

A SYNOPTICAL ACCOUNT ON THE FLORA OF DOHAR UPAZILA UNDER DHAKA DISTRICT OF BANGLADESH

M. OLIUR RAHMAN¹, TASNIM TAHIA HUQ AND MOMTAZ BEGUM

Department of Botany, University of Dhaka, Dhaka 1000, Bangladesh

Keywords: Angiosperm; Taxonomy; Dichotomous key; Flora; Dohar upazila.

Abstract

A taxonomic study on the flora of Dohar upazila (sub-district) under Dhaka district has been conducted that results in occurrence of 204 angiosperm taxa under 165 genera and 68 families. Magnoliopsida is represented by 158 taxa distributed in 129 genera and 53 families. In contrast, Liliopsida is constituted by 46 taxa under 36 genera and 15 families. Asteraceae appears to be the largest family in Magnoliopsida consisting of 16 species, whereas Poaceae is the largest family with 16 species in Liliopsida. In Magnoliopsida, 23 families are represented by a single species, while in Liliopsida, 7 families are symbolized by a single species. Vegetation analysis shows that herbs are represented by 133 taxa, shrubs by 23 and trees by 48 taxa. Dichotomous bracketed keys to the families, genera, species and varieties are provided for easy identification of the taxa. Each taxon is supplemented by updated nomenclature, habit and representative specimen.

Introduction

The Conference of Parties (COP) under the umbrella of Convention on Biological Diversity has already recognised the importance of taxonomy and floristic studies. The COP has documented that the combination of inadequate taxonomic knowledge, the shortage of systematists and the inadequacy of sampling, collections, and infrastructure are the taxonomic barriers to implement the Convention on Biological Diversity. As a consequence of the process of executing the Convention on Biological Diversity, the need for taxonomic knowledge for biodiversity conservation is now widely acknowledged worldwide (Heywood, 2004). Taxonomic data are fundamental to conserving biodiversity as taxonomists need to provide tools to identify and status of species to the conservationists by indicating which species are vulnerable, endangered, and near extinction. This involves continuing the inventory of plant diversity and various kinds of floristic studies.

Dohar upazila (sub-district) under Dhaka district comprises an area of 161.49 sq. km, and located in 23°31'– 23°41'N and 90°01'– 90°13'E. It is bounded by Nawabganj upazila on the north, Sadarpur upazila on the south, Sreennagar on the east, and Harirampur and Char Bhadrasan upazilas on the west. Dohar upazila consists of eight administrative unions, viz. Nayabari, Kushumhati, Roypara, Sutarpara, Bilaspur, Narisha, Muksudpur and Mahmudpur (Fig. 1). The soils of the area are mainly loamy on ridges and clay in basins. The crests soils are presented by three different soil types, namely brownish grey fine sandy loam, dark grey fine sandy loam, and grey fine sandy loam. The troughs soils are represented by greyish yellow fine sandy loam, yellowish grey fine sandy loam and grey sandy loam soils. Though the upazila supports a large number of plant resources including many medicinal plants, the area has never been botanically explored.

¹Corresponding author, Email: oliur.bot@du.ac.bd; prof.oliurrahman@gmail.com

In Bangladesh, attempts have been made on floristic and taxonomic studies on plant diversity in different parts of the country since last four decades including some protected areas of the country (Khan *et al.*, 1994; Rahman and Hassan, 1995; Alam *et al.*, 2006; Tutul *et al.*, 2009, 2010; Uddin and Hassan, 2010; Sarker *et al.*, 2013; Mahmudah *et al.*, 2017; Haque *et al.*, 2018; Rashid *et al.*, 2018). Though angiosperm flora of some upazilas were investigated earlier (Moniruzzaman *et al.*, 2012; Rahman *et al.*, 2012, 2013, 2019 a,b; Rahman and Alam, 2013; Sarker and Rahman, 2019), however, the flora of Dohar upazila has never been explored despite some species are on the verge of extinction due to anthropogenic reasons. The objectives of the present study are to explore angiosperm flora and make a systematic account of the flora of the Dohar upazila.

