



A Preliminary Study on Wild Forms of Cultivated Plants in West Bengal, India

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ABSTRACT

Cultivated plants are originated from wild plants. Usually a region having one or more wild species of a cultivated plant is considered its centre of origin. In this point of view investigation of wild types or wild relatives of cultivated plants is very much significant. Many plants are cultivated in West Bengal for different purposes like cereals, pulses, vegetables, spices, fruits, fibres, timbers, ornamentals etc. Some of which are found wild in different regions of West Bengal. In this present work 23 such wild plants are described which are mostly known as cultivated plants, with their common names, distribution and phenology. Several cultivated plants have other species found to grow wild; these are known as wild relatives. Such 9 wild relatives are also discussed. Some cultivated plants have potentiality to grow wild outside of cultivation. Some of these feral plants are also mentioned.

INTRODUCTION

A number of plants are cultivated in different parts of West Bengal for food (cereals, pulse, tuber, vegetable, fruit, seeds etc.), fodder, shelter, fibre, wood, medicine, beautification and so many purposes. These plants have must originated from some wild plants; these may be either indigenous or exotic. De Candolle (1881) and Vavilov (1949-50) worked extensively about the origin of cultivated plants around the world. Usually it is considered that a region with one or more wild varieties or species of a cultivated plant is its centre of origin, from where it spreads different parts of

the world through cultivation. Through cultivation a number of cultivars are developed, which have remarkable morphological differences with its wild types. So the study of wild forms or wild relatives of cultivated plants is very significant. These are also important to improve cultivated plants gene tically.

AIMS AND OBJECTIVES

The aims and objectives of this work are as follows:

1. To properly documentation of wild forms of cultivated plant species before its disappearance, because most of these are

locally threatened in wild condition.

2. To determine the actual habitat and localities of these plants, it is very much helpful to understand the origin of cultivated plants.
3. To determine the distinguishing features between wild and cultivated forms, so wild types among cultivated varieties are easily understood.
4. To indicate locally threatened wild kinsman of cultivated plants that need conservation and protection before extinction.

MATERIALS AND METHODS

The investigation on wild form of cultivated plants of west Bengal is conducted from 2014, on the seasonal basis following floristic, phenological and community studies. Darjeeling, Jalpaiguri, Alipurduar and Coochbehar in the north and Bankura, Jhargram, Paschim Medinipur, Purba Medinipur and Purlia in the south are selected as survey area. During this work Herbarium, Museum materials and literatures studies were also done in the same time period. Plant species were identified following existing literatures (Cowan, & Cowan, 1929; Haines, 1921-1925; Hooker, 1872-1897; Mooney, 1948; Prain, 1903). Names of plant taxa have been verified from literature and available online (i. e. <http://www.theplantlist.org/tp11.1/record/kew>). Common names of trees are collected from the survey and also from various literatures and online (i. e. Haines, 1921-1925; Mooney, 1948; Prain, 1903; <http://www.flowersofindia.net>).

List of abbreviations: B-Bangla; E-English; Fl. Flowering season; Fr. Fruiting season; N-

Nepali; R-Rajbansi; S-Santali; Syn.-Synonym.

RESULTS AND DISCUSSION

During the survey a number of unique and interesting wild plant species were observed which are very common under cultivation. These are broadly divided into 3 categories, wild, wild relatives and feral plants. In this present work 23 such wild plants are described which are mostly known as cultivated plants. Some cultivated species have other species found to grow wild; these are considered as wild relatives. Such 9 wild relatives are also discussed. several cultivated plants have potentiality to grow wild outside the cultivation. Some of these feral plants are also mentioned. Plant species are describes under these 3 categories with their common names, distribution and phenology. The detailed account of the same is alphabetically enumerated below:

A. Wild

1. *Bauhinia variegata* L. Caesalpiniaceae.

Varigated Bauhinia (E); Ban korhol (S).

A medium sized deciduous tree. Leaves alternate, emarginated like most of Bauhinias. Flowers in leafless condition. Corolla pale pink with dark standard. Very beautiful in full bloomed leafless plants. A number of cultivated varieties are found in gardens. Wild plants are found in hilly areas of Jhargram.

Fl. March. Fr. October-January.

2. *Caryota urens* L. Arecaceae.

Râmguâ (B); Fishtail palm (E); Râng Bhang (N); Châ guâ (R).

A tall solitary palm with long bipinnate leaves. Inflorescens very large and pendulous. Planted as ornamental, found wild in North Bengal.

Fl. and Fr. Almost throughout the year.

