

Article

Study and quantitative analysis of wild vegetable floral diversity available in Barisal district, Bangladesh

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Abstract: In Barisal district of Bangladesh, a market survey was carried out to document the local wild vegetables floral diversity consumed by rural people and also inhabitants of metropolitan city, compare the botanical and agronomical characteristics. A total of 100 wild vegetable species belonging to 46 families have been documented from Barisal district. Among 100 wild vegetables 65% species are ethnomedicinally important and 52% are available in the all the year round. Among the species 75% herb, 19% climber, 4% shrub and 2% trees. Leaf is most frequently used plant parts consumed and fallow land is the important source of these wild vegetables. Among 46 plant families Amaranthaceae and Araceae were recorded as most prominent. Market potentiality proportionally correlated with taste, ethnomedicinal value and use frequency but inversely correlated with distribution area, community status. Wild vegetable floral species having ethnomedicinal value, better in taste are rare and distributed into certain remote areas because frequent consumption result fast reduction from hand reach sources. Findings of this study could provide baseline data to conserve these wild vegetables, further agronomical investigation to domesticate them for sustainable use.

Keywords: wild vegetables; floral diversity; ethnomedicinal; quantitative analysis; Barisal

1. Introduction

Bangladesh is blessed with wide range of wild edible floral species used as vegetable that include herbs, shrubs, and trees because of wide range of climatic condition in a year. Barisal district of Bangladesh is so much rich in wild vegetable diversity as a metropolitan city. Because of pollution from growing population, industrialization, global warming and urbanization, decreasing arable and fallow land resulting shortage in vegetables production in remaining metropolitan areas. Moreover, day by day industrialization forcing human being to search for organic vegetables which tend to green farming in case of cultivated vegetable. But it is difficult to provide sufficient amount of cultivated vegetable for its total population especially organic vegetables. Wild edible vegetables are only the alternative way to meet up the demand of green vegetable. In spite of availability of cultivated vegetables in Barisal, its local people utilizes a variety of wild plant species as green vegetables having long tradition for usage in culinary purposes. However, often these wild edible vegetables are dietary supplement and nutritionally superior to the cultivated ones too (Grivetti *et al.*, 2000; Cook *et al.*, 2000; Rashid, 1999; Freiberger *et al.*, 1998). Moreover, wild food plants are inexpensive, locally available and have a great socioeconomic significance (Baro *et al.*, 2015). But the contribution of wild edible vegetable in nutrition security has not yet been given sufficient attention in Bangladesh.

Once consumption of wild vegetable was limited among rural people because of lack of proper documentation, restriction in exchange of wild vegetable knowledge from one region to another and lack of public awareness. But in last one and half decades several survey and documentation has been made on traditional knowledge of wild vegetables for publication and exchange of this knowledge resulting previous situation reversed. The demand of wild vegetables are increasing day by day may be due to having ethnomedicinal value ((Brand-Miller

et al., 1998), availability in all seasons, stress tolerant (Cook *et al.*, 2000) and alternative source of vegetables especially organic vegetables. A large number of wild vegetables, medicinal plants and other wild resource species are reported to be disappearing rapidly in Bangladesh due to reduction of natural habitats (FAO, 1984) by deforestation, agricultural land expansion, river erosion, over population. Information on the diversity, composition of wild vegetable flora and their structure is not well documented. Sajib *et al.* (2012), Majumdar *et al.* (2018), Abdullah *et al.* (2007, 2017), Rahman *et al.* (2015), Sarker *et al.* (2009), Khatun *et al.* (2013), Rashid *et al.* (1996) tried to make survey on wild vegetables in different parts of Bangladesh. But the findings of the aforementioned authors are limited and sporadic. However, for well documentation of knowledge on wild vegetables in many unexplored areas and communities remaining in the country is prerequisite to be revealed. In this point no study has been carried out on exploration, documentation and quantitative analyses of wild vegetables used by local people of Barisal district, Bangladesh. Therefore, the objectives of the present study include: to exploration of wild vegetable available in Barisal region, to identify the frequently consumed and marketed wild vegetable species by the local people, to document their traditional uses, to determine the consensus of medicinal uses, and finally to make a basis for future cultivation, conservation.

