



An Enumeration of Angiosperm weeds in the Paddy field of Rajshahi, Bangladesh with emphasis on medicinal Plants

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ABSTRACT

An enumeration and medicinal uses of angiosperm weeds in the paddy field growing throughout the Rajshahi, Bangladesh was carried out during January 2009 to December 2009. A total of 73 species under 66 genera belonging to 32 families were collected and identified. For each species scientific name, local name, phenology, family name and plant population have been mentioned. Eighteen (18) medicinal plants have been documented with their uses for the cure of more than 31 diseases. Out of the total number of species 42 were frequent, 26 were abundant and 5 were rare species in the study area.

Keywords: Angiosperm weeds, paddy field, medicinal plants, Rajshahi, Bangladesh

INTRODUCTION

Weed is the generic word for a plant growing in a spot where it is not wanted. The most prominent use of the word is in connection with farming where weeds may damage crops when growing in fields and poison domesticated animals when growing on pasture land. Many weeds are short-lived annual plants, that normally take advantage of temporarily bare soil to produce another generation of seeds before the soil is covered over again by slower growth; with the advent of agriculture, with extensive areas of ploughed soil exposed every year, the opportunities for such plants have been greatly expanded [2].

Generally a plant growing where it is not wanted is considered as weed. The notion of weeds as unnecessary plants was originated when man started to intentionally grow plants for food. Weeds are unnecessary plants because they are dropping crop yield by competing with crop plants for common resources such as water, mineral nutrients, space and light [16].

The main objectives of this work will be detailed study on the taxonomic and medicinal aspects of the angiosperm weeds in the paddy field occurring Rajshahi, Bangladesh.

MATERIALS AND METHODS

An enumeration of angiosperm weeds in the paddy field growing throughout in the Rajshahi, Bangladesh was carried out from January 2009 to December 2009. A total of 73 species under 66 genera and 32 families were collected and identified. A survey on the determination of the location of different species was made and a list was prepared to be acquainted with the plants available in the selected area. All the species were noted and time to time the areas were visited to see when they flowered. For the morphological study, different types of species were examined again and again in order to see if there was any variation or not. They were collected at flowering stages and herbarium specimens were prepared as vouchers. In this practice standard method was followed. In this regard different types of plant species were collected from different habitats. All the collected plant specimens were kept in the Herbarium, Department of Botany, and University of Rajshahi, Bangladesh.

The collected specimens were identified studying related taxonomic books and booklets from the library of Rajshahi University. The major collected materials were identified and described up to species with the help of [3], [4], [6], [8], [9], [10], [11], [12], [13], [14] and [15] were consulted. For the current name and up to date nomenclature [5], [1] and [7] were also consulted.

RESULTS AND DISCUSSION

In the present paper occurrence of 73 angiosperm weed species under 66 genera and 32 families were recorded. An enumeration of the species recorded was presented with scientific name, local name, family, plant population and phenology. Out of the total number of species 42 were frequent, 26 were abundant and 5 were rare species in the study area (Table 1). Distribution of angiosperm species in the families shows variation. The family Asteraceae is represented by 11 species, Acanthaceae by 6 species, Amaranthaceae by 5 species, and each of Polygonaceae and Araceae is represented by 4 species. A single species in each was recorded by 15 families while two to three species in each was recorded by 12 families (Table 1).

Among the species studied *Blumea laciniata* (Roxb.) DC., have been reported here for the first time from Rajshahi, and *Parthenium hysterophorus* Linn. was a new record from Bangladesh.

Table 1. Enumeration of angiosperm weeds in the paddy field of Rajshahi, Bangladesh

S/N	Family name	Scientific name	Local name	Plant population	Phenology
1	Acanthaceae	<i>Barleria prionitis</i> L.	Kanta-janti	Abundant	Nov.- Feb.
2	Acanthaceae	<i>Hemigraphis hirta</i> (Vahl) T.Anderson	Hemigraphis	Frequent	Jan.-Jul.
3	Acanthaceae	<i>Hygrophila schulli</i> M.R. & S.N. Almeida	Talmakhna	Frequent	Oct.- Jan.
4	Acanthaceae	<i>Nelsonia canescens</i> (Lamk.) Spreng.	Paramul	Frequent	Oct.- Feb.
5	Acanthaceae	<i>Phyla nodiflora</i> (L.) Greene	Bhui-okra	Abundant	Jun.- Aug.
6	Acanthaceae	<i>Rungia pectinata</i> (L.) Nees.	Pindi	Abundant	Nov.- May
7	Amaranthaceae	<i>Achyranthes aspera</i> L.	Apang	Abundant	Jan.-Dec.
8	Amaranthaceae	<i>Aerva sanguinolenta</i> (L.)	Chaya	Rare	Apr.- Jul.