3. *Coccinia grandis* (L.) Voigt. Syn. *Cephalandra indica* Naud., *Coccinia indica* Wight & Arn. Cucurbitaceae.

Telâkuchâ (B-wild plant); Kundri (B-cultivated plant); Scarlet gourd (E).

A gregarious tendril climber. Flowers white. Fruits small, oblong, bright red when ripe. It has several cultivated forms with smaller and greenish-white flowers. Fruits of cultivated forms are used as vegetable mostly in South West Bengal. Common throughout West Bengal.

Fl. and Fr. Almost throughout the year, gregarious in rain.

4. *Colocasia antiquorum* Schott. Araceae.

Ban kachu, Sarkachu (B-wild); Kachu (B-cultivated); Taro (E).

A common plant of marsh and wet lands. Spadix yellow. Cultivated varieties are grown on terrestrial condition.

Fl. and Fr. Mostly June-December.

5. *Cucumis melo* var. *agrestis* (Naudin) Pangalo. Cucurbitaceae.

Ghumâri, Banphuti (B); Wild melon (E).

A weak climber spread on the ground, very similar to cultivars of melon. Fruits are small, lemon size but also edible.

Fl. and Fr. March –December.

6. *Ficus elastica* Roxb. Moraceae.

Rabâr (B); Indian rubber tree (E).

A small tree with milky latex. Leaves thick alternate with a long bud scale on the apex of branches. Common ornamental tree with several cultivars, found wild in Darjeeling district.

Fl. and Fr. Not found.

7. *Hiptage bengalensis* Kuntze Syn. *H. madablota* Gaertn. Malpighiaceae.

Mâdhâbilatâ (B); Hiptage (E).

A strong lianas with opposite leaves. Very similar to *Combretum decundrum* in flowerless condition. Flowers white with yellow tinge. Fruits are 3 winged samara, look like that of *Shorea robusta*. Rare in garden. Wild in the forest of Jhargram, not frequent. Locally threatened.

Fl. February-March. Fr. March-April.

8. *Ipomoea aquatica* Forsk. Convolvulaceae.

Kalmi (B-wild and cultivated); Dângâ kalmi (B-cultivated); Water spinach (E).

A common wild plant of marshy places. Flowers violate or sometimes white. Cultivated varieties are dwarf and terrestrial.

Fl. and Fr. October-December.

9. *Ixora coccinea* L. Rubiaceae.

Rangkâthi, Rangni, Rangli (B-wild); Rangan (B-cultivated).

Marshy shrub grows on the edges of water bodies. Internodes much longer than cultivated plants. Leaves are also larger. Flowers are red. Common ornamental plant with numerous

cultivars. Wild in southern part of Paschim Medinipur. Very rare and population decreasing rapidly.

Fl. and Fr. August-October.

10. *Jasminum angustifolium* (L.) Willd.
Oleaceae.

Kathmali, Banmâli (B); Wild Jasmine (E).

A suffruticose shrub very similar to cultivated *Jasminum sambac*. Flowers white, corolla single. Usually grown in Sal forest but may found in urban region also.

Fl. May-June. Fr. June-August.

11. *Mangifera indica* L. Anacardiaceae.

Tusi âm, Tupri âm, Tusku âm, Deshi âm (B-wild); Âm (B-cultivated and wild); Mango (E).

One of the most common cultivated fruit tree with a number of cultivars. Wild types found throughout the South West Bengal with small to medium sized very sour fruits. Stone large and mesocarp fibrous. It is self grown, occasionally cultivated.

Fl. February. Fr. May.

12. *Momordica cochinchinensis* (Lour.) Spreng Cucurbitaceae.

Kânkrol (B); Spiny bitter-cucumber (E).

A slender annual dioecious tendril climber. Leaves cordate. Flowers large creamy-white. Cultivated throughout the West Bengal. Wild in Coochbehar and adjoining areas, very frequent. Also grown as wild in southern part of Paschim Medinipur, but not common, may be feral.

Fl. May-October. Fr. Mostly May-December.

13. *Momordica dioica* Roxb. ex Willd.
Cucurbitaceae.

Ghi kâllâ (B); Spine gourd (E).

Similar to but very slender than the above. Flowers small yellow. Found wild throughout Paschim Medinipur and Jhargram. Mostly wild, occasionally cultivate for its highly esteemed fruits.

Fl. June-August. Fr. September-October.

14. *Murraya paniculata* (L.) Jack. Syn. *M. exotica* L. Rutaceae.

Ban kamini (B-wild); Kâmini (B-wild and cultivated); Chinese box (E).

