



An Assessment of the Family Asteraceae at Shadullapur Upazila of Gaibandha District, Bangladesh with Particular Reference to Medicinal Plants

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Abstract

An assessment of the family Asteraceae at Sadullapur upazila of Gaibandha district, Bangladesh was carried out from August 2014 to October 2015. A total of 32 species under 27 genera belonging to the family Asteraceae were collected and identified. Frequent field trips were made during August 2014 to October 2015 to record medicinal information by interviewing local people of various age groups, mostly ranging between 18 to 67 years, including medicinal healers (herbalists/hakims). A total of 28 plant species under 24 genera of the family Asteraceae have been documented which are used for the treatment of 57 diseases/illness. In majority cases, leaves of the medicinal plants were found leading in terms of their use followed by whole plant, stem, bark, flower, seed and root. For each species scientific name, local name, chromosome number, voucher number, ailments to be treated and part(s) used are provided.

Keywords: Assessment; Asteraceae; Medicinal plants; Sadullapur; Gaibandha; Bangladesh.

1. Introduction

Asteraceae or Compositae (commonly referred to as the aster, daisy, composite, or sunflower family) is an exceedingly large and widespread family of flowering plants (Angiospermae) (Jeffrey, 2007). The family Asteraceae consists of more than 1100 genera and 20,000 species, cosmopolitan in distribution, but well represented in temperate or subtropical regions. In Bangladesh, the family is represented by 71 genera and 130 species (Ahmed et al., 2008-2009). Most members of Asteraceae are herbaceous, but a significant number are also shrubs, vines, or trees. The family has a worldwide distribution, from the polar regions to the tropics, colonizing a wide variety of habitats. It is most common in the arid and semiarid regions of subtropical and lower temperate latitudes (Barkley et al., 2006). The Asteraceae may represent as much as 10% of autochthonous flora in many regions of the world.

The Asteraceae are an economically important family, providing products such as cooking oils, lettuce, sunflower seeds, artichokes, sweetening agents, coffee substitutes and herbal teas. Several genera are of horticultural importance, including pot marigold, *Calendula officinalis*, *Echinacea* (cone flowers), various daisies, fleabane, chrysanthemums, dahlias, zinnias, and heleniums. Asteraceae are important in herbal medicine, including *Grindelia*, yarrow, and many others (Duke, 2015).

Several medicinal plants and ethno-botanical studies in Bangladesh have been carried out. Such as Alam 1992; Alam et al., 1996; Anisuzzaman et al., 2007; Choudhury and Rahmatullah 2012; Faruque and Uddin 2014; Isrer et al., 2015; Khan 1998; Khisha 1996; Malek et al., 2014a, 2014b; Moonmoon et al., 2014; Nilima et al., 2015; Rahman et al., 2013a, 2013b, 2013c, 2013d; Rahman et al., 2014a, 2014b, 2014c; Rahman and Akter 2013; Rahman et al., 2015a, 2015b,

2015c; Rahman et al., 2008a, 2008b; Rahman and Debnath 2015; Rahman et al., 2010, 2012; Rahman and Gulshana 2014; Rahman and Jamila 2015; Rahman and Keya 2015; Rahman and Khanom 2013; Rahman and Parvin 2014; Rahman and Rahman 2014; Rahman and Rojonigondha 2014; Rahman 2014a, 2014b; Rahman 2013a, 2013b, 2013c, 2013d, 2013e, 2013f, 2013g, 2013h, 2013i, 2013j, 2013k, 2013l; Sadika et al., 2015 and Uddin et al., 2008, 2014. The aim of the present study was to first record of medicinal plants used by the local people living in Sadullahpur Upazila of Gaibandha district, Bangladesh.

2. Materials and Methods

The present study is based on the intensive field of the area during the period of August 2014 to October 2015. A total of 32 species under 27 genera belonging to the family Asteraceae were collected and identified. The methods employed during the study were designed with the sole purpose of eliciting the precious wealth of information on the medicinal uses of plants practiced by the local people. Detailed survey has been made in gathering information regarding use of medicine has been documented. Usually, the survey in each locality started with the interview of elderly and experienced members, locally known as Hakims. Besides, this the common people of the surveyed localities who themselves have used these plant-based for health treatments were interviewed to prove veracity of the curative features of plants. Medicinal uses and data about the treatment of various ailments based on the information gathered by using questionnaires are given subsequently. Herbal plants referred by these people were authentically identified with the help of Hooker (1961); Prain (1963); Kirtikar and Basu (1987); Huq (1986) Ahmed et al. (2008-2009) and Pasha and Uddin (2013). The voucher specimens are stored at the Herbarium, Department of Botany, Rajshahi University, Bangladesh for future reference.