		Blume			
9	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R. Brown ex Candolle	Chanchi	Abundant	Jan.-Dec.
10	Amaranthaceae	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Malancha shak	Frequent	Mar.- Jun.
11	Amaranthaceae	<i>Amaranthus spinosus</i> L.	Kantanotey	Frequent	Jan.-Dec.
12	Apiaceae	<i>Centella asiatica</i> (L.) Urban in Mart	Thankuni	Frequent	Mar.- Dec.
13	Araceae	<i>Colocasia esculenta</i> (L.) Schott.	Kochu	Abundant	Dec.-Mar.
14	Araceae	<i>Lemna perpusilla</i> Torr.	Lemna	Frequent	Jan.- Aug.
15	Araceae	<i>Pistia stratiotes</i> L.	Khudipana	Frequent	Feb.- Mar.
16	Araceae	<i>Typhonium trilobatum</i> (L.) Schott.	Ghetkochu	Frequent	Jan.-Dec.
17	Asteraceae	<i>Blumea lacera</i> (Burm.f.) DC. in Wight	Kukshim	Abundant	Nov.- Jul.
18	Asteraceae	<i>Eclipta alba</i> (L.) Hassk	Kalokeshi	Frequent	Jan.-Dec.
19	Asteraceae	<i>Enhydra fluctuans</i> Lour.	Helencha	Frequent	Jan.- Apr.
20	Asteraceae	<i>Ethulia conyzoides</i> L.	Ethulia	Rare	Jan.-May
21	Asteraceae	<i>Mikania cordata</i> (Burm.f.) Robinson	Asamlata	Abundant	Oct.- Feb.
22	Asteraceae	<i>Parthenium hysterophorus</i> L.	Gandi-boti	Abundant	Jan.-Dec.
23	Asteraceae	<i>Sonchus asper</i> (L.) Hill.	Sonchus	Abundant	Sep.- Jun.
24	Asteraceae	<i>Spilanthes calva</i> DC. in Wight	Surja Kannya	Abundant	Jan.-Dec.
25	Asteraceae	<i>Synedrella nodiflora</i> (L.) Gaertn	Synedrella	Abundant	Jan.-Dec.
26	Asteraceae	<i>Tridax procumbens</i> L.	Tridhara	Abundant	Jan.-Dec.
27	Asteraceae	<i>Xanthium indicum</i> Koenig in Roxb.	Ghagra, Hagra	Abundant	Jan.-Dec
28	Boraginaceae	<i>Heliotropium indicum</i> L.	Hatisur	Abundant	Jan.-Dec.
29	Capparaceae	<i>Cleome viscosa</i> L.	Hurhuria	Frequent	Jun.- Aug.
30	Chenopodiaceae	<i>Chenopodium album</i> L.	Batuasak	Abundant	Jan.- Mar.
31	Chenopodiaceae	<i>Chenopodium ambrosioides</i> L.	Banbatua	Frequent	Jan.- Apr.
32	Commelinaceae	<i>Commelina benghalensis</i> L.	Kanshira	Frequent	Feb.-Jul.
33	Convolvulaceae	<i>Evolvulus nummularius</i> (L.) L.	Evolvulus	Frequent	Jun.- Aug.
34	Convolvulaceae	<i>Ipomoea aquatica</i> Forsk.	Kalmishak	Frequent	Nov.-Apr.
35	Cyperaceae	<i>Cyperus rotundus</i> L.	Muthaghas	Abundant	Jan.-Dec.
36	Cyperaceae	<i>Scirpus articulatus</i> L.	Chechur	Frequent	Jan.-Dec.
37	Cyperaceae	<i>Scirpus grossus</i> L. f.	Scirpus	Frequent	Jan.-Dec.
38	Euphorbiaceae	<i>Chrozophora plicata</i> (Vahl.) A. Juss. ex Spreng	Khudi-okra	Frequent	Mar.-Jun

