Sri Lanka, Java, Malaysia, China, Taiwan.

Uses & Notes – Young leaves are sometimes made curries with other vegetables and eaten in rural areas.

Enhydra fluctuans Lour. (Compositae / Asteraceae).

Bengali – Hingcha. **Hindi** – Harkuch.

Habit & Habitat – A glabrous, perennial herb. It grows in aquatic to semi-aquatic (fresh water) and marshy areas; very common at the edges of ponds, lakes, rivers, etc.

Distribution – Common throughout the plains, less common at higher elevations. Tropical Asia and Africa.

Uses & Notes – Slightly bitter in taste, the leaves and young shoots are cooked and eaten; the curry is said to be a good blood purifier and appetizer; also used in salads. The correct spelling of the genus is *Enhydra*, and not *Enhydra* as published in some literature.

Glinus lotoides L. (Aizoaceae / Molluginaceae).

Syn. – *Mollugo hirta* Thunb., *M. lotoides* (L.) O. Ktze.

Bengali – Dusera shak. **Hindi** – Gandibudi sag.

Habit & Habitat – An annual herb. Found in open areas, waste places, cultivated fields, rangelands, etc.

Distribution – Common in the plains. Pantropical.

Uses & Notes – Tender shoots are eaten as a vegetable in rural areas, when reeling with food crisis.

Glinus oppositifolius (L.) A. DC.

Syn. – *Mollugo oppositifolia* L., *M. spargula* L.

Bengali – Gima shak. **Hindi** – Jima sag.

Habit & Habitat – An annual, creeping-ascending herb. Found in open areas, waste places, cultivated fields, around ponds, etc.

Distribution – Common in the plains. Pantropical; also, cultivated.

Uses & Notes – Tender shoots, bitter in taste, are made curries or ‘badas’ with other vegetables, served as an appetizer; considered stomachic as well.

Hygrophila schulli (Ham.) M.R. & S.M. Almeida (Acanthaceae).

Syn. – *Bahel schulli* Ham., *Asteracantha longifolia* (L.) Nees, *Hygrophila auriculata* (K. Schum.) Heine, *H. spinosa* T. Anders.

Bengali – Kulekhara. **Hindi** – Gokhula kanta, Kanta kulika.

Habit & Habitat – An erect, hispid herb, with dense whorls of spines. An aquatic or semi-aquatic plant, common in ditches, moist / marshy places, along the edges of ponds and other fresh water bodies, post-harvest paddy fields, etc.

Distribution – Common throughout the State, uncommon at higher elevations in Darjeeling. India, Bangladesh, Sri Lanka, Africa. A wild species, sometimes cultivated as it is a frequent vegetable particularly in rural areas.

Uses & Notes – Leaves and young stems are cooked and eaten, good in taste. Remarkably, its fresh leaf-juice (also curry) is an effective blood purifier and is highly anti-anaemic, therefore usually eaten after malaria⁶.

Ipomoea aquatica Forssk. (Convolvulaceae).

Syn. – *I. reptans* Poir.

Bengali – Kolmi shak. **Hindi** – Kalmi sag, Karmi, Patua sag. **English** – Swamp cabbage, Water spinach.

Habit & Habitat – A creeping herb, stem elongated, internodes hollow, emitting roots at the nodes. Aquatic or semi-aquatic (usually fresh water), often floating on the surface of ponds, marshes, etc. or prostrate on wet mud, where water has recently stood. **Distribution** – Very common in the plains. India, Bangladesh, Pakistan, Sri Lanka; a native of Old World tropics. Widely cultivated.

Uses & Notes – A very popular vegetable; the leaves and young shoots are mostly fried or a curry is prepared with other vegetables, sometimes used in salads; little sweetish in taste. It is relatively easy to digest compared to other leaf-vegetables; a good source of minerals and vitamins, especially carotene. It is also a green fodder of high nutritive value.