3. Results and Discussion

Based on the study, a preliminary list of the family Asteraceae at Shadullapur Upazila of Gaibandha District, Bangladesh conducted during August 2014 to October 2015. A total of 32 species under 27 genera belonging to the family Asteraceae were collected and identified. The collected information is comparable with the result of other studies in Bangladesh. A total of 8 species belonging to 8 genera were recorded in Ramgarh upazila of Khagrachhari district, Bangladesh (Islam et al., 2009). A total of 9 species belonging to 9 genera were recorded in Comilla district (Hossain et al., 2005). A total of 11 species belonging to 11 genera were recorded in Gazipur district (Alam et al., 2006). A total of 7 species belonging to 6 genera are documented in Habiganj district (Arefin et al., 2011). A total of 7 species belonging to 6 genera are documented in Runcia Sal forest, Bangladesh (Tutul et al., 2010). A total of 8 species belonging to 7 genera are recorded in Lawachara National Park, Bangladesh (Uddin et al., 2010). A total of 13 species belonging to 11 genera are recorded in Teknaf Wildlife Sanctuary, Bangladesh (Uddin et al., 2013). A total of 36 species under 29 genera of the family Asteraceae in Rajshahi division, Bangladesh (Rahman et al., 2011). A total of 13 species belonging to 13 genera are recorded in Munshiganj district (Rahman et al., 2013). A total of 33 species under 29 genera are recorded in Bangladesh Police Academy, Rajshahi (Rahman et al., 2014). So far the information available, no published data recorded on the family Asteraceae at Shadullapur Upazila of Gaibandha District, Bangladesh.

The important medicinal values of Asteraceae plant species at Shadullapur Upazila of Gaibandha District, Bangladesh were highlighted. A total of 28 medicinal plant species belonging to 24 genera were collected and recorded for their use in various ailments. These medicinal plants are used by them to cure the following diseases, especially for abscess, asthma, anemia, bronchitis, boils, biliousness, cancer, constipation, cough, cholera, dysentery, earache, eczema, fever, headache, herpes, hysteria, inflammation, jaundice, kidney diseases, leprosy, ovarian disorder, ophthalmia, scabies, snake-bite, skin diseases, stomachic, ulcers, urinary disorder, wound and others. The collected medicinal information of those plant species is in agreement with the result of other studies done in Bangladesh (Ghani, 2003; Yusuf et al., 2009, 1994, 2006; Anisuzzaman et al., 2007; Khan and Huq, 1975; Alam, 1992; Khan, 1998; Rahman et al., 2010; Rahman et al., 2012; Rahman et al., 2013; Rahman and Kumar, 2015). The current research reveals that the native folks are having good knowledge on traditional uses of plants. But due to the modernization, this knowledge may be lost in due course. Hence it is essential to study and document the indigenous knowledge, which can provide valuable information to biochemists and pharmacologists in screening of individual species and their phyto-constituents. The plants recorded here need phyto-chemical and pharmacological screening for their active principles and clinical trials for therapeutic action. Therefore, the present survey makes an important addition to the growing knowledge on medico-botany and may help in developing effective drugs for human health care. The study area is very rich in medicinal plant species and indigenous traditional ethno-botanical knowledge. There are also potential threats that need priority for conservation. Potentially significant plant species need screening, verifying and approval for setting conservation priorities.

Table1: Assessment of Plant Species of the Family Asteraceae in the Study Area.