39	Euphorbiaceae	<i>Euphorbia hirta</i> L.	Dudhiya	Frequent	Oct.-May
40	Fabaceae	<i>Desmodium triflorum</i> (L.) Candolle	Kalilata	Abundant	Mar.-May
41	Fabaceae	<i>Sesbania bispinosa</i> Jacq.	Dhunchi	Frequent	May.-Oct.
42	Fabaceae	<i>Uraria picta</i> (Jacq.) Desv. ex DC.	Uraria	Frequent	Jan.-Dec.
43	Gentianaceae	<i>Exacum pedunculatum</i> L.	Exacum	Frequent	Feb.- Mar.
44	Hydrocharitaceae	<i>Ottelia alismoides</i> (L.) Pers.	Ottelia	Frequent	Jan.-Dec.
45	Linderniaceae	<i>Lindernia crustacea</i> (L.) F. Muell.	Lindernia	Frequent	Jan.-Dec.
46	Lythraceae	<i>Ammannia baccifera</i> L.	Jangli-mehedi	Frequent	Apr.- Jul.
47	Malvaceae	<i>Abutilon indicum</i> (L.) Sweet	Petari	Frequent	Oct.- Dec.
48	Malvaceae	<i>Sida cordata</i> (Burm. f.) Borss.	Junka	Frequent	Sep.- Oct.
49	Malvaceae	<i>Urena lobata</i> L.	Banokra	Frequent	Sep.- Oct.
50	Molluginaceae	<i>Glinus oppositifolius</i> (L.) A. DC.	Gimashak	Rare	Mar.-Jul.
51	Molluginaceae	<i>Mollugo pentaphylla</i> L.	Mollugo	Frequent	Mar.-Jul.
52	Onagraceae	<i>Ludwigia adscendens</i> (L.) Hara.	Ludwigia	Frequent	Jan.-Dec.
53	Onagraceae	<i>Ludwigia perennis</i> L.	Ludwigia	Frequent	Jan.-Dec.
54	Oxalidaceae	<i>Biophytum sensitivum</i> (L.) DC.	Panilajuk	Rare	Sep.- Mar.
55	Oxalidaceae	<i>Oxalis corniculata</i> L.	Amrul	Abundant	Sep.-Mar.
56	Oxalidaceae	<i>Oxalis rubra</i> A. St. Hil.	Baroamrul	Abundant	Sep.-Mar.
57	Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Durbaghas	Abundant	Jan.-Dec.
58	Poaceae	<i>Oplismenus compositus</i> (L.) P. Beauv.	Oplismenus	Abundant	Jan.-Dec.
59	Polygonaceae	<i>Polygonum barbatum</i> L.	Biskatali	Abundant	Jun.- Dec.
60	Polygonaceae	<i>Polygonum hydropiper</i> L.	Biskatali	Frequent	Jul.- Sep.
61	Polygonaceae	<i>Polygonum orientale</i> L.	Borobiskatali	Frequent	Jan.-Mar.
62	Polygonaceae	<i>Polygonum plebejum</i> R. Br.	Raniphul	Rare	Jan.-Apr.
63	Pontederiaceae	<i>Eichhornia crassipes</i> (Mart.) Solms.	Kochuripana	Abundant	Jan.-Dec.
64	Pontederiaceae	<i>Monochoria hastata</i> (L.) Solms.	Monocoria	Frequent	Mar.-Jul.
65	Portulacaceae	<i>Portulaca oleracea</i> L.	Nuniashak	Frequent	Sep.- Mar.
66	Primulaceae	<i>Anagallis arvensis</i> L.	Anagalis	Frequent	Jan.-Mar.
67	Ranunculaceae	<i>Ranunculus sceleratus</i> L.	Ranunculus	Frequent	Feb.- Mar.
68	Scrophulariaceae	<i>Herpestis chamaedroides</i> Kunth.	Herpestis	Frequent	Jan.-Dec.
69	Scrophulariaceae	<i>Scoparia dulcis</i> L.	Bandhoney	Frequent	Jan.-May
70	Solanaceae	<i>Nicotiana plumbaginifolia</i> Viv.	Bantamak	Abundant	Mar.-Jun.
71	Tiliaceae	<i>Corchorus acutangulus</i> Lamk.	Banpat	Frequent	Mar.- Jun.

72	Urticaceae	<i>Pouzolzia indica</i> (L.) Bennett & R. Br.	Pouzolzia	Frequent	May- Sep.
73	Verbenaceae	<i>Clerodendrum viscosum</i> Vent.	Bhat	Abundant	Feb.- Mar.