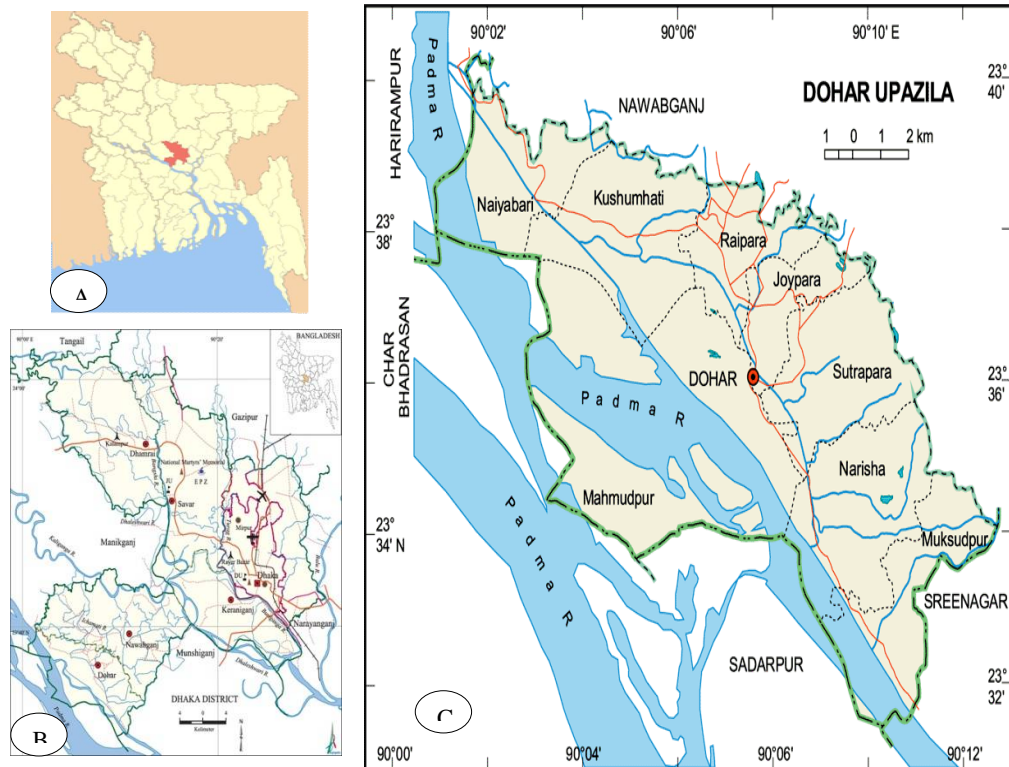


Fig. 1. Map of the study area: A. Map of Bangladesh, B. District map of Dhaka, C. Map of Dohar upazila showing different unions.

Materials and Methods

Four botanical expeditions were made in all the unions of Dohar upazila (Fig. 1) covering all seasons in order to collate plant specimens. The collected specimens were processed using standard herbarium techniques (Hyland, 1972), critically examined and identified. Identifications were confirmed by comparing the already identified specimens deposited at Dhaka University Salar Khan Herbarium (DUSH) and Bangladesh National Herbarium (DACB), and by consulting standard literature (Hooker, 1872-1897; Prain, 1903; Khan, 1972-1987; Khan and Rahman, 1989-2002; Dassanayake and Fosberg, 1980-1991; Siddiqui, 2007; Ahmed *et al.*, 2008-2009). In order to confirm the updated nomenclature The Plant List (2013) and TROPICOS (2017) were

consulted. The families are arranged following the classification of Cronquist (1981), and under each family the genera, species and varieties are placed in an alphabetical order. Dichotomous bracketed keys are provided to identify the families, genera, species and varieties. Each taxon is supplemented by updated nomenclature, habit and representative specimen (RS), and in order to make brevity, only one representative specimen has been cited under each taxon.

Results and Discussion

An extensive floristic study in Dohar upazila has been made resulting in recording of 204 taxa under 165 genera and 68 families. Magnoliopsida is represented by 158 taxa distributed in 129 genera and 53 families, while Liliopsida is constituted by 46 taxa under 36 genera and 15 families. Among the identified taxa, herbs are symbolized by 133 taxa, shrubs by 23 and trees by 48 taxa.

MAGNOLIOPSIDA

Key to families of Magnoliopsida:

- | | |
|--|------------------|
| 1. Plants rootless, thread-like, fully parasitic. | Cuscutaceae |
| - Plants with roots, stems and leaves, not parasitic. | 2 |
| 2. Stem unbranched, palm-like; leaves digitately lobed; petiole very long (up to 60 cm), hollow. | Caricaceae |
| - Stem branched; leaves not digitately lobed; petiole short, not hollow. | 3 |
| 3. Stem and leaves thick and fleshy; fruit with purplish juice, surrounded by the persistent corolla or by wing-like sepals; twiner. | Basellaceae |
| - Stem and leaves not thick and fleshy; fruit without purplish juice, not surrounded by the fleshy corolla or by wing-like sepals. | 4 |
| 4. Plants thorny; fruit with a leathery rind; leaves opposite; petals showy. | Punicaceae |
| - Plants without thorn. | 5 |
| 5. Leaves compound. | 6 |
| - Leaves simple. | 8 |
| 6. Flowers actinomorphic; stamens usually numerous, united. | Mimosaceae |
| - Flowers zygomorphic; stamens not more than 10, free. | 7 |
| 7. Petals imbricate; leaflets imparipinnate. | Fabaceae |
| - Petals twisted; leaflets paripinnate. | Caesalpiniaceae |
| 8. Plants climber with tendril. | Cucurbitaceae |
| - Plants without tendril. | 9 |
| 9. Anthers syngeneis; fruit cypsela. | 10 |
| - Anthers free; fruit not cypsela. | 11 |
| 10. Inflorescence capitulum or head, surrounded by involucre bracts; ovary 1-locular. | Asteraceae |
| - Inflorescence not capitulum; ovary 2-locular. | Scrophulariaceae |
| 11. Stipules interpetiolar; corolla hypocrateriform. | Rubiaceae |
| - Stipules not interpetiolar; corolla not hypocrateriform. | 12 |
| 12. Bracts and bracteoles usually prominent; retinacula present. | Acanthaceae |
| - Bracts and bracteoles not prominent; retinacula absent. | 13 |
| 13. Inflorescence verticillaster; style gynobasic. | Lamiaceae |