2. Materials and Methods

2.1. Study area

Barisal is under AEZ-13 named Ganges tidal floodplain and one of the riverine southern districts of Bangladesh lying between 22°27' and 22°52' N and 90°01' and 90°43' E. The greater part of this region has smooth relief having large areas of salinity, with medium to high organic matter containing non-calcareous grey floodplain soils (FAO, 1997). This district is demarked by Madaripur, Shariatpur and Chandpur districts on the north, Patuakhali, Barguna and Jhalokati districts on the south, Bhola and Lakshmipur districts on the east, and Pirojpur, Jhalokati and Gopalganj districts on the west. This district consists of 10 upazillas, viz., Agailjhara, Babuganj, Bakerganj, Banaripara, Barisal Sadar, Gaurnadi, Hizla, Mehendiganj, Muladi and Wazirpur (Figure 1). Roadsides, fallow land, banks of rivers and all homesteads are usually covered by dense floral variety of both wild and cultivated species of plants resulting biodiversity enrich as industrialization, urbanization less affects this metropolitan city. Local people from periphery of metropolitan area come to city markets to sell wild vegetables collected by them for livelihood.



Figure 1. Study area.

2.2. Vegetable samples and data collection

From October 2017 to September 2018, twice in a season wild vegetables specimen, agronomical and botanical data associated with collected specimen were collected from the study area during periodical market surveys covering all the year round. The information related to wild vegetables obtained through local market survey and includes all higher plants and Pteridophytes, occurring wild in all available habitats. A total of 62 informants of all aged including both male and female of wild vegetables collectors and sellers have been interviewed from 26 local markets and public gathering places in Barisal district (Figure 2). During the survey information related to edibility of vegetables, parts used, taste status, market potentiality, availability status, harvesting season, ethnomedicinal value, sources of harvesting were recorded. The collected data were placed on to computer to prepare a database through Microsoft Excel. Specimens of each wild vegetables were

collected, botanically analyzed and identified by experts using standard literature (Ahmed *et al.*, 2007-2009). Voucher specimens were prepared using standard protocol (Hyland, 1972; Alexiades, 1996) and preserved at the Department of Botany, University of Barisal. The wild vegetables were enumerated alphabetically with their botanical name.



Figure 2. Marketing of wild vegetables in different locations of Barisal metropolitan city.

3. Results and Discussion

3.1. Demographic characteristics of informants

During survey just before the selling started face to face interviews were conducted for collection of detail demographic characteristics of informants. Among the informants age groups 46-60 was highly contributed (53.22%) compared to other groups (Table 1). This may be due to older people being experienced and get interested to sale wild vegetables suggesting that old people are aware of knowledge of uses and values of wild vegetables but young generation are not expert and not interested. Philips and Gentry (1993) showed that wild edible plant knowledge is gained early in life and increases only slowly with age. Bista (2004), Ladio *et al.* (2004) also found that the younger generation is not interested in such traditional ways as a result of acculturation. The small proportion of young generation documented in this survey were as helper of parents, some were due to lack of capital, some get engaged as family tradition, some were for livelihood, some were for more profit compared to sale cultivated vegetable, some were as part time income in leisure period. Female informant had higher contribution (69.35%) compared to male (Table 1). This result suggest that women are enrich in wild vegetables knowledge than men. Collection of homestead plant parts for cooking at different times of the year, sharing of kitchen knowledge among female from their early life may be reasons for this. Shava (2005) reported that women have more knowledge of vegetable compared to men due to division of domestic chores, while men may be more versed with knowledge of indigenous fruits and edible roots. In the point of education maximum informant were illiterate (54.83%) including both male and female (Table 1). This result indicates that young generation getting modern education but losing the knowledge of wild vegetables. As a result reluctance will be observed in case of wild vegetables consumption and marketing in future.

Table 1. Demographic profile of the informants included during survey.

