Species, Vol. 18, No. 58, January-March, 2017 SURVEY

ISSN 2319–5746 EISSN 2319–5754

Species

# Investigation and Taxonomic Studies of Angiosperm Weed Flora in the Mulberry Field of Rajshahi University Campus

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Publication History
Received: 4 January 2017
Accepted: 30 January 2017
Published: January-March 2017

Citation
Mahbubur Rahman AHM, Md. Abdullah Al Mamun. Investigation and Taxonomic Studies of Angiosperm Weed Flora in the Mulberry Field of Rajshahi University Campus. *Species*, 2017, 18(58), 42-56



## ABSTRACT

Taxonomic investigation on the weed species growing in the Mulberry field was carried out. A total of 37 weed species under 36 genera belonging to 20 families were collected and identified. Asteraceae, Amaranthaceae, Euphorbiaceae, Oxalidaceae, Fabaceae,

Verbenaceae, Poaceae and Solanaceae are the dominant families with high species diversity. Out of the total number of species *Biophytum sensitivum* L., *Centella asiatica* (L.) Urban in Mart., *Commelina benghalensis* L., *Hemigraphis hirta* (Vahl) T.Anderson, *Mimosa pudica* L., *Mollugo pentaphylla* L., *Portulaca oleracea* L., *Pouzolzia zeylanica* (L.) Benn., *Phyla nodiflora* (L.) Greene, *Spilanthes calva* DC. in Wight., *Scoparia dulcis* L. and *Xanthium indicum* Koenig in Roxb. was rare species in the study area. For each species botanical name, local name, flowering time, medicinal uses and family were provided. The present survey was the first attempt to document weed diversity of Mulberry field in Rajshahi University Campus, Bangladesh.

Keywords: Species Diversity, Angiosperm Weeds, Mulberry Field, Rajshahi University Campus

## 1. INTRODUCTION

A weed is a plant considered undesirable in a particular situation, "a plant in the wrong place". Examples commonly are plants unwanted in human-controlled settings, such as farm fields, gardens, lawns, and parks. Taxonomically, the term "weed" has no botanical significance, because a plant that is a weed in one context is not a weed when growing in a situation where it is in fact wanted, and where one species of plant is a valuable crop plant, another species in the same genus might be a serious weed, such as a wild bramble growing among cultivated loganberries. Many plants that people widely regard as weeds also are intentionally grown in gardens and other cultivated settings, in which case they are sometimes called beneficial weeds. The term weed also is applied to any plant that grows or reproduces aggressively, or is invasive outside its native habitat (Janick, 1979).

While the term "weed" generally has a negative connotation, many plants known as weeds can have beneficial properties. A number of weeds, such as the dandelion (*Taraxacum*) and lamb's quarter, are edible, and their leaves or roots may be used for food or herbal medicine. Burdock is common over much of the world, and is sometimes used to make soup and medicine in East Asia (Burdock Root, 2015). Some weeds attract beneficial insects, which in turn can protect crops from harmful pests. Weeds can also prevent pest insects from finding a crop, because their presence disrupts the incidence of positive cues which pests use to locate their food. Weeds may also act as living mulch, providing ground cover that reduces moisture loss and prevents erosion. Weeds may also improve soil fertility; dandelions, for example, bring up nutrients like calcium and nitrogen from deep in the soil with their tap root, and clover hosts nitrogen-fixing bacteria in its roots, fertilizing the soil directly. The dandelion is also one of several species which break up hardpan in overly cultivated fields, helping crops grow deeper root systems. Some garden flowers originated as weeds in cultivated fields and have been selectively bred for their garden-worthy flowers or foliage. An example of a crop weed that is grown in gardens is the corncockle, (*Agrostemma githago*), which was a common weed in European wheat fields, but is now sometimes grown as a garden plant (Peterson & Dines, 2002).

The importance of studying angiosperm weed species diversity and medicinal uses has been realized and carried out in Bangladesh by Ara *et al.* (2011, 2013), Rahman *et al.* (2007), Rahman *et al.* (2008a, 2008b), Rahman *et al.* (2013), Rahman ( 2013a, 2013b, 2013c, 2013d, 2013e, 2013f), Rahman and Akter (2013), Rahman *et al.* (2014a, 2014b), Rahman and Gulshana (2014), Rahman and Rahman (2014), Rahman and Rojonigondha (2014), Rahman *et al.* (2015), Rahman and Parvin (2014, 2015), Roy *et al.* (2016), Sultana and Rahman (2016), Uddin and Hassan (2010), and Uddin *et al.* (2013, 2014). The aim of the present study was to record of angiosperm weed species diversity in the Mulberry field of Rajshahi University Campus, Bangladesh.

## 2. MATERIALS AND METHODS

Taxonomic investigation on the weed species growing in the Mulberry field was carried out from January 2009 to December 2009. A total of 37 weed species belonging to 36 genera and 20 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. The major collected materials were identified and described up to species with the help of Hooker (1961), Prain (1963), Kirtikar and Basu (1987), and Ahmed *et al.* (2007-2009) were consulted. For the current name and up-to-date nomenclature Pasha and Uddin (2013) and Huq (1986) were also consulted. All the collected plant specimens were kept in the Herbarium, Department of Botany, and University of Rajshahi, Bangladesh.