- Inflorescence not verticillaster; style apical.	14
14. Plants with milky latex.	15
- Plants without milky latex.	17
15. Ovary with annular or cupular disc.	Convolvulaceae
- Ovary without annular or cupular disc.	16
16. Gynoestegium present; pollen grains united to form pollinia; stigmas angular.	Asclepiadaceae
- Gynoestegium absent; pollen grains not united to form pollinia; stigmas dumbbell-shaped.	Apocynaceae
17. Flowers zygomorphic.	Verbenaceae
- Flowers actinomorphic.	18
18. Carpels obliquely placed; placenta swollen; ovary 2-loculed.	Solanaceae
- Carpels not obliquely placed; placenta not swollen; ovary 4-loculed.	19
19. Fruit an elongated woody, ribbed capsule.	Moringaceae
- Fruit not elongated woody, ribbed capsule.	20
20. Plants aquatic.	Nymphaeaceae
- Plants terrestrial.	21
21. Carpels more than 1.	22
- Carpel 1.	24
22. Stamens monadelphous.	Malvaceae
- Stamens free.	23
23. Stamens arising from hypanthium (perigynous).	Rosaceae
- Stamens arising from receptacles.	Annonaceae
24. Stem quadrangular.	Lythraceae
- Stem not quadrangular.	25
25. Leaves digitately compound.	Bombacaceae
- Leaves not digitately compound.	26
26. Ovary stipitate (on gynophores).	Capparaceae
- Ovary sessile.	27
27. Flowers unisexual.	Euphorbiaceae
- Flowers bisexual.	28
28. Leaves 3-folioate, gland-dotted.	Rutaceae
- Leaves simple, without gland-dotted.	29
29. Petals laciniate; sepals deciduous.	Elaeocarpaceae
- Petals entire; sepals not deciduous.	30
30. Styles 3-4; ovule 1.	Anacardiaceae
- Style 1; ovules more than 1.	31
31. Stamens tetradynamous.	Brassicaceae
- Stamens not tetradynamous.	32
32. Plants herbaceous climber.	Sapindaceae
- Plants not climber; herbs, shrubs or trees.	33

33. Flowers trimorphic heterostyly; fruit a 5-celled loculicidal capsule.	Oxalidaceae
- Flowers not trimorphic heterostyly; fruit not a loculicidal capsule.	34
34. Stamens 2; perianth lobes 4.	Oleaceae
- Stamens 4-5 or 10; perianth lobes more than 4 (5).	35
35. Plants armed.	Rhamnaceae
- Plants unarmed.	36
36. Ovary superior.	37
- Ovary inferior.	38
37. Stamens united at the base only.	Tiliaceae
- Stamens usually united into a tube.	Meliaceae
38. Leaves usually exstipulate.	39
- Leaves stipulate.	40
39. Fruit of two mericarps.	Apiaceae
- Fruit a loculicidal capsule or berry.	Onagraceae
40. Stipules ochreate.	Polygonaceae
- Stipules not ochreate.	41
41. Perianth and bracts scarious; stamens connate at the base.	Amaranthaceae
- Perianth and bracts not scarious; stamens free.	42
42. Flowers unisexual; style simple.	Urticaceae
- Flowers bisexual; style usually branched, sometimes simple or absent.	43
43. Flowers in panicles or spike; style branched.	Chenopodiaceae
- Flowers not in panicles or spike; style simple, short or absent.	44
44. Leaves opposite, gland-dotted.	Myrtaceae
- Leaves alternate, not gland-dotted.	45
45. Fruit woody; petals and stamens more than 4 cm long.	Lecythidaceae
- Fruit not woody; petals and stamens less than 4 cm long.	46
46. Anthers inflexed and recurved in bud.	Moraceae
- Anthers not inflexed and recurved in bud (erect).	47
47. Terminal leaflet modified into tendril.	Bignoniaceae
- Terminal leaflet not modified into tendril.	48
48. Leaves reduced to scales at the nodal region of the branches.	Casuarinaceae
- Leaves not reduced to scales at the nodal region of the branches.	49
49. Ovary inferior.	Combretaceae
- Ovary superior.	50
50. Leaves simple.	51
- Leaves opposite.	Pedaliaceae
51. Calyx usually corolloid; fruit an achene.	Nyctaginaceae
- Calyx not corolloid; fruit not achene.	52
52. Fruit usually a berry or loculicidal capsule; seed often arillate.	Flacourtiaceae
- Fruit drupe or nutlet; seed erect or oblique.	Boraginaceae