Lactuca sativa L. (Compositae / Asteraceae).

Bengali & Hindi – Salad. **English** – The Garden Lettuce.

Habit & Habitat – An herb, looking somewhat like a cabbage. It flourishes in loamy soil.

Distribution – Cultivated in the cold weather, but not so widely in the State. The native range of *L. sativa* spreads from the Mediterranean regions to Siberia,

although it has been introduced and/or migrated to almost all areas of the world. Ancient Egyptians first domesticated and cultivated lettuce.

Uses & Notes – A costly salad in West Bengal, occasionally eaten; rarely used as a vegetable, in soups and sandwiches. It is chiefly valued for its mineral and vitamin content.

Lagenaria siceraria (Mol.) Standl. (Cucurbitaceae).

Syn. – *L. vulgaris* Ser.

Bengali – Lau. **Hindi** – Lauki. **English** – Bottle Gourd.

Habit & Habitat – A large climber. Fruits white or green, somewhat elongated (bottle-shaped). It prefers loam, but can be grown in other soils.

Distribution – Commonly cultivated throughout the State, in warmer regions. The Indian subcontinent and cultivated elsewhere in the tropics.

Uses & Notes – Young leaves (Bengali: Lau shak) and stems (Bengali: Lau danta) are a popular vegetable, made curries; it is believed to be good for blood and liver, also improves appetite and taste. The plant is grown all the year round for its edible fruits, stems and leaves. The fruit is a good source of vitamins B and C.

Melilotus alba Medik. ex Desr. (Leguminosae / Fabaceae).

Bengali – Sada Ban-methi. **Hindi** – Safed Ban-methi. **English** – White Sweet-clover, White Melilot.

Habit & Habitat – An erect, small, annual herb. It is a field-weed, appearing in the cold season (Dec. – Jan.).

Distribution – Common in the plains, throughout the State. India, Bangladesh, China, Tibet, W. & C. Asia, Europe, Africa, Mongolia, Siberia; introduced into Malaysia, Australia, E. Asia and America.

Uses & Notes – A leaf-vegetable, occasionally eaten by the under-privileged people in rural areas. Used as a fodder.

Mollugo pentaphylla L. (Molluginaceae).

Bengali – Ghora / Pita gima, Khet-papra.

Habit & Habitat – A creeping-ascending, annual herb. It grows in wet, open grassy areas, along roads and rivers, waste places, etc.

Distribution – Common in the plains. India, east to China, Japan, Malaysia, Australia.

Uses & Notes – The leaves, bitter in taste, are cooked and served as a starter; also, stomachic and aperient. *M. pentaphylla* differs from *M. stricta* L. (1762) in having areolate seeds (seeds are tuberculate in *M. stricta*).

Momordica charantia L. (Cucurbitaceae).

Bengali – Uchche, Korola. **Hindi** – Karela. **English** – Bitter gourd.

Habit & Habitat – A creeping or climbing annual herb. It grows well in loamy and clayey soils.

Distribution – Widely cultivated in the plains, throughout the State. India, Bangladesh, Myanmar, Sri Lanka, cultivated elsewhere in the tropics. Also, found as an escape.

Uses & Notes – Tender shoots and leaves are pasted (often with potato) and made delicious ‘badas’ or cakes, served as an appetizer and it revives taste buds after fever; also those are made curries with other vegetables. It is good for liver and is effective against bilious affections. Leaves are a source of calcium, carotene, riboflavin and ascorbic acid. *M. charantia* L. var. *charantia* (Bengali – Korola; fruits larger) and var. *muricata* (Willd.) Chakrav. (Bengali – Uchche; fruits smaller) are both widely cultivated in the State.

Momordica cochinchinensis Spreng.

Bengali – Kakrol. **Hindi** – Gulkakra.

Habit & Habitat – A creeper or climber. It grows best in loam.

Distribution – Now thoroughly cultivated in the plains. India, cultivated elsewhere in the tropics.