Demographic parameter	Demographic features	Number of people	Percentage (%)
Age	15- 30	12	19.35%
	31-45	17	27.42%
	46-60 ⁺	33	53.22%
Gender	Female	43	69.35%
	Male	19	30.65%
Education	Able to read and write	9	14.52%
	Elementary school	19	30.65%
	Illiterate	34	54.83%

3.2. Diversity of wild vegetable-Habit, habitat, and parts used

This study explored the rich floral diversity of wild vegetables and documented a total of 100 wild vegetables species belonging to 76 genera and 46 families of 39 angiospermic and 7 pteridophytic from the market survey (Table 2 and Table 3). This result indicates that southern part especially Barisal district of Bangladesh enjoy so rich wild floral diversity due to its diverged climatic condition resulting local people dependent upon its natural resources for any kind of wild plants needed for traditional purposes. With regard to family Amaranthaceae (11%) is highest contributed family in terms of number of species followed by Araceae (10%), Asteraceae (6%), Euphorbiaceae, Nymphaeaceae (5%), Cucurbitaceae, Convolvulaceae, Lamiaceae, Apiaceae (each 4%), Dioscoriaceae, Fabaceae, Solanaceae (each 3%), Athyriaceae, Marsileaceae, Nyctaginaceae, Scrophulariaceae (each 2%) and remaining others family contributed 1% resulting total contribution 30% (Table 3). Sajib *et al.* (2012), Mojumdar *et al.* (2018), also found that Amaranthaceae, Araceae, Asteraceae, Euphorbiaceae, Convolvulaceae, Cucurbitaceae frequently used plant families in case of Sandwip Island, Chittagong and Rajshahi district of Bangladesh respectively. In the study the frequently reported species were herb (75 %), followed by climber (19 %), shrubs (4%), trees (2%) (Figure 3). Abdullah *et al.* (2007), Sajib *et al.* (2012), Mojumdar *et al.* (2018) also found herb is the most dominant life form of wild vegetable in the districts Mymensingh, Chittagong and Rajshahi respectively. Harvesting seasons of 48% wild vegetable floras is seasonal consisting of winter, summer, monsoon and remaining 52% are available in the all the year round (Figure 4). On the contrary winter is the most notable season of cultivated vegetables availability. Sajib *et al.* (2012), Abdullah *et al.* (2017) found that monsoon, winter season has high contribution in case of wild vegetables harvesting in Sandwip Island, Chittagong and Rangamati district of Bangladesh respectively. This variation is may be due to variation in climatic condition, vegetation diversity. Leaves are the dominant with 60% contribution followed by fruit 10.4%, rhizome 6.1%, petiole 7.8%, stem 2.6%, aerial portion 5.2%, seed, stolon and bulbil, (each 1.7%) root, flower and shoot (each 0.9%), in the context of parts used (Figure 5). Sajib *et al.* (2012), Mojumdar *et al.* (2018), Abdullah *et al.* (2007, 2017) also found that leaf is the dominantly consumed plant parts during their survey in Sandwip Isalnd, Chittagong, Rajshahi, Mymensingh and Rangamati district of Bangladesh respectively. Following features of leaf as vegetative organ available at any season, mostly active portion for bioactive compound, easily harvestable may be responsible for leaf as dominant among parts used. All these plants were collected from wild habitat and highest number of wild vegetables were collected from fallow land 38%, followed by riverside 27%, bushes 22%, Roadsides 11%, and crop fields 2 % of the total species (Figure 6). Sajib *et al.* (2012) found the maximum contribution of fallow land as source of wild vegetable in Sandwip Island, Chittagong, Bangladesh. So fallow land are important source of wild vegetables available in all the year round in Bangladesh. So it is an important source for daily nutrition index. So conservation of fallow land is highly recommended to meet up the daily vegetable demand especially wild vegetables.

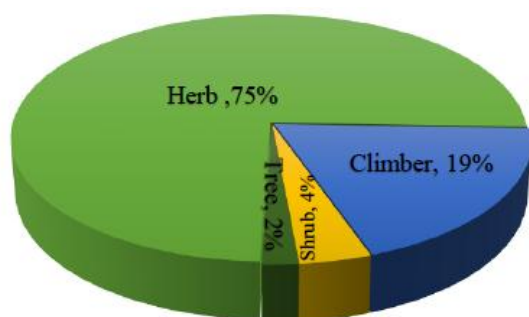


Figure 3. Comparative contribution of each plant habit.

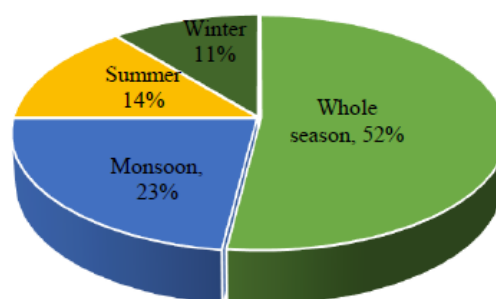


Figure 4. Comparative study on seasonal availability.