Family 1. **ANNONACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|---------------------------------------|-------------------|
| 1. Petals subequal; fruit one-seeded. | <i>Polyalthia</i> |
| - Petals unequal; fruit many-seeded. | <i>Annona</i> |

Genus **Annona** L., Sp. Pl.: 536 (1753).*Key to species:*

- | | |
|--|-------------------|
| 1. Leaves lanceolate to oblanceolate; fruit smooth. | <i>reticulata</i> |
| - Leaves elliptic to oblong- obovate; fruit tuberculate. | <i>squamosa</i> |

Annona reticulata L., Sp. Pl.: 537 (1753). Small tree. *RS*: Tasnim 47.**A. squamosa** L., Sp. Pl.: 537 (1753). Small tree. *RS*: Tasnim 54.Genus **Polyalthia** Blume, Fl. Jav. Annon. 68: t. 33- 34 B-C (1829).**Polyalthia longifolia** (Sonn.) Thw., Enum. Pl. Zeyl.: 398 (1864). Tall tree. *RS*: Tasnim 181.Family 2. **NYMPHAEEAE** Salisbury (1805).Genus **Nymphaea** (Tourn.) L., Sp. Pl.: 510 (1753).**Nymphaea pubescens** Willd., Sp. Pl. 2: 1154 (1799). Aquatic herb. *RS*: Tasnim 130.Family 3. **MORACEAE** Link (1831).*Key to genera:*

- | | |
|--|-------------------|
| 1. Inflorescence figs. | <i>Ficus</i> |
| - Inflorescence pseudo-catkin or cauliflorous. | <i>Artocarpus</i> |

Genus **Artocarpus** J. R. Forst. & J. G. Forst., Char. Gen. Pl. ed. 1: 51 (1775).**Artocarpus heterophyllus** Lamk., Encycl. Meth. 3: 210 (1789). Tree. *RS*: Tasnim 124.Genus **Ficus** L., Sp. Pl. 2: 1059 (1753).*Key to species:*

- | | | |
|--|---------------------|---|
| 1. Plants climber. | <i>heterophylla</i> | 2 |
| - Plants not climber. | | |
| 2. Leaves opposite or spirally whorled; all parts of the plant hispid. | <i>hispidia</i> | 3 |
| - Leaves alternate; all parts of the plant glabrous. | | |
| 3. Prop root present. | <i>benghalensis</i> | 4 |
| - Prop root absent. | | |
| 4. Hypanthodium pedunculate, borne in clusters on leafless hanging branches. | <i>racemosa</i> | 5 |
| - Hypanthodium sessile or sub-sessile, borne in axillary pairs. | | |
| 5. Leaf base round, apex abruptly long acuminate; mature figs dark purple. | <i>religiosa</i> | |
| - Leaf base obliquely truncate, apex prolonged acute; mature figs black. | <i>rumphii</i> | |

Ficus benghalensis L., Sp. Pl.: 1059 (1753). Tree. *RS*: Tasnim 88.**F. heterophylla** L. f., Suppl. Pl.: 442 (1781). Creeping shrub. *RS*: Tasnim 12.**F. hispidia** L. f., Suppl. Pl.: 442 (1781). Shrub or small tree. *RS*: Tasnim 19.**F. racemosa** L., Sp. Pl.: 1060 (1753). Tree. *RS*: Tasnim 273.**F. religiosa** L., Sp. Pl.: 1059 (1753). Deciduous tree. *RS*: Tasnim 274.

F. rumphii Blume, Bijdr.: 437 (1825). Deciduous tree. *RS*: Tasnim 87.

Family 4. **URTICACEAE** A. L. de Jussieu (1789).

Genus **Pouzolzia** Gaudich. in Freyc., Voy. Bot.: 503 (1826).

Pouzolzia zeylanica (L.) Benn., Pl. Jav. Rar.: 67 (1838). Herb. *RS*: Tasnim 246.

Family 5. **CASUARINACEAE** R. Brown (1814).

Genus **Casuarina** Adans., Fam. 2: 481 (1763).

Casuarina equisetifolia Forst., Char. Gen.: 103, t. 52 (1776). Tree. *RS*: Tasnim 310.

Family 6. **NYCTAGINACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|--|----------------------|
| 1. Plants shrubs or large climbers with spines; leaves alternate; stamens 4-10; stigma fimbriate; fruits cylindrical or clavate. | <i>Bougainvillea</i> |
| - Plants herbs without spine; leaves opposite; stamens 3-6; stigma capitate; fruits globose or obovoid. | <i>Mirabilis</i> |

Genus **Bougainvillea** Commers. ex Jussieu, Gen. Pl.: 91 (1789).

Bougainvillea glabra Choisy in DC., Prodr. 13, 2: 437 (1849). Climbing shrub. *RS*: Tasnim 259.