Uses & Notes – Young leaves are cooked and eaten.

Moringa oleifera Lam. (Moringaceae).

Syn. – *M. pterygosperma* Gaertn.

Bengali – Sajina, Sojne shak. **Hindi** – Sainjna / Saijan sag. **English** – Drumstick tree, Horse Radish tree.

Habit & Habitat – A small, weak tree, with corky bark, soft wood and pungent smell. It can grow in moist to arid / semi-arid situations.

Distribution – Commonly planted in gardens in the plains, also self-sown. The Indian subcontinent, Africa, Turkey.

Uses & Notes – Young leaves, rich in vitamins A and C, are fried or made curries (often with coconut-endsperm), which is indeed a delicious dish.

Nyctanthes arbor-tristis L. (Verbenaceae).

Bengali – Siuli, Sefali. **Hindi** – Harsinghar, Seoli. **English** – Night Jasmine.

Habit & Habitat – A large shrub or small tree, deciduous. A mesophytic species, it grows in loamy to rocky situations.

Distribution – Fairly common in all gardens; also found inside dry mixed deciduous forests on slopes. India, Bangladesh, Sri Lanka, Nepal, Myanmar, cultivated elsewhere in the tropics.

Uses & Notes – Young leaves are pasted in mortar and pestle, prepared ‘badas’ or cakes, also used in soups; it has a pleasant flavour and it helps to regain

taste of the tongue after viral fever. The vegetable use of the leaves of *N. arbor-tristis* is less known in villages, and almost unknown in urban areas.

Ocimum tenuiflorum L. (Labiatae / Lamiaceae).

Syn. – *O. sanctum* L.

Bengali & Hindi – Tulsi. **English** – The Holy Basil, the Sacred Basil.

Habit & Habitat – A profusely branched undershrub. It grows well in moderate climate, in loam to clay.

Distribution – Throughout the State; widely cultivated as a holy family-plant, also found as escape from cultivation. The Indian subcontinent, S.W. Asia, Myanmar, Nepal, China, Thailand, Malaysia and Australia.

Uses & Notes – The holy leaves are sometimes taken as a salad, which is stomachic as well. Two types of this plant are common – the green type (called ‘Sri Tulsi’) and the purple type (called ‘Krishna Tulsi’). The name *O. sanctum* is, however, much more popular than the correct name of the species *O. tenuiflorum*.

Oxalis corniculata L. (Oxalidaceae).

Bengali – Amrul, Amrul shak. **Hindi** – Amboti, Amrul sag. **English** – Indian Sorrel.

Habit & Habitat – A small, creeping, perennial herb; variable in shape and size of leaflets, and degree of hairiness. It occurs in cultivated ground, gardens, by roadsides, river banks, edges of ponds and forests, wall-margins, shady places, etc.

Distribution – Common everywhere. Pantropical; wild, also cultivated.

Uses & Notes – The leaves are sour in taste, made curries, chutneys, pickles, etc., which are quite popular and said to be effective against amoeboid dysentery, and it helps to regain taste of the tongue after viral fever. Also, used as a salad. Leaves are a good source of oxalic acid, Vitamin C and carotene.

Paederia foetida L. (Rubiaceae).

Bengali – Gandal-pata. **Hindi** – Gandhali, Somraj.

Habit & Habitat – A slender, shrubby climber. It is found in open areas and edges of forests, on the hedges.

Distribution – Common in the central and southern parts. India, Bangladesh, Nepal, Indo-China, Malaysia. Wild, occasionally planted in the gardens.

Uses & Notes – Interestingly, fresh leaves when pasted in mortar and pestle, emits an unpleasant smell, but when cooked – made ‘badas’ or cakes and given in soups / curries, is quite tasty without such smell. It is a favourite leaf-vegetable among the native people. It removes bowel troubles.

Polycarpon prostratum (Forsk.) Aschers. & Schweinf. (Caryophyllaceae).