## 3. RESULTS AND DISCUSSION

Based on this study, a checklist of angiosperm weed species in the Mulberry field of Rajshahi University Campus, Bangladesh was made that includes 37 species under 36 genera and 20 families. Asteraceae, Amaranthaceae, Euphorbiaceae, Oxalidaceae, Fabaceae, Verbenaceae, Poaceae, and Solanaceae are the dominant families with high species diversity (Figure 1). Distribution of weed species in the families shows variation. Asteraceae is represented by 8 species. Amarantaceae is represented by 4 species. Solanaceae is represented by 3 species. Each of Oxalidaceae, Verbenaceae, Poaceae, Euphorbiaceae, Fabaceae is represented by 2 species. A single species in each was recorded by 12 families. Monthly diversity of weed species shows variation (Table 1). Each of 94.59% weed species was found in the month June, July and August. Each of 91.89% weed species was found in January and September. 89.18% weed species was found in February. Each of 86.48% weed species was found in May and October. Each of 83.78% weed species was found in November and December followed by 81.08% in March and 75.67% in April (Table 1; Figure 2).

The collected information is comparable with the result of other studies in Bangladesh and abroad. A total of 56 weed species belonging to 23 families was identified in five different rice field around Vanur taluk of Villupuram district, Tamil Nadu, India (Nithya and Ramamoorthy, 2015). Twenty four weed species under 22 genera and 14 families were studied in 9 crop fields in West Bengal, India (Mondal and Hossain, 2015). A total of 40 plant species were growing as weeds in rice fields of Kashmir Valley, which belonged to 27 genera in 19 families (Hassan *et al*., 2015). A total of 71 weed species belonging to 65 genera and 32 families were recorded in wheat field of Rajshahi district, Bangladesh (Rahman *et al*., 2014b). A total of 73 weed species belonged to 66 genera and 32 families are documented in paddy field of Rajshahi district, Bangladesh (Rahman and Rahman, 2014). A total of 23 species of 13 families were identified as weeds of wheat fields from five different localities of village Qambar, District Swat, Pakistan (Akhter and Hussain, 2007). A total of 73 weed species belonging to 65 genera and 27 families were recorded in sugarcane field of District Banu, Khyber Pakhtunkhawa, Pakistan (Khan *et al*., 2012). Twenty-two weed species belonging to 12 families were found dominant in greengram and blackgram in Haryana, India ( Punia *et al*., 2013). A total of 39 weed species belonging to 37 genera and 19 families were recorded in mixed winter crop of Uttar Pradesh, India (Singh *et al*., 2012). A total of 58 weed species were recorded in wheat field of Nowshera District Rajouri (J & K), India (Dangwal *et al*., 2011). So far the information available, no published data recorded on the angiosperm weed species in the Mulberry field of Rajshahi University Campus, Bangladesh.

By examining the plant materials collected from the study area using the identification methods and medicinal information was accumulated and described below.

***1. Achyranthes aspera* L.**

**Local name:** Apang **Family:** Amaranthaceae **Flowering time:** June to October

**Short description:** An erect, diffuse herb, fine-pubescent. Leaves simple, opposite, decussate, obavate-orbicular, round at the apex, generally thick, softly pubescent, tomentose or velvety. Flowers greenish-white in terminal spikes, soon deflexed. Fruits deflexed. Seeds shining **(Figure 3; 1).**

**Medicinal Uses:** An infusion of the root is emetic and astringent; reported to be useful for easy delivery and in eczema. The juice of the leaves is taken for dysentery. Seeds are emetic; used in hydrophobia. Paste made of root powder and black pepper is given on acne to cure (Ghani, 2003).

***2. Ageratum conyzoides* L.**

**Local name:** Ochunti **Family:** Asteraceae **Flowering time:** November to June

**Short description:** Herbs, annual or perennial: stems terete, pilose. Leaves opposite, ovate, 3-nerved from base, sparsely pilose. Head many flowered, flowers white or blue **(Figure 3; 2).**

**Medicinal Uses:** Paste prepared from leaf is applied to forehead for the treatment of headache (Ghani, 2003).

***3. Alternanthera sessilis* (L.) R.Br. ex DC.**

**Local name:** Sachishak **Family:** Amaranthaceae **Flowering time:** January to December

**Short description:** A perennial, polymorphic herb. Stem long, prostrate, simple or branched, robust. Leaves opposite, oblong or linear oblong. Apex acute, Inflorescence a head solitary, spherical. Fruit not seen **(Figure 3; 3).**

**Medicinal Uses:** Curry prepared from leaves is taken to treat constipation (Ghani, 2003).

***4. Amaranthus viridus* L.**

**Local name:** Noteyshak **Family:** Amaranthaceae **Flowering time:** January to December

**Short description:** An annual, erect or decumbent, small, selender herb, sparsely branched. Leaves ovate or elliptic. Inflorescence terminal or in the axils of upper leaves, pseudo- spikes solitary or forming a dense flowered cluster. Fruits an indehiscent a sparsely branched panicle. Grows waste and disturbed lands and along roadsides **(Figure 3; 4).**

**Medicinal Uses:** The plant is used as demulcent, diuretic and also in snake bite (Kirtikar and Basu, 1987).

***5. Amaranthus spinosus* L.**

**Local name:** Katanotey **Family:** Amaranthaceae **Flowering time:** January to December

**Short description:** An erect spiny herb; stem often reddish. Leaves simple, ovate, cuneate at base. Flowers very numerous, sessile, in dense axillary clusters and in terminal dense or interrupted spikes. Seeds compressed, orbicular, black **(Figure 3; 5).**

**Medicinal Uses:** Fresh leaves are boiled and taken as vegetables. Leaves and stem are taken as vegetable to treat constipation. A paste of the whole plant is taken for the treatment of malaria (Ghani, 2003).