Genus **Mirabilis** L., Sp. Pl.: 177 (1753).

Mirabilis jalapa L., Sp. Pl.: 177 (1753). Herb. *RS*: Tasnim 20.

Family 7. **CHENOPODIACEAE** Ventenat (1799).

Genus **Chenopodium** L., Sp. Pl. 1: 218 (1753).

Chenopodium album L., Sp. Pl. 1: 219 (1753). Herb. *RS*: Tasnim 238.

Family 8. **AMARANTHACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|--|----------------------|
| 1. Flowers unisexual. | <i>Amaranthus</i> |
| - Flowers bisexual. | 2 |
| 2. Inflorescence with spines. | <i>Achyranthes</i> |
| - Inflorescence without spines. | 3 |
| 3. Inflorescence spikes; anthers 2-celled. | <i>Celosia</i> |
| - Inflorescence head; anthers 1-celled. | <i>Alternanthera</i> |

Genus **Achyranthes** L., Sp. Pl. ed. 1: 204 (1753).

Achyranthes aspera L., Sp. Pl. ed. 1: 204 (1753). Perennial herb. *RS*: Tasnim 78.

Genus **Alternanthera** Forsk., Fl. Aegypt. Arab.: 28 (1775).

Key to species:

- | | |
|--|-----------------------|
| 1. Inflorescence pedunculate, solitary in leaf axil. | <i>philoxeroides</i> |
| - Inflorescence sessile, 1-4 in leaf axil. | 2 |
| 2. Tapals unequal, hairy on back; stamens 5. | <i>paronychioides</i> |
| - Tapals equal, both surfaces glabrous; stamens 3. | <i>sessilis</i> |

Alternanthera paronychioides St. Hill., Voi. Distr. Dian. 2: 43 (1833). Mat forming herb. *RS*: Tasnim 105.

A. philoxeroides (Mart.) Griseb. in Abh., Ges. Wiss. Goett. 24: 36 (1879). Herb. *RS*: Tasnim 110.

A. sessilis (L.) R. Br. *ex* Roem. & Schult., Syst. 5: 554 (1819). Herb. RS: Tasnim 70.

Genus **Amaranthus** L., Sp. Pl. 1: 989 (1753).

Key to species:

- | | |
|---|-----------------|
| 1. Plants armed. | <i>spinosus</i> |
| - Plants unarmed. | 2 |
| 2. Fruit indehiscent; bracts and bracteoles shorter than the perianth. | <i>viridis</i> |
| - Fruit dehiscent with a circumscissile lid; bracts and bracteoles as long as the perianth. | <i>tricolor</i> |

Amaranthus spinosus L., Sp. Pl. 1: 991 (1753). Annual, profusely branched herb. RS: Tasnim 218.

A. tricolor L., Sp. Pl. 1: 989 (1753). Ascending, annual or erect herb. RS: Tasnim 40.

A. viridis L. Sp. Pl. ed. 2: 1405 (1763). Small herb. RS: Tasnim 04.

Genus **Celosia** L., Sp. Pl. 1: 205 (1753).

Celosia cristata L., Sp. Pl. 1: 235 (1753). Annual, branched herb. RS: Tasnim 280.

Family 9. **BASELLACEAE** Moquin-Tandon (1840).

Genus **Basella** L., Diss. Dass.: 12 (1747).

Basella rubra L., Sp. Pl.: 272 (1753). Twiner. RS: Tasnim 286.

Family 10. **POLYGONACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|--|-------------------|
| 1. Tepals usually 6; stipules often disappearing with age; stigma fimbriate. | <i>Rumex</i> |
| - Tepals 4-5; stipules persistent; stigma capitate. | <i>Persicaria</i> |

Genus **Persicaria** [Tourn.] *ex* Mill., Gard. Dict. Abridg.: ed. 3 (1754).

Key to species:

- | | |
|--|-------------------|
| 1. Annual herb; ovary biconcave. | <i>orientalis</i> |
| - Perennial herb; ovary biconvex or trigonous. | 2 |
| 2. Stamens 8; styles 3; stigmas 3. | <i>stagnina</i> |
| - Stamens 7, rarely 6; styles 2; stigmas 2. | <i>tomentosa</i> |

Persicaria orientalis (L.) Spach, Veg. 10: 537 (1841). Herb. RS: Tasnim 240.

P. stagnina (Hamilt. *ex* Meissn.) Hassan, Bangladesh J. Pl. Taxon. 3(1): 81 (1996). Herb. RS: Tasnim 133.

P. tomentosa (Willd.) Sasaki, List Pl. Form.: 170 (1928). Herb. RS: Tasnim 132.

Genus **Rumex** L., Sp. Pl. 1: 333 (1753).

Rumex maritimus L., Sp. Pl. 1: 335 (1753). Herb. RS: Tasnim 211.

Family 11. **ELAEOCARPACEAE** A. P. de Candolle (1824).