Syn. – *Alsine prostrata* Forsk., *Polycarpon loeflingiae* (Wall. ex Wt. et Arn.) Benth. et Hook. f.

Bengali – Ghima. **Hindi** – Sureta.

Habit & Habitat – A prostrate or decumbent-ascending, annual herb. In open, moist or dry areas, post-harvest paddy fields, wastelands, rangelands, etc.

Distribution – Common throughout. India, tropical Asia, Africa.

Uses & Notes – Leaves are made curries, a scarcity vegetable.

Polygonum plebeium R. Br. var. *plebeium* (Polygonaceae).

Syn. – *P. roxburghii* Meisn.

Bengali – Chikna shak, Dubia shak. **Hindi** – Raniphul.

Habit & Habitat – A prostrate, diffusely branched herb; stems often purple tinged. A weed in cultivated ground; it is fairly common in paddy fields, marshy situations, waste places, etc.

Distribution – Abundant in coastal areas of the State, not so common in other parts. Paleotropics.

Uses & Notes – Leaves are cooked and eaten. It is available in winter months (Dec. – Feb.) and is said to cure bowel complaints.

Raphanus sativus L. (Cruciferae / Brassicaceae).

Bengali – Mulo / Mula shak. **Hindi** – Muli sag. **English** – Radish.

Habit & Habitat – A stout, annual herb. It grows best in loamy soil, rich in humus.

Distribution – Commonly cultivated. It is now grown in different parts of the world.

Uses & Notes – Tender leaves are fried or made curries, which are liked due to its typical flavour. It is mainly a cold weather crop, but cultivated in other seasons as well. Mature leaves are used as fodder.

Rorippa indica (L.) Hiern (Cruciferae / Brassicaceae).

Syn. – *Sisymbrium indicum* L., *Nasturtium indicum* (L.) DC.

Bengali – Bon sorisa.

Habit & Habitat – An erect, annual or biennial herb. It grows well in loamy soil.

Distribution – A common weed in cultivated fields and in marshy areas. India, Bangladesh, China, Japan, Malaysia.

Uses & Notes – The leaves are made curries occasionally, a scarcity vegetable.

Rumex vesicarius L. (Polygonaceae).

Bengali – Tak-palang. **Hindi** – Chuka sag, Chuka-palak sag. **English** – Bladder Dock.

Habit & Habitat – An erect, pale green, annual herb. It grows well in loamy soil.

Distribution – Occasionally cultivated in the plains. India, Bangladesh.

Uses & Notes – Leaves and tender stems, which is sour in taste, is prepared chutneys, also a sour curry with other vegetables such as brinjal, cocoyam, etc. It helps to regain taste of the tongue after various ailments; commonly consumed in rural areas.

Spinacia oleracea L. (Chenopodiaceae).

Bengali – Palang / Palak shak. **Hindi** – Palak sag. **English** – Garden Spinach.

Habit & Habitat – A succulent herb. It grows well in loamy soil.

Distribution – Widely cultivated throughout the State, a crop of young plants is very common especially in winter months (Dec. – Jan.); pan-tropical in cultivation. *S. oleracea* – is native to central and south-western Asia (Iran and neighbouring countries). Ancient Arab traders carried spinach into India.

Uses & Notes – Leaves nutritious, spinach curry is very popular, perhaps a must menu in the cold season in every family; also employed in soups and salads.

Suaeda maritima Dum. (Chenopodiaceae).

Syn. – *S. nudiflora* Moq.

Bengali – Geria shak. **Hindi** – Khari-lani sag. **English** – Common Indian Saltwort.

Habit & Habitat – A succulent herb or under-shrub. It grows in salt marshes.

Distribution – Abundant in sea-shores (the Bay of Bengal). Along coastal beaches worldwide; an Eurasian element.

Uses & Notes – Leaves are sometimes cooked and eaten.

Tamarindus indica L. (Leguminosae / Fabaceae).