***6. Biophytum sensitivum* L.**

**Local name:** Panilazuk **Family:** Oxalidaceae **Flowering time:** January to December

**Short description:** An annual herb. Leaves pinnately comound, paripinnate, subsessile, oblong to obovate. Flowers bisexual, in terminal umbellate inflorescence. Fruit a casule. Seeds ovate, transversely ribbed **(Figure 3; 6).**

**Medicinal Uses:** The plant is roasted after being wrapped in banana leaf and eaten with lime juice for stomach ache, while children are given the roots to chew for the same purpose (Ghani, 2003).

***7. Blumea lacera* (Burm.f.) DC. in Wight**

**Local name:** Kucksim **Family:** Asteraceae **Flowering time:** November to July

**Short description:** An erect, villous, foetid herb. Lower leaves petioled, often incised or lyrate, the upper subsessile elliptic oblong or obovate, finely silky pubescut. Heads 8 mm across, numerous in short axillary cymes and terminal spiciform panicles; flowers yellow **(Figure 3; 7).**

**Medicinal Uses:** The root is used to cure mouth diseases, and with black pepper is given in cholera (Ghani, 2003).

***8. Clerodendrum viscosum* Vent.**

**Local name:** Bhat **Family:** Verbenaceae **Flowering time:** January to July

**Short description:** A large shrub; branches 4-angled. Leaves simple, ovate or orbicular, serrate, tomentose beneath. Flowers white tinged with pink, in terminal sub-corymbose panicles. Drupes bluish-black **(Figure 3; 8).**

**Medicinal Uses:** Extract prepared from young leave is taken for the treatment of stomachache, dysentery and diarrhea (Rahman *et al*., 2013).

***9. Centella asiatica* (L.) Urban in Mart**

**Local name:** Thankuni **Family:** Apiaceae **Flowering time:** March to December

**Short description:** A slender creeping herb, rooting at nodes. Leaves with long petiole, 1-3 from each node of the stems, lamina, orbicular-reniform, rather broader than long, shallowly crenate. Flowers in fascicled umbel, consisting of 3-4 pink, small, sessile. Fruit ovoid, hard, flat **(Figure 3; 9).**

**Medicinal Uses:** Extract prepared from whole plant taken for vomiting and also for dysentery anddiarrhoea taken one or two cupfuls twice daily for seven days (Kirtikar and Basu, 1987).

***10. Commelina benghalensis* L.**

**Local name:** Kanshira **Family:** Commelinaceae **Flowering time:** February to December

**Short description:** A slender dichotomously branched creeping herb. Leaves ovate or oblong, obtuse. Flowers blue in funnel-shaped spathes. Capsule pyriform, membranous **(Figure 3; 10).**

**Medicinal Uses:** The plant is bitter and said to be beneficial in leprosy (Kirtikar and Basu, 1987).

***11. Cyperus rotandus* L.**

**Local name:** Muthaghas **Family:** Cyperaceae **Flowering time:** May to September

**Short description:** Perennial herbs stem triangular, root adventitious. Leaves 3 ranked, exstipulate, sessile, eligulate, blades narrow & grass like leaf base sheating, sheath closed. Flower very minute, inflorescence arranged spikelets in spicate, racemos & umbel. Fruits lens shaped achene. Frequent in the sloop of hill and marginal land **(Figure 3; 11).**

**Medicinal Uses:** Tubers are used as leprosy, fever, blood diseases, dysentery, pain, vomiting, and epilepsy, stomach disorder and irritation of the bowels (Kirtikar and Basu, 1987).

***12. Cynodon dactylon* L.**

**Local name:** Durbaghas **Family:** Poaceae **Flowering time:** July to December

**Short description:** Perennial creeping grasses. Stem prostate. Leaves short, narrow, flat, subulate, glaucous, ligule hairy; spicklets minite. Spick radiating, green or purplish. Abundant in marginal land **(Figure 3; 12).**

**Medicinal Uses:** The plant is used for the treatment of blood dysentery, chest pain, cutting wound, itching, leucoderma and prickly heat (Uddin *et al*., 2006). Paste made from whole plant is used as heal cuts and wounds (Yusuf *et al*., 2009).

***13. Desmodium triflorum* (L.) Candolle**

**Local name:** Kulaliya **Family:** Fabaceae **Flowering time:** January to December

**Short description:** A small perennial trailing herb, 15-45 cm long, branches numerous, prostrate, rooting at the nodes. Leaves 3-foliolate; leaflets obovate, cuneate, 5-6 mm long. Flowers small, pink, 1-5, fascicled in the axils of the leaves. Pods 10-15 mm long, lower edge indented **(Figure 3; 13).**

**Medicinal Uses:** Leaf extract is taken to treat stomach disorder, diarrhoea and chest pain (Ghani, 2003).

***14. Euphorbia hirta* L.**

**Local name:** Dhudiya **Family:** Euphorbiaceae **Flowering time:** January to December

**Short description:** Mostly monoecious herbs that are further characterized by the frequent occurrence of milky sap. Leaves are mostly alternate but may be opposite or whorled and they are simple, or compound. Flowers are unisexual and usually actinomorphic. Fruit is usually a capsular schizocarp. Common in side of the road **(Figure 3; 14).**

**Medicinal Uses:** Paste prepared from whole plant and is used to plaster the fractured area. Extract of whole plant is taken twice daily as patient can until cured to treat diarrhea (Ghani, 2003).