Genus **Elaeocarpus** L., Sp. Pl.: 515 (1753).

Elaeocarpus varunua Buch.-Ham. *ex* Masters in Hook. f. Fl. Brit. Ind. 1: 407 (1874). Tree. RS: Tasnim 320.

Family 12. **TILIACEAE** A. L. de Jussieu (1789).

Genus **Corchorus** L., Sp. Pl. ed. 1: 529 (1753).

Key to species:

- | | |
|--|-------------------|
| 1. Leaves narrowly ovate; capsule globose, not beaked, muricate. | <i>capsularis</i> |
| - Leaves oblong to lanceolate; capsule elongated, beaked. | <i>olitorius</i> |

Corchorus capsularis L., Sp. Pl.: 529 (1753). Herb. *RS*: Tasnim 77.

C. olitorius L., Sp. Pl.: 529 (1753). Herb. *RS*: Tasnim 99.

Family 13. **BOMBACACEAE** Kunth (1822).

Genus **Bombax** L., Sp. Pl. ed. 1: 511 (1753).

Bombax ceiba L., Sp. Pl.: 511 (1753). Large tree. *RS*: Tasnim 219.

Family 14. **MALVACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|--|--------------------|
| 1. Epicalyx absent. | <i>Sida</i> |
| - Epicalyx present. | 2 |
| 2. Calyx spathaceous, adnate to the base of corolla; stigma cushion-like. | <i>Abelmoschus</i> |
| - Calyx campanulate, not adnate to the base of corolla; stigma discoid, capitate or papillose. | 3 |
| 3. Staminal column equal to the length of the corolla; fruit a schizocarp, subglobose. | <i>Urena</i> |
| - Staminal column shorter than the corolla; fruit a loculicidal capsule. | <i>Hibiscus</i> |

Genus **Abelmoschus** Medik., Malv.: 46 (1787).

Abelmoschus esculentus (L.) Moench, Meth. Pl.: 617 (1794). Herb. *RS*: Tasnim 157.

Genus **Hibiscus** L., Sp. Pl.: 693 (1753).

Hibiscus rosa-sinensis L., Sp. Pl.: 694 (1753). Shrub. *RS*: Tasnim 97.

Genus **Sida** L., Sp. Pl.: 683 (1753).

Key to species:

- | | |
|---|--------------------|
| 1. Leaves cordate at the base. | <i>cordifolia</i> |
| - Leaves cuneate at the base. | 2 |
| 2. Stipules longer than petiole, dissimilar in each pair, one lanceolate and the other linear to filiform or elliptic-lanceolate. | <i>acuta</i> |
| - Stipules not longer than petiole, similar in each pair, filiform. | <i>rhombofolia</i> |

Sida acuta Burm. f., Fl. Ind.: 147 (1768). Herb. *RS*: Tasnim 126.

S. cordifolia L., Sp. Pl.: 684 (1753). Herb or undershrub. *RS*: Tasnim 242.

S. rhombifolia L., Sp. Pl.: 684 (1753). Herb. *RS*: Tasnim 129.

Genus **Urena** L., Sp. Pl.: 692 (1753).

Urena lobata L., Sp. Pl.: 692 (1753). Undershrub. *RS*: Tasnim 42.

Family 15. **LECYTHIDACEAE** Poit. (1825).

Genus **Barringtonia** J. R. & G. Forst., Char. Gen.: 75 (1776).

Barringtonia acutangula (L.) Gaertn., Fruct. 2: 97, t. 101 (1791). Tree. *RS*: Tasnim 141.

Family 16. **FLACOURTIACEAE** A. P. de Candolle (1824).

Genus **Hydnocarpus** Gaertn., Fruct. Sem. Pl. 1: 288 (1788).

Hydnocarpus kurzii(King) Warb. in Engl. & Prantl, Pflanz. 3(6a): 21 (1893). Tree. *RS*: Tasnim 139.

Family 17. **CARICACEAE** Dumortier (1829).

Genus **Carica** L., Sp. Pl.: 1036 (1753).

Carica papaya L., Sp. Pl.: 1036 (1753). Tree with milky latex. *RS*: Tasnim 250.

Family 18. **CUCURBITACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|---|------------------|
| 1. Corolla campanulate. | 2 |
| - Corolla rotate. | 3 |
| 2. Flowers white; tendril simple. | <i>Coccinia</i> |
| - Flowers yellow; tendril 2-3 cleft. | <i>Cucurbita</i> |
| 3. Calyx-tube of male flower elongated. | <i>Lagenaria</i> |
| - Calyx-tube of male flower not elongated. | 4 |
| 4. Stamens inserted at the mouth of the calyx; anthers free. | <i>Luffa</i> |
| - Stamens inserted below the mouth of the calyx; anthers ± coherent. | 5 |
| 5. Calyx with 2-3 scales; male flower with a large enveloping bract; fruit baccate. | <i>Momordica</i> |
| - Calyx without scales; male flower without a large enveloping bract; fruit smooth. | <i>Cucumis</i> |

Genus **Coccinia** Wight *et* Arn., Prod. Fl. Ind. 1: 347 (1834).