Bengali – Tentul (-pata). **Hindi** – Imli, Amli (-patta). **English** – Tamarind.

Habit & Habitat – A large, evergreen tree. It occurs in loamy to clayey soils.

Distribution – A common tree in the State. Pantropical, supposed to be a native of Africa.

Uses & Notes – Tender-most leaves, sour in taste, are made chutneys / sour-curries.

Trichosanthes anguina L. (Cucurbitaceae).

Bengali – Chichinga. **Hindi** – Chachinda. **English** – Snake Gourd.

Habit & Habitat – A considerable climber, fruits hanging. It grows well in moist loamy soil.

Distribution – Cultivated fairly generally throughout the plains. The Indian subcontinent and grown elsewhere in the tropics. Also, found as an escape.

Uses & Notes – Leaves are fried or made curries occasionally, a scarcity vegetable.

Trichosanthes dioica Roxb.

Bengali – Potal (-pata). **Hindi** – Palwal / Parwal (-patta). **English** – Pointed Gourd, Parwal.

Habit & Habitat – A creeping, dense, annual herb. It flourishes in loamy soil.

Distribution – Commonly cultivated all over the plains. India, Bangladesh. Also, found as an escape from cultivation.

Uses & Notes – The leaves are bitter (but, the fruits are not bitter), fried or made into a curry, served as an appetizer. It is good for liver and revives taste buds.

Trigonella corniculata L. (Leguminosae / Fabaceae).

Bengali – Piring shak. **Hindi** – Kasuri-methi / Kasturi-methi / Champa-methi sag.

Habit & Habitat – An erect, annual herb. It grows better in loamy soil.

Distribution – Cultivated in the plains, also found as an escape from cultivation. India, Bangladesh, Sri Lanka.

Uses & Notes – A curry of its leaves and tender stems having a typical flavour is a savoury dish; a cold weather crop. The plant contains the alkaloid – diosgenin. Also, used as fodder.

Trigonella foenum-graecum L.

Bengali – Methi shak. **Hindi** – Methi / Muthi sag. **English** – Fennel, Fenugreek.

Habit & Habitat – An erect, annual herb. It prefers loamy soil.

Distribution – Commonly cultivated throughout the plains, also found as an escape from cultivation. The Indian subcontinent, Arabia, southern Europe.

Uses & Notes – Leaves and tender stems, along with other vegetables e.g. potato, gourd, brinjal, etc. are made into a tasty curry having a special flavour. The plant contains the alkaloid – trigonelline. The plant is also used as fodder and grown for soil improvement. Usually it is a cold season crop.

DISCUSSION

Leaves and fronds of different species, whether eaten as a vegetable or salad or both in West Bengal State, can be seen at a glance in Table 1. A total of 71 plant species / subspecies / varieties (pteridophyta – 7, and angiosperms – 64) have been recorded here. Leaves

of a number of species of the families Cucurbitaceae and Cruciferae / Brassicaceae are edible. Among the genera, *Amaranthus* offering five species is the most prominent one in the State as regards the number of species taken as a leaf-vegetable. Further investigation in the closely related species of the above-enumerated 71 plant members might reveal their potential to be used as a leaf-vegetable and/or salad for human consumption across the world.

Human teeth pattern is more suitable to vegetarian dishes than being 'non-veg' or carnivorous. However, leaf-vegetables and salads should not be eaten during stomach upset, as those are not easy to digest compared to the fruit-vegetables; after seven days (at least) from complete recovery, the leaf-vegetables and salads can be consumed again. For the same reason (i.e. as those are not digestion-friendly), the leaf-vegetables and salads should preferably be avoided in dinner.

While 'Palang' is *Spinacia oleracea* belonging to the family Chenopodiaceae, 'Tak-palang' is *Rumex vesicarius* of the family Polygonaceae; the former is sweetish and widely consumed across the State, but the latter is sour (sour = 'tak' in Bengali) in taste and occasionally eaten in rural areas.