***15. Eclipta alba* (L.) Hassk**

**Local name:** Kalokeshi **Family:** Asteraceae **Flowering time:** January to December

**Short description:** An erect or prostrate herb. Leaves simple, oblong- lanceate, strigose. Flowers white or pale blue, in heterogamous heads; pappus absent. Achenes compressed black. Common in marginal land **(Figure 3; 15).**

**Medicinal Uses:** Extract prepared from leaf is taken one cupful twice or thrice daily untill cured to treat excessive menstruation. Crushed leaves are applied to affected areas for the treatment of boils (Ghani, 2003).

***16. Evolvulus nummularius* (L.) L.**

**Local name:** Bhuiokra **Family:** Convolvulaceae **Flowering time:** January to December

**Short description:** A perennial herb with prostrate stem, often pilose at the nodes with short trichomes to glabrate. Leaves broadly ovate to orbicular. Flowers white in colour, Fruit a globose capsule. Seeds brownish to black, subglobose **(Figure 3; 16).**

**Medicinal Uses:** Not known.

***17. Hemigraphis hirta* (Vahl) T.Anderson**

**Local name:** Buripana **Family:** Acanthaceae **Flowering time:** January to July

**Short description:** A small prostrate, softly hirsute or villous herb, up to 30 cm long, with white hairs. Leaves ovate, crenate, obtuse, petiole very small. Flowers in small close terminal heads, pale blue. Seeds orbicular, compressed, deep brown, margin with white hairs **(Figure 3; 17).**

**Medicinal Uses:** Not known

***18. Heliotropium indicum* L.**

**Local name:** Hatisur **Family:** Boraginaceae **Flowering time:** January to December

**Short description:** A coarse somewhat succulent, annual with stout stem and ascending branches, more or less densely hirsute. Leaves ovate or ovate-oblong, obtuse or subacute, hairy.Flowers small, pale violet, numerous, sessile, 2-ranked, in simple or rarely forked, usually with extra-axillary spikes **(Figure 3; 18).**

**Medicinal Uses:** Paste prepared from leaves is applied in ringworm. Decoction of leaves is taken in fevers (Ghani, 2003).

***19. Leucas aspera* (Willd.) Link.**

**Local name:** Shetodron **Family:** Lamiaceae **Flowering time:** January to December

**Short description:** An erect annual; stems grooved. Leaves lanceolate, entire or distinctly shallow, crenate-serrate. Flowers white in whorls **(Figure 3; 19).**

**Medicinal Uses:** Leaf paste is used in insect bites. Leaf extract is taken in fever (Ghani, 2003).

***20. Mimosa pudica* L.**

**Local name:** Lajjaboti **Family:** Fabaceae **Flowering time:** September to December

**Short description:** Undershrubs; stems with prickles. Leaves alternate, pinnately compound, sensitive. Flowers in heads, pink. Fruits pods **(Figure 3; 20).**

**Medicinal Uses:** Whole plant boiled is in water and the extract is taken to treat body inflammation and pain. Paste prepared from root is taken for the treatment of diarrhea (Rahman *et al*., 2013).

***21. Mollugo pentaphylla* L.**

**Local name:** Julpapra **Family:** Molluginaceae **Flowering time:** June to January

**Short description:** A small, glabrous, annual herb. Leaves small, in whorls of 2-9, linear-lanceolate to obovate, obtuse or acute. Flowers small, white, numerous in lax, corymbose, terminal cymes; peduncles and pedicels filiform. Capsules minute, subglobose **(Figure 3; 21).**

**Medicinal Uses:** Infusion of the plant is given to women to promote the menstrual discharge (Ghani, 2003).

***22. Mikania cordata* (Burm.f.) Robinson**

**Local name:** Assam lata **Family:** Asteraceae **Flowering time:** October to February

**Short description:** Twiners, stems terete or slightly angled. Leaves opposite, simple, cordate-hastate. Flowers in heads of compound corymbs, white. Fruits cypseals, papus **(Figure 3; 22).**

**Medicinal Uses:** Leaves are very much beneficial in dysentery, gastric ulcers and to stop and cure hemorrhages from cut and bruises (Ghani, 2003).