A small aromatic shrub but cultivated plants may grow as large as a small tree. Flowers scented, white. Wild in the forest of Jhargram and south parts of Paschim Medinipur. Locally frequent.

Fl. and Fr. Repeatedly May-October.

15. *Musa paradisiaca* L. Musaceae.

Ânthia kalâ, Dayrâ kalâ, Majiâ kalâ (B); Banana (E).

Wild plants are very tall. Fruits are very thick with numerous seeds. Found throughout the West Bengal but more frequent in North Bengal.

Fl. and Fr. Throughout the year.

16. *Nyctanthes arbor-tristis* L. Oleaceae.

Banshiuli (B-wild); Shiuli (B-cultivated); Night jasmine (E).

Small shrub with opposite and scabrous leaves.

Corolla rotate, corolla tube orange and lobes white, fragrant, flowers at night. Cultivated plants are taller than wild plants. Found wild in hills of Bankura and Purulia.

Fl. August-November. Fr. September-December.

17. *Pachyrhizus erosus* (L.) Urb. Syn. *P. Angulatus* DC. Fabaceae.

Kânthâlu (B-wild plant); Keshar âlu, Ras âlu, Shânk âlu (B-cultivated plant); Yam bean (E).

A robust climber. Leaves trifoliolate. Flowers in elongated raceme, blue. Found wild throughout West Bengal, more frequent towards southern part of Paschim Medinipur. Similar to cultivated plants but tuberous roots of wild plant are smaller, more woody and hard due to low water content.

Fl. October-November. Fr. November-January.

18. *Pentapetes phoenicea* L. Sterculiaceae.

Dupuremani (B); Twelve o'clock (E); Borh bâhâ (S).

A slender annual plant of marshland or low land. Flowers are red. Internodes are much longer and flowers are paler than cultivated forms. A common ornamental plant mostly in the Santal villages. Wild plants are found in southern part of Paschim Medinipur. Rare and population decreasing rapidly.

Fl. and Fr. August-October, mostly in September.

19. *Putranjiva roxburghii* Wall. Syn. *Drypetes roxburghii* (Wall.) Hurus. Putranjivaceae.

Putranjib (B); Lucky bean tree (E).

A common road side planted tree, look very similar to *Polyalthia longifolia*. Dioecious medium sized tree. Found wild in the forest of Jhargram. Not frequent.

Fl. April. Fr. October-November.

20. *Sesamum indicum* L. Syn. *S. orientale* L. Pedaliaceae.

Kâthtil (B-wild); Til (B-cultivated); Sesamum (E).

An small annual erect herb. Flowers pink. Cultivated plants are taller and mostly white flowered. Common on the paddy field in Purulia.

Fl. and Fr. July-September.

21. *Tabernaemontana coronaria* Br. Syn. *Ervatamia divaricata* (L.) Burkill Apocynaceae.

Ban tagar (B-wild); Sâdâphul, Tagar (B-cultivated); Wax flower (E).

A low bush with milky latex. Similar to cultivated plants but much smaller. Flowers white. Fruits a pair of follicles, seeds red. Very frequent in Duars and its adjoining regions.

Fl. Summer. Fr. March (green)-December (ripe).

22. *Thunbergia grandiflora* (Roxb. ex Rottl.) Roxb. Acanthaceae.

Nil latâ (B); Bengal trumpet vine (E).

Robust climber, look like a cucurbit without tendril. Flowers white whereas cultivated ornamental plants have blue flowers. Found wild in Alipurduar, not frequent.

Fl. and Fr. June-September.

23. *Trichosanthes cucumerina* L. Syn. *T. anguina* L., *T. cucumerina* ssp. *cucumerina* Cucurbitaceae.

Ban chichingâ, Ban patol (B-wild); Chichingâ (B-cultivated); Snake gourd (E-cultivated).

An annual climber and wild form of cultivated plant (*T. cucumerina* ssp. *anguina*). Fruits are small about 5cm but sometimes elongated more than 20cm.

Fl. and Fr. July-October.

B. Wild relatives

Several cultivated plants have one or more wild species such as *Abelmoschus* spp., *Amaranthus* spp., *Amorphophallus sylvaticus* (Roxb.) kunth, *Artocarpus* spp., *Carissa spinarum* L., *Cestrum diurnum* L., *Cinnamomum* spp., *Citrus* spp., *Corchorus aestuans* L., *Crotalaria* spp., *Curcuma* spp., *Gardenia* spp., *Ipomoea* spp., *Lagerstroemia parviflora* Roxb., *Luffa* spp., *Magnolia* spp., *Nicotiana plumbaginifolia* Viv., *Passiflora foetida* L., *Saccharum* spp., *Solanum* spp., and *Zingiber* spp. Some other plants are mention bellow:

1. *Catharanthus pusillus* (Murray) G. Don
Vinca pusilla Murray Apocynaceae.