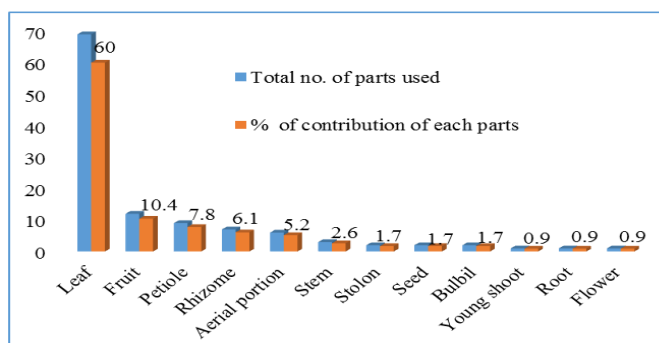


Figure 5. Number and percentage of each parts used.

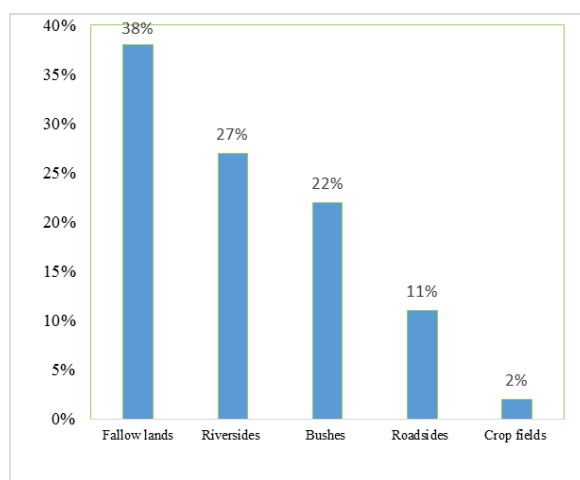


Figure 6. Comparative contribution of wild vegetables sources.

3.3. Diversity of evaluation criteria- Taste, market potential and ethnomedicinal value, distribution, community status and use frequency

Taste of 100 wild vegetable species documented from survey is classified into different categories with regard to various parameters. Among these categories taste of 54% wild vegetable is mostly preferred followed by commonly preferred (22%), preferred but not common (13%) and occasionally used (11%) with regard to taste. In the view of use frequency 51 % are widely used, followed by commonly used (21%), occasionally used (16 %) and rare used (12%) (Table 4). Wild vegetables that are in occasional and rare category with respect taste and use frequency respectively are bitter in taste and mostly used due to ethnomedicinal value. Ethnomedicinal contribution of 65 species are known and remaining 35 species are unknown (Table 4). Mercy *et al.* (2016), Mojumdar *et al.* (2018), Abdullah *et al.* (2007, 2017) also found that maximum of wild vegetables have ethnomedicinal, dietary and health benefits. Most of the wild vegetable (43%) are distributed in the most of the region whereas 24% are found in certain regions and 29% are in remote regions of study area. In point of community status 33% are abundant followed by 25% common and 42% rare (Table 4). Mojumdar *et al.* (2018) also found that maximum of wild vegetables are in rare category. Maximum of the wild vegetables groups that found in remote regions and rare with regard to distribution area and community status respectively are ethnomedicinally important. These findings collectively suggest that ethnomedicinally important wild vegetables are in critical situation in ecosystem. This may be due to over consumption, habitats disturbance by human and cattle, removal as weeds during tilling, reduction in habitat for over population growth. Market potentiality proportionately correlated with taste, ethnomedicinal value and use frequency but inversely correlated with distribution area, community status (Table 4).

Table 2. List of wild vegetable recorded from market survey.