***23. Nicotiana plumbaginifolia* Viv.**

**Local name:** Bantamak **Family:** Solanaceae **Flowering time:** March to December

**Short description:** A slender, erect, viscidly pubescent, branched, annual herb, up to 90 cm tall. Leaves oblong, elliptic or ovate. Flowers 2.5-4.0cm long, pedicels 0.5 cm long. Seeds small, many, less than 0.1 cm long, dark brown **(Figure 3; 23).**

**Medicinal Uses:** Not known.

***24. Oxalis corniculata* L.**

**Local name:** Amrul **Family:** Oxalidaceae **Flowering time:** September to May

**Short description:** A diffuse creeping herb, rooting at nodes. Leaves 3-foliolate, leaflets obcordate, cuneate at base, emerginate at apex. Flowers yellow, in axillary umbels. Capsules oblong, beaked **(Figure 3; 24).**

**Medicinal Uses:** The plant juice is used to cure dyspepsia, scurvy, anaemia and piles (Rahman *et al*., 2013).

***25. Oplismenus compositus* (L.) P. Beauv.**

**Local name:** Lungi-chor **Family:** Poaceae **Flowering time:** January to December
**Short description:** Perennial herb, The leaves are lanceolate, ovate, are 2–16 centimetres (0.79–6.30 in) long and 8–35 millimetres (0.31–1.38 in) wide. *O. compositus* have a raceme which is composed from inflorescence. The spikelets also have one basal sterile florets and one fertile florets while its rhachilla is not extended **(Figure 3; 25).**
**Medicinal Uses:** Not known

***26. Portulaca oleracea* L.**
**Local name:** Noniashak **Family:** Portulacaceae **Flowering time:** May to August
**Short description:** Annual herb. Stem rostrate or erect, up to 30 cm tall, green or reddish green. Leaves simple, alternate or subopposite. Flowers rarely solitary and terminal, sessile, yellow. Seeds numerous, shining black, reniform testa tuberculate **(Figure 3; 26).**
**Medicinal Uses:** The plant is used as a diuretic, sedative, analgesic, tonic and cardiotonic and to treat rheumatism and gynaecological diseases, fever, disorders of the urinary tracts, intestinal worm, dysentery, asthma, diarrhea, leprosy and piles, and as an external treatment for ulcers, eczema and dermatitis (Ghani, 2003).

***27. Phyllanthus niruri* L.**
**Local name:** Bhuiamla **Family:** Euphorbiaceae **Flowering time:** August to October
**Short description:** A monoecious, erect annual herb, up to 70 cm high, branches angular. Leaves stipulate, lanceolate, scarious, acute. Flowers yellowish, very numerous, axillary, the males 1-3, female solitary. Fruits trilobite-subglobose, smooth, olovaceous or stramineous **(Figure 3; 27).**
**Medicinal Uses:** The plant is used as diuretic in gonorrhea and other genito-urinary tract. The fresh root is administered as a remedy of jaundice. Infusion of young shoots if prescribed in dysentery (Rahman *et al*., 2013).

***28. Pouzolzia zeylanica* (L.) Benn.**
**Local name:** Kullaruki **Family:** Urticaceae **Flowering time:** June to December
**Short description:** A momoecious perennial herb, up to 40 cm tall. Leaves opposite in lower portion, upper leaves alternate, shortly petioled. Flowers greenish white. Fruit an ovoid, or elliptic achene, black shining, enclosed by a thickened perianth **(Figure 3; 28).**
**Medicinal Uses:** The whole plant is used for cough, sore throat, and as a diuretic and galactagogue (Ghani, 2003).

***29. Physalis minima* L.**
**Local name:** Kopalphutki **Family:** Solanaceae **Flowering time:** January to December
**Short description:** An erect annual herb. Leaves simple, ovate, acute. Flowers pale yellow, solitary, axillary. Berries sub-spherical, yellow **(Figure 3; 29).**
**Medicinal Uses:** *Physalis minima* and sap from the bulb of *Allium cepa* is taken thrice daily for the treatment of malaria (Ghani, 2003).

***30. Phyla nodiflora* (L.) Greene**
**Local name:** Bhuiokra **Family:** Verbenaceae **Flowering time:** January to December
**Short description:** A tough perennial, creeping herb, about 30-100 cm long, with somewhat woody rootstock. Leaves simple, decussate-opposite, nearly sessile. Flowers small, white, rarely pinkish. Fruit ovate, sub-compressed, enclosed by the persistent calyx, separating at maturity into 2,1-seeded pyrenes **(Figure 3; 30).**
**Medicinal Uses:** The plant is used in various ways in medicine (Ghani, 2003).

***31. Solanum nigrum* L.**
**Local name:** Titbegun **Family:** Solanaceae **Flowering time:** January to December
**Short description:** An annual herb; stem much divaricately branched. Leaves ovate-lanceolate, subacute or acuminate, entire or sinuate-toothed. Flowers small, white, in extra-axillary, subumbellate, 3-8 flowered cymes. Berry 6 mm diam., globose, purplish black when ripe **(Figure 3; 31).**
**Medicinal Uses:** Paste of the green fruit is applied to ringworm. Syrup of the fruit is used as a cooling drink in fevers (Ghani, 2003).

***32. Scoparia dulcis* L.**

**Local name:** Bondhoney **Family:** Scrophulariaceae **Flowering time:** January to December

**Short description:** An erect herb. Leaves simple, elliptic, serrate, cuneate at base, acute at apex. Flowers white, axillary, solitary. Capsules globose-ovoid **(Figure 3; 32).**

**Medicinal Uses:** Root extract is taken to treat regulates menstruation cycle (Ghani, 2003).

***33. Sida cordata* (Burm. f.) Borss.**

**Local name:** Pitberela **Family:** Malvaceae **Flowering time:** August to December

**Short description:** An undershrub, branches hispid. Leaves simple, broadly ovate, cordate at base, acuminate at apex. Flowers yellow, solitary. Mericarps 5, awnless **(Figure 3; 33).**

**Medicinal Uses:** Root bark is given in leucorrhoea. Pounded leaves are used as a local application to cuts and bruises (Ghani, 2003).