Ban marich (B); Tiny periwinkle (E).

A very pretty small annual erect herb. It is a miniature of common *Catharanthus roseus*. Found wild in Jhargram and Purulia. Rare.

Fl. and Fr. July-September.

2. *Coffea benghalensis* B. Heyne ex Schult.
Syn. *Psilanthus benghalensis* (B. Heyne ex Schult.) J.-F. Leroy Rubiaceae.

Bankowâ (B); Bengal coffe (E).

A common wild shrub and it is a wild relative of coffee plant. Grows in Duars forest in association with wild *Tabernaemontana coronaria*, and looks similar to it.

Fl. March-April. Fr. June-August.

3. *Crinum amoenum* Ker Gawl. ex Roxb.
Amaryllidaceae.

Himalayan crinum lily (E).

An annual bulbous plant. Flowers white, blooms at evening. Found in North Bengal.

Fl. April-May. Fr. June-July.

4. *Crinum viviparum* (Lam.) R. Ansari & V.J. Nair Syn. *C. ensifolium* Roxb., *C. defixum* Ker Gawl. Amaryllidaceae.

River Crinum Lily (E).

An aquatic annual bulbous plant. Grow in pond and other water bodies. Flowers white. Found in southern part of Purba and Paschim Medinipur.

Fl. And Fr. Rainy season.

5. *Duchesnea indica* (Andrews) Focke Syn. *Fragaria indica* Andr. Rosaceae.

Indian strawberry (E); Pântâ (R).

A prostrate stoloniferous herb with trifoliolate leaves. A miniature of cultivated strawberry with yellow flowers instead of white. Fruits are very smaller, edible. Found wild in North Bengal.

Fl. February-April. Fr. April-May.

6. *Impatiens racemulosa* Wall. ex Hook. f. & Thomson Balsaminaceae.

Ban dopâti (B); Pink Raceme Balsam (E).

A common annual herb. Grown wild in North Bengal. It is similar to *Imapatiens balsamina*.

Fl. and Fr. March-December.

7. *Mangifera sylvatica* Roxb. Anacardiaceae.

Chuche ân (N); Himalayan mango (E).

A wild species of mango. Fruits are elongated. Found in Darjeeling.

Fl. March-April. Fr. June-August.

8. *Mussaenda roxburghii* Hook. f. Rubiaceae.

Dhobi jhâr (N); East Himalayan Mussaenda (E).

Different species with many cultivars are found in gardens. This wild species is found in Northern part of North Bengal.

Fl. and Fr. Rainy season.

9. *Oryza rufipogon* Griff. Syn. *O. sativa* ssp. *fatua* (Prain.) De Wet Poaceae.

Urhâ dhân, Urhi dhân, Urhki dhân (B); Wild rice (E).

Common wild rice of West Bengal plains. It has a long awn at the tip of the spikelet otherwise similar to cultivated rice and its grains are also edible. Found in Paddy field and wet lands.

Fl. Rainy season. Fr. Autumn, before cultivated rice.

C. Feral plants

Several cultivated plants have trend to grown outside of cultivation. Some of these are *Annona squamosa* L., *Antigonon leptopus* Hook. & Arn., *Brassica* spp., *Bryophyllum pinnatum* (Lam.) Oken, *Caesalpinia pulcherrima* (L.) Sw., *Canna*

indica L., *Catharanthus roseus* (L.) G. Don, *Ecbolium viridae* (Forssk.) Alston, *Lycopersicum esculentum* Mill., *Kalanchoe blossfeldiana* Poelln., *Quamoclit vulgaris* Choisy.

CONCLUSION

In this present work 23 wild plants are discussed which are mostly recognized as cultivated plants, such as *Hiptage bengalensis* Kuntze, *Ixora coccinea* L., *Pachyrhizus erosus* (L.) Urb., *Pentapetes phoenicea* L. and *Tabernaemontana coronaria* Br. Some cultivated species have other species found to grow wild; these are considered as wild relatives. Such 9 wild relatives are also discussed. Of which *Catharanthus pusillus* (Murray) G. Don, *Coffea benghalensis* B. Heyne ex Schult. and *Mangifera sylvatica* Roxb. are remarkable. Several cultivated plants have potentiality to grow wild outside the cultivation. Some of these feral plants are also mentioned.

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