	Local name	Scientific name	Family	Habit	Parts used	Availability	Habitat	Life form
1.	Mukta jhuri	<i>Acalypha indica</i>	Euphorbiaceae	Herb	Leaf	abundant	Fallow land	Annual
2.	Boch	<i>Achorus calamus</i>	Acoraceae	Herb	Stem	common	Bush	Perennial
3.	Apangshak	<i>Achyranthes aspera</i>	Amaranthaceae	Herb	Leaf	common	Fallow land	Perennial
4.	Apang (Lal)	<i>Aerva sanguinolenta</i>	Amranthaceae	Herb	Leaf	Common	Fallow land	Perennial
5.	Mankachu	<i>Alocasia macrorrhiza</i>	Araceae	Herb	Stem, Petiole	Common	Riverside	Perennial
6.	Malanchashak*	<i>Alternanthera philoxeroides</i>	Amaranthaceae	Herb	Leaf	Rare	Fallow land	Perennial
7.	Sanchishak	<i>Alternanthera sessilis</i>	Amaranthaceae	Herb	Leaf	Rare	Fallow land	Perennial
8.	Knoteshak*	<i>Amaranthus blitum</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
9.	Knoteshak*	<i>Amaranthus dubius</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
10.	Knoteshak*	<i>Amaranthus lividus</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
11.	Bondatashak	<i>Amaranthus oleraccus</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
12.	Katanotey	<i>Amaranthus spinosus</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
13.	Knoteshak	<i>Amaranthus viridis</i>	Amaranthaceae	Herb	Leaf	abundant	Fallow land	Perennial
14.	Jongli ool	<i>Amorphophallus bulbifer</i>	Araceae	Herb	Petiole, Stem, Rhizome	Common	Bush	Annual
15.	Dhekiashak	<i>Angiopteris evecta</i>	Angiopteridaceae	Herb	Leaf	Common	Bush	Perennial
16.	Shotomuli	<i>Asparagus racemosus</i>	Liliaceae	Climber	Aerial	Rare	Riverside	Perennial
17.	Bramhishak	<i>Bacopa monniera</i>	Scrophulariaceae	Herb	Leaf	Rare	Roadside	Annual
18.	Bansh*	<i>Bambusa longispicula</i>	Poaceae	Shrub	Young Shoot	Common	Bush	Perennial
19.	Dhekiashak (boro)	<i>Blechnum orientale</i>	Blechnaceae	Herb	Leaf	Common	Bush	Perennial
20.	Purnonapa	<i>Boerhavia diffusa</i>	Nyctaginaceae	Herb	Leaf	Rare	Fallow land	Perennial
21.	Moushim *	<i>Canavalia gladiata</i>	Fabaceae	Climber	Fruit	Common	Bush	Annual
22.	Phuti	<i>Cardiospermum halicacabum</i>	Sapindaceae	Herb	Leaf	Common	Fallow land	Annual
23.	Sonalu	<i>Cassia fistula</i>	Caesalpiniaceae	Tree	Flower	Common	Roadside	Perennial
24.	Morogjhutishak	<i>Celosia cristata</i>	Amaranthaceae	Herb	Leaf	Common	Roadside	Annual
25.	Thankuni	<i>Centella asiatica</i>	Apiaceae	Herb	Aerial portion	abundant	Fallow land	Perennial
26.	Panidhekia	<i>Ceratopteris pteridiodes</i>	Parkeriaceae	Herb	Leaf	Common	Riverside	Perennial
27.	Batuashak*	<i>Chenopodium album</i>	Chenopodiaceae	Herb	Leaf	Rare	Crop field	Annual
28.	Haraslata	<i>Cissus quadrangularis</i>	Vitaceae	Herb	Aerial portion	Rare	Fallow land	Perennial
29.	Aporajita	<i>Clitoria ternatea</i>	Fabaceae	Climber	Leaf	Common	Roadside	Annual
30.	Telakucha	<i>Coccinea cordifolia</i>	Cucurbitaceae	Climber	Leaf	abundant	Bush	Perennial
31.	Kachu*	<i>Colocasia esculenta</i>	Araceae	Herb	Aerial portion	abundant	Riverside	Perennial
32.	Kachu(boro)*	<i>Colocasia gigantea</i>	Araceae	Herb	Aerial portion	abundant	Fallow land	Perennial
33.	Kanchirashak*	<i>Commelina benghalensis</i>	Commelinaceae	Herb	Leaf	Rare	Fallow land	Perennial
34.	Bagi pat	<i>Corchorus capsularis</i>	Tiliaceae	Herb	Leaf	Common	Fallow land	Annual
35.	Metey alu*	<i>Dioscorea alata</i>	Dioscoriaceae	Climber	Leaf, Rhizome, Bulbil	Common	Bush	Annual
36.	Gasalu*	<i>Dioscorea bulbifera</i>	Dioscoriaceae	Climber	Leaf, Rhizome, Bulbil	Common	Bush	Annual
37.	Kataalu	<i>Dioscorea pentaphylla</i>	Dioscoriaceae	Climber	Rhizome	Common	Bush	Annual
38.	Dhekiashak*	<i>Diplazium esculentum</i>	Athyriaceae	Herb	Leaf	abundant	Riverside	Perennial
39.	Dekhiashak *	<i>Diplazium polypodioides</i>	Athyriaceae	Herb	Leaf	abundant	Roadside	Perennial
40.	Bhirangrazshak	<i>Eclipta alba</i>	Asteraceae	Herb	Leaf	abundant	Fallow land	Annual
41.	Helenchashak	<i>Enhydra fluctuans</i>	Asteraceae	Herb	Leaf	abundant	Riverside	Annual
42.	Belatidhonia	<i>Eryngium foetidum</i>	Apiaceae	Herb	Leaf	abundant	Fallow land	Perennial