Sl. No.	Scientific name	Local name	Phenology	Chromosome number	Voucher number
1	<i>Ageratum conyzoides</i> L.	Ochunti	November to June	2n = 20, 40 (Fedorov, 1969)	JI 01
2	<i>Blumea lacera</i> (Burm.f.) DC.	Kuksim	November to June	2n = 18, 22 (Fedorov, 1969)	JI 02
3	<i>Calendula officinalis</i> L.	Calendula	December to February	2n = 50 (Fedorov, 1969)	JI 32
4	<i>Chromolaena odorata</i> (L.) King & Robinson	Assamlata	November to May	2n = 20, 58 (Fedorov, 1969)	JI 03
5	<i>Chrysanthemum coronarium</i> L.	Chandramollica	December to March	2n = 18, 36 (Fedorov, 1969)	JI 31
6	<i>Cirsium arvense</i> (L.) Scop.	Shial kata	February to June	2n = 34 (Fedorov, 1969)	JI 04
7	<i>Cosmos bipinatus</i> Cav.	Cosmos	March to July	2n = 24 (Fedorov, 1969)	JI 30
8	<i>Eclipta alba</i> (L.) Hassk.	Kalokeshi	January to December	2n = 18, 22 (Fedorov, 1969)	JI 05
9	<i>Emilia sonchifolia</i> (L.) DC.	Sadimudi	January to December	2n = 36 (Fedorov, 1969)	JI 06
10	<i>Enhydra fluctuans</i> Lour.	Helencha	January to April	2n = 22 (Fedorov, 1969)	JI 07
11	<i>Ethulia conyzoides</i> L.	Ethulacon	January to May	2n = 20, 40 (Fedorov, 1969)	JI 08
12	<i>Gnaphalium luteo-album</i> L.	Bara kamra	March to August	2n = 14, 14 + 1B (Fedorov, 1969)	JI 10
13	<i>Gnaphalium polycaulon</i> Pers.	Kolaklomi	December to May	2n = 14 (Fedorov, 1969)	JI 09
14	<i>Grangea maderaspatana</i> (L.) Poir.	Namuti	December to May	2n = 18 (Fedorov, 1969)	JI 11
15	<i>Helianthus annuus</i> L.	Surjamukhi	July to May	2n = 34 (Fedorov, 1969)	JI 12
16	<i>Lactuca sativa</i> L.	Lettuce	December to April	2n = 18 (Fedorov, 1969)	JI 13
17	<i>Launaea aspliniifolia</i> DC.	Tik-chana	January to August	2n = 14, 18 (Fedorov, 1969)	JI 14
18	<i>Mikania cordata</i> (Burm.f.) Robinson	Assamlata	October to February	2n = 36, 38 (Fedorov, 1969)	JI 15
19	<i>Sonchus asper</i> (L.) Hill.	Sonpalong	September to June	2n = 34 (Fedorov, 1969)	JI 16
20	<i>Sonchus wightianus</i> DC.	Banpalong	November to June	2n = 18, 36, 45, 54, 60, 64 (Fedorov, 1969)	JI 17
21	<i>Spilanthes calva</i> DC.	Surjakannya	January to December	2n = 14, 24, 52 (Fedorov, 1969)	JI 18

22	<i>Synedrella nodiflora</i> (L.) Gaertn	Relanodi	January to December	2n = 36, 38, 40 (Fedorov, 1969)	JI 19
23	<i>Tagetes erecta</i> L.	Genda	October to March	2n = 24 (Fedorov, 1969)	JI 20
24	<i>Tagetes patula</i> L.	Genda	October to March	2n = 48 (Fedorov, 1969)	JI 29
25	<i>Tridax procumbens</i> L.	Tridhara	January to June	2n = 36 (Fedorov, 1969)	JI 21
26	<i>Vernonia patula</i> (Dryand.) Merr.	Kuksim	January to December	2n = 18 (Fedorov, 1969)	JI 28
27	<i>Vernonia cinerea</i> (L.) Less.	Kuksim	January to December	2n = 18 (Fedorov, 1969)	JI 22
28	<i>Wedelia chinensis</i> (Osbeck) Merr.	Mohabhringaraj	May to July	2n = 50 (Fedorov, 1969)	JI 27
29	<i>Wedelia trilobata</i> (L.) A.S. Hitchc.	Mohabhringaraj	March to August	2n = 22, 44 (Fedorov, 1969)	JI 23
30	<i>Xanthium indicum</i> Koen ex Roxb	Ghagra	January to December	2n = 36 (Fedorov, 1969)	JI 24
31	<i>Youngia japonica</i> (L.) DC.	Youngaful	August to January	2n = 34 (Fedorov, 1969)	JI 25
32	<i>Zinnia elegans</i> Jacq.	Zinnia	November to May	2n = 24 (Fedorov, 1969)	JI 26

Table2. Traditional Medicinal Uses of the Family Asteraceae in the Study Area.

Sl. No.	Scientific name	Local name	Part(s) used	Ailments
1	<i>Ageratum conyzoides</i> L.	Ochunti	Whole plant, leaf, stem	Skin disease, leprosy, stomach disorder, tonic, wound.
2	<i>Blumea lacera</i> (Burm.f.) DC.	Kuksim	Leaf, root	Anthelmintic, astringent, diuretic, bleeding piles, cholera.
3	<i>Calendula officinalis</i> L.	Calendula	Whole plant, flower	Wound, injury, ulcers, burning sensation, skin disease.
4	<i>Chromolaena odorata</i> (L.) King & Robinson	Assamlata	Whole plant, root, leaf	Emetic, diuretic, snake-bite.
5	<i>Chrysanthemum coronarium</i> L.	Chandramollica	Bark, leaf	Syphilis, inflammation.
6	<i>Cirsium arvense</i> (L.) Scop.	Shial kata	Leaf, stem	Antiscorbutic.
7	<i>Cosmos bipinatus</i> Cav.	Cosmos	Leaf, stem	Skin disease, leprosy, eczema
8	<i>Eclipta alba</i> (L.) Hassk.	Kalokeshi	Leaf,	Skin disease, wound, hair disease, jaundice,