***34. Spilanthes calva* DC. in Wight**

**Local name:** Marhatitiga. **Family:** Asteraceae **Flowering time:** January to December

Short description: Herbs with sparsely, pubescent stems. Leaves ovate, obtuse to acute, margins entire to undullate-serrate. Heads long peduncled with yellowish bisexual flowers **(Figure 3; 34).**

Medicinal Uses: A leaf extract is taken for toothache and a paste of the roots is taken for the treatment of tuberculosis. Juice of the plant and flower head is rubbed in scabies (Ghani, 2003).

***35. Sonchus asper* (L.) Hill.**

**Local name:** Sonpalong **Family:** Asteraceae **Flowering time:** September to June

**Short description:** Perennial herbs with long cylindric rootstock or rhizome. Stems tall, glabrous, and densely pilose. Leaves pinnatifid or runcinate-pinnatifid; leaflets lanceolate or narrowly oblanceolate. Heads cylindric, broadly campanulate or erect **(Figure 3; 35).**

**Medicinal Uses:** The root extract is taken for the relief of stomach pain (Ghani, 2003).

***36. Tridax procumbens* L.**

**Local name:** Tridhara **Family:** Asteraceae **Flowering time:** January to December

**Short description:** An annual or perennial, procumbent, hirsute, rarely slightly woolly herb. Leaves ovate, lanceolate-oblanceolate. Inflorescence a capitulum, heterogamous. Fruit a cypsela, silky, truncate at the apex, pappus of numerous, unequal, short and long, feathery bristles **(Figure 3; 36).**

**Medicinal Uses:** Not known.

***37. Xanthium indicum* Koenig in Roxb.**

**Local name:** Ghagra **Family:** Asteraceae **Flowering time:** January to December

**Short description:** An erect herb. Leaves alternate, broadly ovate to cordate. Male heads globose, florets numerous, whitish-green **(Figure 3; 37).**

**Medicinal Uses:** Leaves with young shoots are cooked as vegetable used as diabetes. Leaves are also given for malaria (Ghani, 2003).

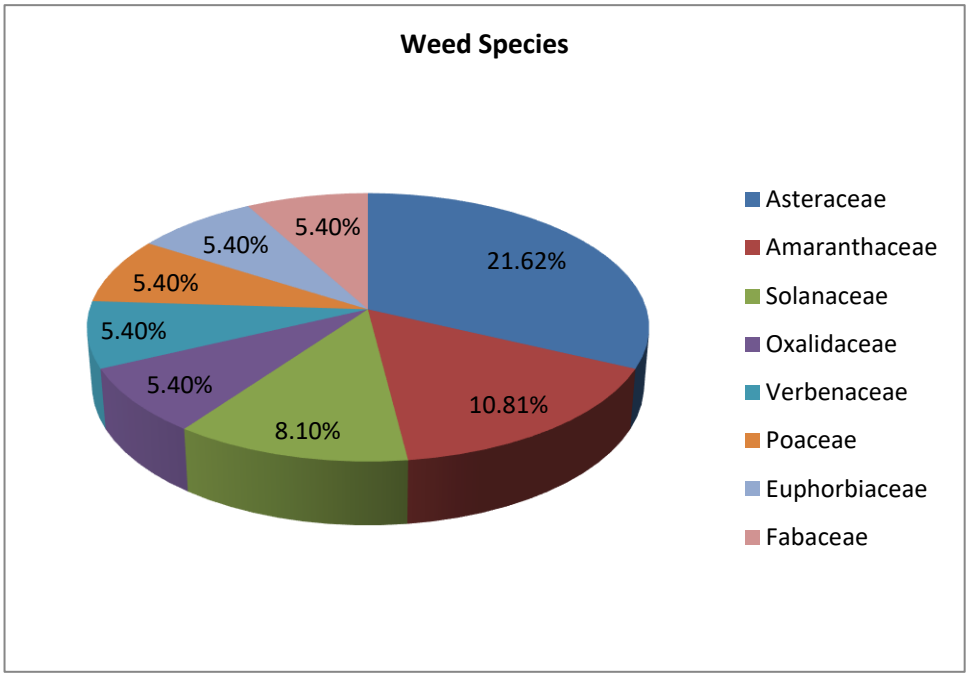


**Figure 1** Showed dominant plant families in the study area

**Table 1** Monthly recorded of angiosperm weed flora in the study area

| Sl. No. | Species | Months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
| 1 | *Achyranthes aspera* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 2 | *Ageratum conyzoides* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 3 | *Alternanthera sessilis* R.Br. | + | + | - | + | + | + | + | + | - | + | - | - |
| 4 | *Amaranthus spinosus* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 5 | *Amaranthus viridus* L. | + | + | + | + | + | + | + | + | - | + | - | - |
| 6 | *Biophytum sensitivum* L. | - | - | + | - | + | + | + | + | + | - | + | - |
| 7 | *Blumea lacera* (Burm.f.) DC. in Wight | + | + | + | + | + | + | + | + | + | + | + | + |
| 8 | *Clerodendrum viscosum* Vent. | + | + | + | + | + | + | + | + | + | + | + | + |
| 9 | *Centella asiatica* (L.) Urban in Mart | + | + | + | + | + | + | + | + | + | + | + | + |
| 10 | *Commelina benghalensis* L. | + | + | + | + | + | + | + | + | + | - | - | - |
| 11 | *Cyperus rotandus* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 12 | *Cynodon dactylon* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 13 | *Desmodium triflorum* (L.) | | | | | | | | | | | | |