Local name	Scientific name	Family	Habit	Parts used	Availability	Habitat	Life form
43. Dudhia (Boro)	<i>Euphorbia hirta</i>	Euphorbiaceae	Herb	Leaf	abundant	Roadside	Annual
44. Dudhia (Soto)*	<i>Euphorbia orbiculata</i>	Euphorbiaceae	Herb	Leaf	abundant	Roadside	Annual
45. Makhna	<i>Euryale ferox</i>	Nymphaeaceae	Herb	Fruit	Common	Riverside	Annual
46. Jogdumur	<i>Ficus racemosa</i>	Moraceae	Tree	Fruit	Common	Bush	Perennial
47. Khirmoishak*	<i>Hibiscus sabdariffa</i>	Malvaceae	Shrub	Leaf	abundant	Fallow land	Perennial
48. Gimashak	<i>Hydrocotyle rotundifolia</i>	Apiaceae	Climber	Leaf	Common	Fallow land	Annual
49. Dudkalmi*	<i>Ipomoea alba</i>	Convolvulaceae	Climber	Leaf	abundant	Riverside	Perennial
50. Kalmishak*	<i>Ipomoea aquatica</i>	Convolvulaceae	Climber	Leaf	abundant	Riverside	Perennial
51. Bonkalmishak*	<i>Ipomoea maxima</i>	Convolvulaceae	Climber	Leaf	abundant	Riverside	Perennial
52. Lettuch	<i>Lactuca sativa</i>	Asteraceae	Herb	Leaf	Common	Fallow land	Annual
53. Kata kachu	<i>Lasia spinosa</i>	Araceae	Herb	Rhizome, Petiole	Rare	Bush	Perennial
54. Dondokalas	<i>Leucas aspera</i>	Lamiaceae	Herb	Leaf	Rare	Fallow land	Annual
55. Dondokoas (boro)	<i>Leucas cephalotes</i>	Lamiaceae	Herb	Leaf	Rare	Crop field	Annual
56. Kesordam	<i>Ludwigia adscendens</i>	Onagraceae	Herb	Leaf	abundant	Riverside	Perennial
57. Kasava	<i>Manihot esculenta</i>	Euphorbiaceae	Shrub	Root	Common	Bush	Perennial
58. Susnishak	<i>Marsilea minuta</i>	Marsileaceae	Herb	Leaf	abundant	Riverside	Annual
59. Susnishak	<i>Marsilea quadrifolia</i>	Marsileaceae	Herb	Leaf	abundant	Riverside	Annual
60. Pudina	<i>Mentha sicata</i>	Lamiaceae	Herb	Leaf	Common	Fallow land	Annual
61. Dhekiashak*	<i>Microlepia strigosa</i>	Dennstaedtiaceae	Herb	Leaf	abundant	Riverside	Perennial
62. Refugeelata	<i>Mikania cordata</i>	Asteraceae	Climber	Leaf	abundant	Roadside	Perennial
63. Sondha shak*	<i>Mirabilis jalapa</i>	Nyctaginaceae	Herb	Leaf	Common	Fallow land	Annual
64. Titakorashak*	<i>Momordica charantia</i>	Cucurbitaceae	Climber	Fruit, Leaf	Common	Roadside	Annual
65. Bonkakrol	<i>Momordica cochinchinensis</i>	Cucurbitaceae	Climber	Leaf, Fruit	Rare	Bush	Annual
66. Boro nokha *	<i>Monochoria hastata</i>	Pontederiaceae	Herb	Leaf	Common	Riverside	Annual
67. Padma	<i>Nelumbo nucifera</i>	Nelumbonaceae	Herb	Fruit	Common	Riverside	Annual
68. Shapla (pink)*	<i>Nymphaea capensis</i>	Nymphaeaceae	Herb	Petiole	Common	Riverside	Perennial
69. Shapla (sada)	<i>Nymphaea nouchali</i>	Nymphaeaceae	Herb	Petiole	Common	Riverside	Perennial
70. Shaluk	<i>Nymphaea pubescens</i>	Nymphaeaceae	Herb	Fruit	Common	Riverside	Annual
71. Shapla (Red)	<i>Nymphaea rubra</i>	Nymphaeaceae	Herb	Petiole	Common	Riverside	Perennial
72. Tulsi	<i>Ocimum americanum</i>	Lamiaceae	Herb	Leaf	abundant	Riverside	Annual
73. Dudkalmi *	<i>Operculina turpethum</i>	Convolvulaceae	Climber	Leaf	abundant	Fallow land	Perennial
74. Panikola *	<i>Ottelia alismoides</i>	Hydrocharitaceae	Herb	Fruit	Common	Riverside	Annual
75. Aamrul	<i>Oxalis corniculata</i>	Oxalidaceae	Herb	Leaf	abundant	Riverside	Annual
76. Gandhashak	<i>Pederia foetida</i>	Rubiaceae	Herb	Leaf	Common	Bush	Perennial
77. Luchi shak *	<i>Peperomia pellucida</i>	Piperaceae	Herb	Leaf	Common	Fallow land	Annual
78. Vuiamla	<i>Phyllanthus niruri</i>	Phyllanthaceae	Herb	Leaf	abundant	Fallow land	Annual
79. Potka	<i>Physalis angulata</i>	Solanaceae	Herb	Leaf, Fruit	abundant	Fallow land	Annual
80. Luniashak	<i>Portulaca oleracea</i>	Portulacaceae	Herb	Leaf	Rare	Fallow land	Annual
81. Shamtokari*	<i>Psophocarpus tetragonolobus</i>	Fabaceae	Climber	Fruit	Common	Bush	Annual
82. Dhekiashak*	<i>Pteris cretica</i>	Pteridaceae	Herb	Leaf	abundant	Bush	Perennial
83. Veron	<i>Ricinus communis</i>	Euphorbiaceae	Shrub	Seed kernel	Rare	Riverside	Annual
84. Bon palong	<i>Rumex dentatus</i>	Polygonaceae	Herb	Leaf	Common	Fallow land	Perennial