[Jan.=January, Feb.=February, Mar.=March, Apr.=April, May=May, Jun.=June, Jul.=July, Aug.=August, Sep.=September, Oct.=October, Nov.=November, Dec.=December]

Medicinally important weeds: The important medicinal weeds in the paddy fields of Rajshahi were carried out. A total of 18 medicinal plant species belonging to 18 genera and 11 families were collected and recorded for their use in various ailments. Most of the local people in the study area are poor are illiterate. In one hand, these people are out of the reach of modern medicines and on other hand, the market price of most available medicines are very expensive. As a result, these medicinal plants are used by them to cure following the diseases, especially for abscess, asthma, cough, small pox, constipation, dysentery, diarrhea, diabetes, eczema, fever, and fracture of bone, headache, heart disease, itches, jaundice, menstrual disease, paralysis, piles, skin diseases, snake-bite, toothache, vomiting, worm, wound and others. Different plant parts of different spp. are used as medicine for treating various diseases; bark of 1, leaf of 12, fruit of 2, root of 4, stem of 1, inflorescence 1, tuber 1 and whole plant of 8 species were used as medicine (Table 2).

Table 2. Medicinal angiosperm weeds used by local people of Rajshahi, Bangladesh

S/N	Plant species	Family name	Parts used	Diseases to be treated
1	<i>Achyranthes aspera</i> L.	Amaranthaceae	L, B, F	Sciatica, abortion, eczema and wound.
2	<i>Acalypha indica</i> L.	Euphorbiaceae	L	Skin disease
3	<i>Amaranthus spinosus</i> L.	Amaranthaceae	WP	Asthma and cold fever.
4	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Acanthaceae	L, WP	Wound, ring worm, itches, fever, dysentery, diarrhea and tonic.
5	<i>Blumea laciniata</i> (Roxb.) DC	Asteraceae	WP, R	Bronchitis, blood diseases, fevers, burning sensation, mouth ulcers
6	<i>Centella asiatica</i> (L.) Urban	Apiaceae	L, WP	Dysentery, headache, itches and eczema.
7	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	L, T	Constipation, colic, digestive,
8	<i>Eclipta alba</i> (L.) Hassk.	Asteraceae	L, WP	Wound, itches, skin disease, colour of hairs, jaundice, asthma and gall bladder stone.
9	<i>Euphorbia hirta</i> L.	Euphorbiaceae	L	Bronchitis, cough
10	<i>Heliotropium indicum</i> L	Boraginaceae	L	Fever, skin disease

11	<i>Mikania cordata</i> (Burm.f) Robinson	Asteraceae	L	Cut injury
12	<i>Oxalis corniculata</i> L.	Oxalidaceae	L	Cough, scabies, itches, dysentery, anemia, piles, dyspepsia and fever.
13	<i>Parthenium hysterophorus</i> L.	Asteraceae	WP, R	Tonic, febrifuge, emmenagogue, dysentery
14	<i>Polygonum hydropiper</i> L.	Polygonaceae	L	Insects-bite
15	<i>Portulaca quadrifida</i> L.	Portulacaceae	WP	Diuretic, dysentery, diseases of liver, spleen, kidney, scurvy, piles
16	<i>Scoparia dulcis</i> L.	Scrophulariaceae	R	Snake-bite
17	<i>Spilanthes calva</i> DC.	Asteraceae	I	Toothache
18	<i>Xanthium indicum</i> Koen ex Roxb	Asteraceae	WP, S, F, R, L	Diabetes, bitter, tonic, cancer, small-pox, snake-bite, insect-bite, ulcers, boils, abscess, herpes

L=Leaf, S=Stem, R=Root, WP=Whole plant, F=Fruit, B=Bark, T=Tuber, I=Inflorescence

CONCLUSION

A checklist of angiosperm weeds in the paddy field of Rajshahi, Bangladesh has been studied. A total of 73 angiosperm weed species under 66 genera and 32 families were recorded. Eighteen (18) medicinal plants have been documented with their uses for the cure of more than 31 diseases, and some of these are abscess, asthma, cough, small pox, constipation, dysentery, diarrhea, diabetes, eczema, fever, and fracture of bone, headache, heart disease, itches, jaundice, menstrual disease, paralysis, piles, skin diseases, snake-bite, toothache, vomiting, worm, wound and others. This detailed information will be helpful for the pharmacognosist, botanist, ethno-botanist and pharmacologist for the collection and identification of the plant for their research work

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