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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Candolle | + | + | + | + | + | + | + | + | + | + | + | + |
| 14 | *Eclipta alba* (L.) Hassk | + | + | + | - | - | - | + | + | + | + | + | + |
| 15 | *Euphorbia hirta* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 16 | *Evolvulus nummularius* (L.) L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 17 | *Heliotropium indicum* L. | + | + | - | - | - | + | + | + | + | + | + | + |
| 18 | *Hemigraphis hirta* (Vahl) T.Anderson | + | + | + | + | + | + | + | + | + | - | - | - |
| 19 | *Leucas aspera* L. | - | - | + | - | - | - | + | + | + | - | + | + |
| 20 | *Mikania cordata* (Burm.f.) Robinson | + | + | + | + | + | + | + | + | + | + | + | + |
| 21 | *Mimosa pudica* L. | + | + | - | + | + | + | - | + | + | + | + | + |
| 22 | *Mollugo pentaphylla* L. | - | - | - | + | + | + | + | + | + | + | - | - |
| 23 | *Nicotiana plumbaginifolia* Viv. | + | + | - | - | - | + | + | + | + | + | + | + |
| 24 | *Oxalis corniculata* L. | + | + | + | - | + | + | - | - | + | + | + | + |
| 25 | *Oplismenus compositus* (L.) P. Beauv. | + | + | + | + | + | + | + | + | + | + | + | + |
| 26 | *Portulaca oleracea* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 27 | *Pouzolzia zeylanica* (L.) Benn. | + | + | + | + | + | + | + | + | + | + | + | + |
| 28 | *Phyla nodiflora* (L.) Greene | + | + | + | + | + | + | + | + | + | + | + | + |
| 29 | *Phyllanthus niruri* L. | + | + | + | - | - | + | + | + | - | + | + | + |
| 30 | *Physalis minima* L. | + | + | - | + | + | + | + | + | + | + | + | + |
| 31 | *Sida cordata* (Burm. f.) Borss. | + | + | + | + | + | + | + | + | + | + | + | + |
| 32 | *Spilanthes calva* DC. in Wight | + | + | + | + | + | + | + | + | + | + | + | + |
| 33 | *Sonchus asper* (L.) Hill. | + | + | + | + | + | + | + | + | + | + | + | + |
| 34 | *Solanum nigrum* L. | + | + | + | - | + | + | + | - | + | + | + | + |
| 35 | *Scoparia dulcis* L. | + | - | - | - | + | + | + | + | + | - | - | + |
| 36 | *Tridax procumbens* L. | + | + | + | + | + | + | + | + | + | + | + | + |
| 37 | *Xanthium indicum* Koenig in Roxb. | + | + | + | + | + | + | + | + | + | + | + | + |
| Total Species per month | | 34 | 33 | 30 | 28 | 32 | 35 | 35 | 35 | 34 | 32 | 31 | 31 |

Jan=January, Feb=February, Mar=March, Apr=April, May=May, Jun=June, Aug=August, Sep=September, Oct=October, Nov=November, Dec=December, + = Present, - = Absent

## 4. SUMMARY

Assessment of angiosperm weeds in the Mulberry field of Rajshahi University Campus was studied from January 2009 to December 2009. A total of 37 weed species under 36 genera belonging to 20 families were collected and identified. Asteraceae, Amaranthaceae, Euphorbiaceae, Oxalidaceae, Fabaceae, Verbenaceae, Poaceae and Solanaceae are the dominant families with high species diversity. The present research was conducted as first attempt to report the angiosperm weeds in the study area. The present study will also help in identifying the major angiosperm weeds for further investigation.