Local name	Scientific name	Family	Habit	Parts used	Availability	Habitat	Life form
85. Bondhone	<i>Scoparia dulcis</i>	Scrophulariaceae	Herb	Leaf	abundant	Fallow land	Annual
86. Nuntashak *	<i>Sesuvium portulacastrum</i>	Aizoaceae	Herb	Leaf	Rare	Fallow land	Perennial
87. Titbegun *	<i>Solanum indicum</i>	Solanaceae	Herb	Leaf	abundant	Bush	Annual
88. Makai	<i>Solanum nigrum</i>	Solanaceae	Herb	Leaf	abundant	Fallow land	Annual
89. Nakfulshak*	<i>Spilanthes calva</i>	Asteraceae	Climber	Leaf	abundant	Fallow land	Annual
90. Gulonchoshak	<i>Tinospora cordifolia</i>	<u>Menispermaceae</u>	Climber	Leaf	Common	Bush	Perennial
91. Randhuni	<i>Trachyspermum roxburghiana</i>	Apiaceae	Herb	Leaf	abundant	Bush	Annual
92. Paniphal	<i>Trapa natans</i>	Lythraceae	Herb	Fruit	Common	Riverside	Annual
93. Hogla	<i>Typha angustata</i>	Typhaceae	Herb	Seed	Common	Riverside	Perennial
94. Ghetkachu	<i>Typhonium trilobatum</i>	Araceae	Herb	Aerial portion	abundant	Roadside	Annual
95. Ghagra	<i>Xanthomonas strumarium</i>	Asteraceae	Herb	Leaf	Common	Roadside	Annual
96. Malbikachu *	<i>Xanthosoma atrovirens</i>	Araceae	Herb	Petiole, Rhizome	abundant	Bush	Perennial
97. Mukhikachu *	<i>Xanthosoma sagittifolium</i>	Araceae	Herb	Petiole, Stolon	Common	Fallow land	Perennial
98. Dudkachu	<i>Xanthosoma violaceum</i>	Araceae	Herb	Rhizome	Common	Fallow land	Perennial
99. Kalakachu *	<i>Xanthosoma violaceum</i>	Araceae	Herb	Stolon, Leaf, Petiole	Common	Riverside	Perennial
100. Rakhalsosa	<i>Zehneria scabra</i>	Cucurbitaceae	Climber	Fruit	abundant	Bush	Annual