The most commonly eaten leaf-vegetables are – *Marsilea minuta*, *Amaranthus tricolor*, *Azadirachta indica*, *Basella alba*, *Brassica oleracea* var. *capitata*, *Centella asiatica*, *Glinus oppositifolius*, *Ipomoea aquatica*, *Lagenaria siceraria*, *Raphanus sativus*, *Spinacia oleracea* and *Trigonella foenum-graecum*. 'Chikna-sak' (*Polygonum plebeium* var. *plebeium*) is consumed mainly in the rural areas of coastal West Bengal. It is noteworthy that very few people know the leaves of *Nyctanthes arbor-tristis* are crushed and pasted with a little water in a mortar-pestle and a tasty 'bara' or a kind of local cake can be prepared (after little frying). However, the medicinal use of the aqueous leaf extract of *N. arbor-tristis*, which is an effective febrifuge, is well known. People in villages believe that the curry of *Marsilea minuta* induces sound sleep.

Unlike fruit-salads e.g. cucumber and tomatoes (and leaf-vegetables), leaf-salads are relatively less consumed in West Bengal. The Garden Lettuce (*Lactuca sativa*), not so much cultivated in the State, is occasionally taken as a salad. Leaves of Indian Pennywort – *Centella asiatica* and the Holy Basil – *Ocimum tenuiflorum*, which are abundant in the State, are also occasionally eaten raw with fruit-salads, albeit their varied medicinal uses are well known to all. However, the fresh leaves of Coriander – *Coriandrum sativum*, being an adjunct to fruit-salads, are often consumed throughout the State.

Some leaf-vegetables are seasonal, e.g. *Brassica* spp., *Raphanus sativus*, *Trigonella* spp., *Spinacia oleracea*, *Allium* spp. etc.; those are essentially cold season crops, but are cultivated in other seasons as well (also available from cold storage throughout the year). These apart, other leaf-crops are grown all year round.

Some leaves appear in the kitchen as almost unavoidable ingredient in curries – as spice, such as the leaves of *Cinnamomum tamala* Nees et Eberm. (in Bengali & Hindi – Tejapata; family Lauraceae; fresh or dried leaves), *Murraya koenigii* (L.) Spreng. (in Bengali & Hindi – Currypata; Rutaceae; usually fresh leaves), and Coriander – *Coriandrum sativum* (fresh leaves; treated under ‘observations’ above). And the fresh leaves of *Piper betle* L. (Bengali & Hindi – Pan; English – Betel; Piperaceae) are widely used as a masticatory with areca nuts.

Leaf-vegetables are cheaper, easily affordable to the under-privileged people. Like many GM (genetically

modified) crops already available in the market, hopefully many such crops of leaf-vegetables will come up in near future.

The knowledge gathered particularly from the people in rural areas of West Bengal about different leaf-vegetables and leaf-salads needs to be integrated with modern agricultural methods, and properly documented⁷. The information given in this paper might be useful for food and nutrition biologists as well as concerned planners for further studies on better utilization and large-scale production of the relevant crops to feed the hunger of burgeoning human population across the globe.

ACKNOWLEDGEMENTS

The author is thankful to the Director of the Botanical Survey of India, Kolkata for allowing him to consult the library in the herbarium CAL.