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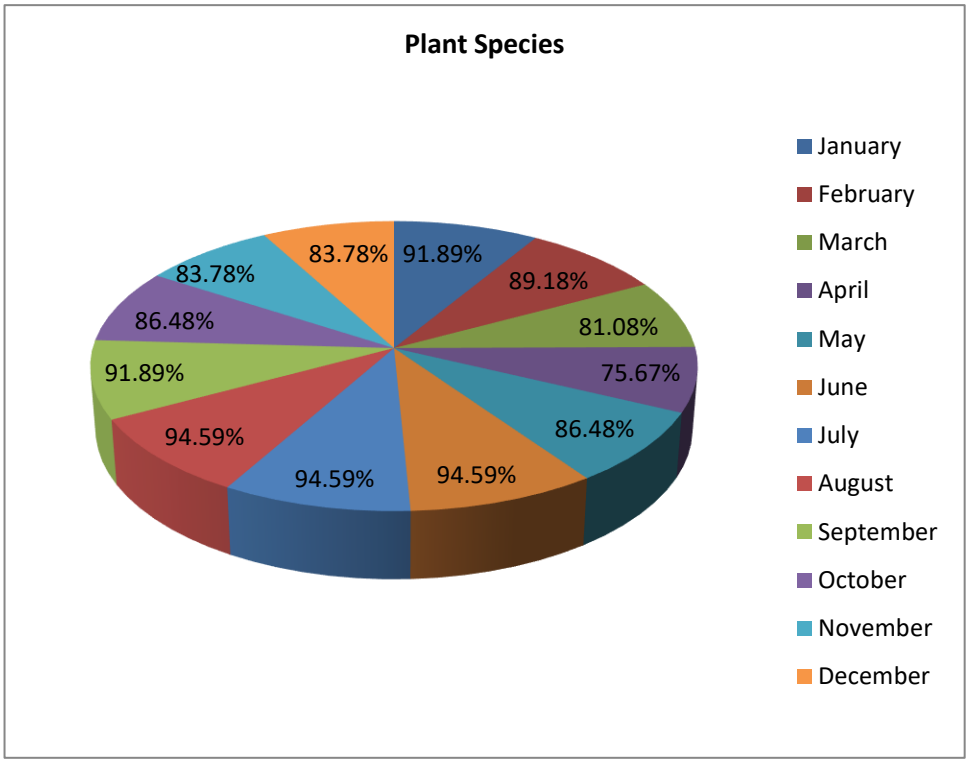



**Figure 2** Showed monthly weed species diversity in the study area

1.*Achyranthes aspera* 2. *Ageratum conyzoides* 3. *Alternanthera sessilis* 4. *Amaranthus viridis*

5. *Amaranthus spinosus* 6. *Biophytum sensitivum* 7. *Blumea lacera* 8. *Clerodendrum viscosum*


9. *Centella asiatica*


10. *Commelina benghalensis*


11. *Cyperus rotundus*


12. *Cynodon dactylon*


13. *Desmodium triflorum*


14. *Euphorbia hirta*


15. *Eclipta alba*


16. *Evolvulus nummularius*


17. *Hemigraphis hirta*


18. *Heliotropium indicum*


19. *Leucas aspera*


20. *Mimosa pudica*


21.*Mollugo pentaphyla*


22. *Mikania cordata*


23. *Nicotiana plumbaginifolia*

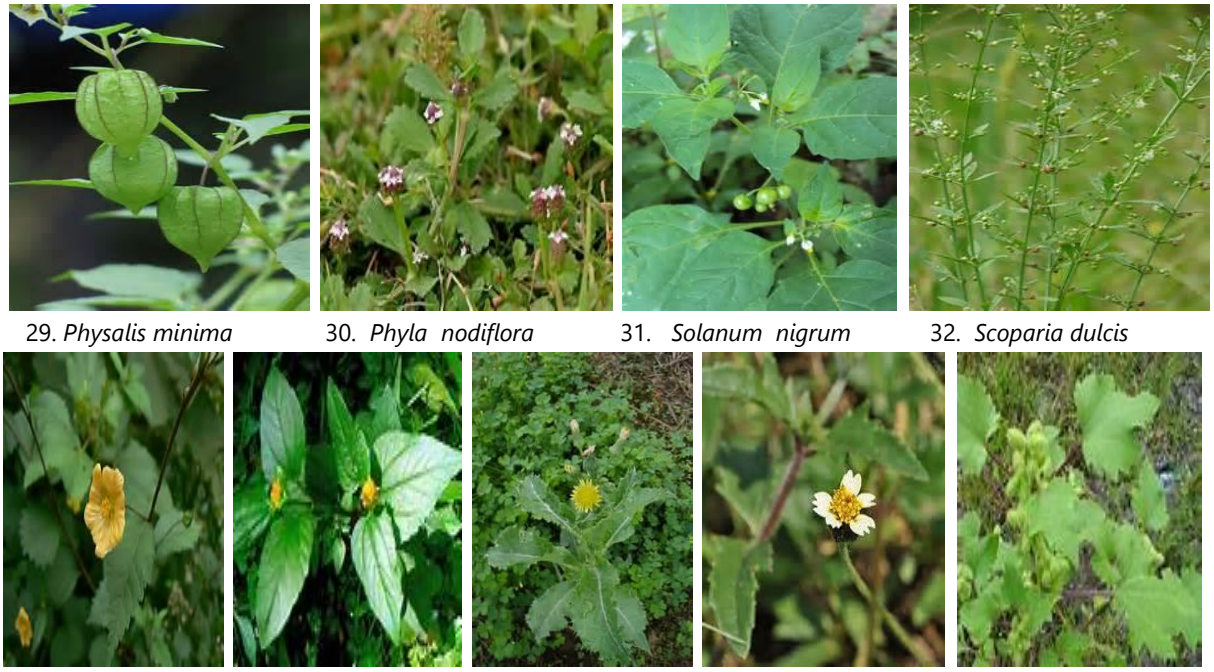

24. *Oxalis corniculata*


25. *Oplismenus compositus*


26. *Portulaca oleracea*


27. *Phyllanthus niruri*


28. *Pouzolzia zeylanica*



29. *Physalis minima* 30. *Phyla nodiflora* 31. *Solanum nigrum* 32. *Scoparia dulcis*

33.*Sida cordata* 34. *Spilanthes culva* 35. *Sonchus asper* 36. *Tridax procumbens* 37. *Xanthium indicum*

**Figure 3** Showed angiosperm weed species in the study area

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