Table 3. Comparative study of wild vegetable with respect family, genus and species.

Name of plant family	No. of floral genera	No. of floral species	Name of plant family	No. of floral genera	No. of floral species
Araceae	6	10	Angiopteridaceae	1	1
Asteraceae	6	6	Liliaceae	1	1
Amaranthaceae	5	11	Acoraceae	1	1
Euphorbiaceae	4	5	Caesalpiniaceae	1	1
Apiaceae	4	4	Commelinaceae	1	1
Lamiaceae	3	4	Vitaceae	1	1
Cucurbitaceae	3	4	Parkeriaceae	1	1
Fabaceae	3	3	Moraceae	1	1
Nymphaeaceae	2	5	Blechnaceae	1	1
Convolvulaceae	2	4	Chenopodiaceae	1	1
Solanaceae	2	3	Onagraceae	1	1
Nyctaginaceae	2	2	Pteridaceae	1	1
Dioscoriaceae	1	3	Tiliaceae	1	1
Athyriaceae	1	2	Dennstaedtiaceae	1	1
Marsileaceae	1	2	Hydrocharitaceae	1	1
Scrophulariaceae	1	2	Rubiaceae	1	1
Portulacaceae	1	1	Oxalidaceae	1	1
Lythraceae	1	1	Poaceae	1	1
Aizoaceae	1	1	Typhaceae	1	1
Pontederiaceae	1	1	Piperaceae	1	1
Nelumbonaceae	1	1	Menispermaceae	1	1
Malvaceae	1	1	Sapindaceae	1	1
Phyllanthaceae	1	1	Polygonaceae	1	1

Table 4. Diversity among evaluation criteria.

Serial no	Evaluation parameter	Sub- criteria	Assignment score (%)	Correlation with market potentiality
1.	Taste	Most preferred	54%	High
		Commonly preferred	22%	High
		Preferred but not common	13%	General
		Occasionally used	11%	Low
2.	Ethnomedicinal value	Known	65%	High
		Unknown	35%	Low
3.	Use frequency	Widely used	51%	High
		Commonly used	21%	General
		Occasionally used	16%	General
		Rare used	12%	Low
4.	Distribution area	Most region	43%	General
		Certain region	24%	High
		Remote region	29%	High
5.	Community status	Abundant	33%	General
		Common	25%	General
		Rare	42%	High

4. Conclusions

This is the first market survey on wild vegetables consumed by the local people of Barisal district. The findings are consistent with other authors' findings with regard to parts used, ethnomedicinal value, gender involvement, plant habits and habitats, but partially consistent with regard to name of mostly contributed family, seasonal availability. The study revealed that the local inhabitants of this district have wide knowledge on consumption of wild vegetables. As a result, local people of this district consume a plenty of wild vegetables and amazing news is that surplus wild vegetables are also being marketed in metropolitan city markets. Another surprising news is that some families totally depend upon vegetables available around their homestead flora and maximum portion of these vegetables are wild. Documentation and preservation of wild vegetables knowledge is not only indispensable for the communities, but also valuable for scientific studies for sustainable uses. Further agronomical investigations on these wild vegetables are greatly needed in this regard. Our findings could provide baseline data to explore alternative vegetables from this district by agriculturists to meet up increasing demand of future generation and attention to conservation policy maker to manage these natural resources from overexploitation and degradation.

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Conflict of interest

None to declare.

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