			whole plant	fever, toothache.
9	<i>Enhydra fluctuans</i> Lour.	Helencha	Leaf	Inflammation, bronchitis, biliousness, small pox, gonorrhoea, headache.
10	<i>Gnaphalium polycaulon</i> Pers.	Bara kamra	Whole plant	Astringent, vulnerary.
11	<i>Grangea maderaspatana</i> (L.) Poir.	Namuti	Whole plant, leaf	Ovarian disorder, earache, cough.
12	<i>Helianthus annuus</i> L.	Surjamukhi	Flower, seed	Heart disease, anthelmintic, skin disease, itching, ulcers, leprosy, hysteria, fever, biliousness, asthma, bronchitis, urinary discharges, anemia, good for burning sensation in the vagina, scorpion-bite, snake-bite, bronchial laryngeal, pulmonary affections, coughs, colds.
13	<i>Lactuca sativa</i> L.	Lettuce	Whole plant, leaf	Stomachic, appetite, purify the blood, biliousness, burning sensation, headache, troubles of the nasal disease, bronchitis, cough, heart disease, scabies, ophthalmia, liver disease, diuretic, bronchitis, asthma.
14	<i>Launaea aspliniifolia</i> DC.	Tik-chana	Root	Lactagogue.
15	<i>Mikania cordata</i> (Burm. f.) Robinson	Assamlata	Whole plant, leaf	Snake-bite, wound.
16	<i>Sonchus asper</i> (L.) Hill.	Sonpalong	Whole plant, root	Jaundice, bitter, diuretic, chronic fevers.
17	<i>Sonchus wightianus</i> DC.	Banpalong	Leaf, root, stem	Tonic.
18	<i>Spilanthes calva</i> DC.	Surjakannya	Flower, whole plant, leaf	Toothache, dysentery, sore throat, childbirth.
19	<i>Synedrella nodiflora</i> (L.) Gaertn	Relanodi	Leaf, root	Boils, tetanus, wound.
20	<i>Tagetes patula</i> L.	Genda	Flower, leaf	Bitter, piles, kidney troubles, muscular pain, earache, ophthalmia, boils.
21	<i>Tridax procumbens</i> L.	Tridhara	Whole plant, leaf, flower	Bleeding piles, kidney troubles, muscular pain, earache, ophthalmia, astringent, carminative, stomachic, inflammation, scabies, scorpion-bite, snake-bite, liver complaints, bleeding piles, ulcers, purify the blood.
22	<i>Vernonia patula</i> (Dryand.) Merr.	Kuksim	Flower	Ulcers, wounds.
23	<i>Vernonia cinerea</i> (L.) Less.	Kuksim	Whole plant,	Cold, tonic, stomachic, astringent, asthma, bronchitis, fevers, wounds, sores,

			flower, root	perspiration, conjunctivitis, dropsy.
24	<i>Wedelia chinensis</i> (Osbeck) Merr.	Mohabhringaraj	Whole plant, leaf	Hair disease, jaundice, fevers, astringent, haemorrhages, toothache, asthma, bronchitis.
25	<i>Wedelia trilobata</i> (L.) A.S. Hitchc.	Mohabhringaraj	Leaf	Tonic, alterative, cough, skin diseases, alopecia, swelling of the abdomen.
26	<i>Xanthium indicum</i> Koen ex Roxb	Ghagra	Whole plant, stem, fruit, root, leaf	Diabetes, bitter, tonic, cancer, small-pox, snake-bite, scorpion-bite, ulcers, boils, abscess, herpes.
27	<i>Youngia japonica</i> (L.) DC.	Youngaful	Leaf, root	Wound.
28	<i>Zinnia elegans</i> Jacq.	Zinnia	Leaf, stem	Skin disease, leprosy, boils, tetanus, wound.

Important Photographs



Ageratum conyzoides



Wedelia trilobata



Tagetes patula



Vernonia patula



Synedrella nodiflora



Sonchus asper

*Helianthus annuus**Mikania cordata**Eclipta alba**Grangea maderaspatana**Enhydra fluctuans**Calendula officinalis*

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