Coccinia grandis (L.) Voigt, Hort. Suburb. Calc.: 59 (1845). Climbing herb. *RS*: Tasnim 08.

Genus **Cucumis** L., Sp. Pl. ed. 1: 1011 (1753).

Key to species:

- | | |
|--|----------------|
| 1. Leaves broadly cordate-ovate; young fruits tuberculate. | <i>sativus</i> |
| - Leaves sub-orbicular; young fruits not tuberculate. | <i>melo</i> |

Cucumis melo L., Sp. Pl. ed. 1: 1011 (1753). Climbing herb. *RS*: Tasnim 143.

C. sativus L., Sp. Pl. ed. 1: 1012 (1753). Climbing herb. *RS*: Tasnim 149.

Genus **Cucurbita** L., Sp. Pl. ed. 1: 1010 (1753).

Cucurbita maxima Duch. *ex* Lamk., Encycl. 2: 151 (1786). Climbing herb. *RS*: Tasnim 248.

Genus **Lagenaria** Seringe, Mem. Soc. Phys. Geneve 3(1): 25, t. 2 (1825).

Lagenaria siceraria (Molina) Standl., Publ. Field Mus. Nat. Hist. Chicago, B. Ser. 3: 435 (1930). Climbing herb. *RS*: Tasnim 251.

Genus **Luffa** Miller, Gard. Dict. Abridg. ed. 4: 500 (1785).

Key to species:

- | | |
|--|-------------------|
| 1. Calyx lobes lanceolate, apex acuminate; stamens 3; fruits acutely 10-angled; seeds verrucose. | <i>acutangula</i> |
| - Calyx lobes oblong-cuneiform, apex rounded; stamens 5; fruits smooth; seeds usually smooth. | <i>cylindrica</i> |

Luffa acutangula (L.) Roxb., Fl. Ind. 3: 713 (1832). Climber. RS: Tasnim 146.

L. cylindrica (L.) M. Roem., Fam. Syn. 2: 63 (1846). Climber RS: Tasnim 136.

Genus **Momordica** L., Sp. Pl. ed. 1: 1009 (1753).

Momordica charantia L. var. **charantia** C. B. Clarke in Hook. f., Fl. Brit. Ind. 2: 616 (1879). Climbing herb. RS: Tasnim 254.

Family 19. **CAPPARACEAE** A. L. de Jussieu (1789).

Genus **Crataeva** L., Sp. Pl. 1: 444 (1753).

Crataeva magna (Lour.) DC., Prodr. 1: 243 (1824). Tree. RS: Tasnim 17.

Family 20. **BRASSICACEAE** Burnett (1835).

Key to genera:

- | | |
|---|-----------------|
| 1. Seeds biseriate. | <i>Rorippa</i> |
| - Seeds uniseriate. | 2 |
| 2. Plants usually hirsute; fruit indehiscent; roots usually fleshy. | <i>Raphanus</i> |
| - Plants usually glabrous; fruit dehiscent; roots not fleshy. | <i>Brassica</i> |

Genus **Brassica** L., Sp. Pl. 2: 666 (1753).

Key to species:

- | | |
|--|-----------------|
| 1. Lower leaves bristly or ciliate hairy; middle and upper leaves at least clasping half of the stem; filaments of outer stamens curved at the base. | <i>napus</i> |
| - All leaves glabrous; middle and upper leaves never clasping more than one-third of the stem; filaments of all stamens erect. | <i>oleracea</i> |

Brassica napus L., Sp. Pl. 2: 666 (1753). Annual herb. RS: Tasnim 100.

B. oleracea L., Sp. Pl. 2: 667 (1753).

Key to varieties:

- | | |
|---|----------------------|
| 1. Racemes congested, fleshy and abbreviated. | var. <i>botrytis</i> |
| - Racemes elongated, neither fleshy, nor covered with leaves. | var. <i>capitata</i> |

B. oleracea L. var. **botrytis** L., Sp. Pl. 2: 667 (1753). Annual or biennial herb. RS: Tasnim 151.

B. oleracea L. var. **capitata** L., Sp. Pl. 2: 667 (1753). Annual or biennial herb. RS: Tasnim 314.

Genus **Raphanus** L., Sp. Pl. 2: 669 (1753).

Raphanus sativus L., Sp. Pl. 2: 669 (1753). Annual herb. RS: Tasnim 335.

Genus **Rorippa** Scop., Fl. Carniol.: 520 (1760).

Rorippa indica (L.) Hiern. Cat. Afr. Pl. Welw. 1: 26 (1896). Annual or biennial herb. RS: Tasnim 203.

Family 21. **MORINGACEAE** Dumortier (1829).

Genus **Moringa** [Burm.] Adans., Fam. Pl. 2: 318 (1763).