Table 1
Leaves and fronds consumed as vegetables and salads in West Bengal

Eaten as	Species of angiosperms and pteridophytes
Vegetable	<p>Leaves: <i>Allium cepa</i>, <i>A. sativum</i>, <i>Amaranthus blitum</i> var. <i>oleracea</i>, <i>A. caudatus</i>, <i>A. spinosus</i>, <i>A. tricolor</i>, <i>A. viridis</i>, <i>Andrographis paniculata</i>, <i>Azadirachta indica</i>, <i>Bacopa monnieri</i>, <i>Basella alba</i>, <i>Benincasa hispida</i>, <i>Boerhavia repens</i>, <i>Brassica juncea</i>, <i>B. rapa</i> ssp. <i>campestris</i> var. <i>campestris</i>, <i>B. rapa</i> ssp. <i>campestris</i> var. <i>glauca</i>, <i>Chenopodium album</i>, <i>Cicer arietinum</i>, <i>Citrullus lanatus</i>, <i>Coccinia grandis</i>, <i>Colocasia esculenta</i>, <i>Corchorus capsularis</i>, <i>C. olitorius</i>, <i>Cucumis melo</i> var. <i>melo</i>, <i>C. melo</i> var. <i>momordica</i>, <i>C. melo</i> var. <i>utilissimus</i>, <i>C. sativus</i>, <i>Cucurbita moschata</i>, <i>C. pepo</i>, <i>Dregea volubilis</i>, <i>Glinus lotoides</i>, <i>G. oppositifolius</i>, <i>Hygrophila schulli</i>, <i>Lagenaria siceraria</i>, <i>Melilotus alba</i>, <i>Mollugo pentaphylla</i>, <i>Momordica charantia</i> var. <i>charantia</i>, <i>M. charantia</i> var. <i>muricata</i>, <i>M. cochinchinensis</i>, <i>Moringa oleifera</i>, <i>Nyctanthes arbor-tristis</i>, <i>Paederia foetida</i>, <i>Polycarpon prostratum</i>, <i>Polygonum plebeium</i> var. <i>plebeium</i>, <i>Raphanus sativus</i>, <i>Rorippa indica</i>, <i>Rumex vesicarius</i>, <i>Suaeda maritima</i>, <i>Tamarindus indica</i>, <i>Trichosanthes anguina</i>, <i>T. dioica</i>, <i>Trigonella corniculata</i>, <i>T. foenum-graecum</i>.</p> <p>Fronds: <i>Ampelopteris prolifera</i>, <i>Blechnum orientale</i>, <i>Diplazium polypodioides</i>, <i>Marsilea minuta</i>.</p>
Salad	<p>Leaves: <i>Ocimum tenuiflorum</i>.</p>
Both	<p>Leaves: <i>Brassica nigra</i>, <i>B. oleracea</i> var. <i>capitata</i>, <i>Centella asiatica</i>, <i>Coriandrum sativum</i>, <i>Cucurbita maxima</i>, <i>Enydra fluctuans</i>, <i>Ipomoea aquatica</i>, <i>Lactuca sativa</i>, <i>Oxalis corniculata</i>, <i>Spinacia oleracea</i>.</p> <p>Fronds: <i>Ceratopteris pteridoides</i>, <i>C. thalictroides</i>, <i>Diplazium esculentum</i>.</p>

REFERENCES

1. Prain D. Bengal Plants. Vols. I & II, Calcutta, 1903.
2. Hodge WH. Fern food of Japan and the problem of toxicity. Amer. Fern J., 1973; 63 (1): 77-80.
3. Ambasta SP (Ed.-in-Chief). The Useful Plants of India. National Institute of Science Communication, Council of Scientific & Industrial Research, New Delhi, 1986.
4. Ghosh SR, Ghosh B, Biswas A, Ghosh RK. The Pteridophytic Flora of Eastern India. Vol. 1, Botanical Survey of India, Kolkata, 2004.
5. McNeill J. *et al.* International Code of Nomenclature for algae, fungi, and plants

- (Melbourne Code). Koeltz Scientific Books, 2012.
6. Panda S. Medicinal uses of some plants in coastal West Bengal, India. In: Herbal Folk Medicine (Editor: Nehra S). Pointer Publishers, Jaipur, 2014.
 7. Poorna RL, Mymoon M, Hariharan A. Preservation and protection of traditional knowledge – diverse documentation initiatives across the globe. Current Science, 2014; 107 (8): 1240-1246.