Moringa oleifera Lamk., Encycl. 1(2): 398 (1785). Deciduous tree. RS: Tasnim 299.

Family 22. **ROSACEAE** A. L. de Jussieu (1789).

Genus **Rosa** L., Sp. Pl.: 491 (1753).

Rosa chinensis Jacq., Obs. Bot. 3: 7 (1768). Shrub. RS: Tasnim 264.

Family 23. **MIMOSACEAE** R. Brown (1814).*Key to genera:*

- | | | |
|----|---|----------------|
| 1. | Leaves sensitive to touch; stamens 4-8. | <i>Mimosa</i> |
| - | Leaves not sensitive to touch; stamens more than 10. | 2 |
| 2. | Filaments free at the base; anthers glandular. | <i>Acacia</i> |
| - | Filaments united into a tube at the base; anthers eglandular. | <i>Albizia</i> |

Genus **Acacia** Mill., Gard. Dic. Abridg. ed.: 4 (1754).

Acacia auriculiformis A. Cunn. *ex* Benth. & Hook., Lond. J. Bot. 1: 377 (1842). *RS*: Tasnim 316.

Genus **Albizia** Durazzini, Mag. Tosc. 3(4): 11 (1772).

Albizia procera (Roxb.) Benth., Lond. J. Bot. 3: 89 (1844). Deciduous tree. *RS*: Tasnim 323.

Genus **Mimosa** L., Sp. Pl.: 516 (1753).

Mimosa pudica L., Sp. Pl. 1: 518 (1753). Prostrate herb. *RS*: Tasnim 134.

Family 24. **CAESALPINIACEAE** R. Brown (1814).*Key to genera:*

- | | | |
|----|---|--------------------|
| 1. | Calyx petaloid. | <i>Saraca</i> |
| - | Calyx not petaloid. | 2 |
| 2. | Petals and stamens 3. | <i>Tamarindus</i> |
| - | Petals and stamens more than 3. | 3 |
| 3. | Rachis with prickles. | <i>Caesalpinia</i> |
| - | Rachis without prickles. | 4 |
| 4. | Leaves bipinnately compound; all stamens fertile. | <i>Delonix</i> |
| | Leaves paripinnately compound; all stamens not fertile. | <i>Senna</i> |

Genus **Caesalpinia** L., Sp. Pl. 1: 380 (1753).

Caesalpinia pulcherrima (L.) Swartz, Obs. Bot. Ind. Occ.: 166 (1791). Shrub. *RS*: Tasnim 336.

Genus **Delonix** Rafin., Fl. Tellur. 2: 92 (1836).

Delonix regia Rafin., Fl. Tellur. 2: 92 (1836). Deciduous tree. *RS*: Tasnim 289.

Genus **Saraca** L., Mant. Pl. 1: 98 (1767).

Saraca indica L., Mant. Pl. 1: 98 (1767). Small tree. *RS*: Tasnim 294.

Genus **Senna** Mill., Gard. Dict. Abr. ed. : 4 (1954).

Senna alata (L.) Roxb., Fl. Ind. 2: 349 (1832). Shrub. *RS*: Tasnim 159.

Genus **Tamarindus** L., Sp. Pl. 1: 34 (1753).

Tamarindus indica L., Sp. Pl. 1: 34 (1753). Large tree. *RS*: Tasnim 95.

Family 25. **FABACEAE** Lindley (1836).*Key to genera:*

- | | | |
|----|---|-----------------|
| 1. | Stipules leafy. | <i>Lathyrus</i> |
| - | Stipules not leafy. | 2 |
| 2. | Bracts and bracteoles present. | 3 |
| - | Bracts and bracteoles absent. | <i>Lablab</i> |
| 3. | Bracts stipules-like; fruit a pod, subterete. | <i>Clitoria</i> |
| - | Bracts and bracteoles conspicuous or setaceous; fruit oblong or linear. | 4 |

4. Ovary stipitate; seeds oblong or quadrate. *Sesbania*
 - Ovary sessile; seeds thick, smooth. *Phaseolus*
- Genus **Clitoria** L., Sp. Pl.: 753 (1753).
Clitoria ternatea L., Sp. Pl.: 753 (1753). Twining herb. *RS*: Tasnim 57.
- Genus **Lablab** Adans., Fam. Pl. 2: 325 (1763).
Lablab purpureus (L.) Sweet, Hort. Brit. ed. 1: 481 (1827). Twining herb. *RS*: Tasnim 69.
- Genus **Lathyrus** L., Sp. Pl.: 729 (1753).
Lathyrus sativus L., Sp. Pl. 2: 730 (1753). Procumbent herb. *RS*: Tasnim 80.
- Genus **Phaseolus** [Tourn.] L., Syst. ed. 1 (1735).
Phaseolus vulgaris L., Sp. Pl. 1: 723 (1753). Climber or suberect herb. *RS*: Tasnim 135.
- Genus **Sesbania** Adans., Fam. 2: 326 (1763).
Sesbania bispinosa (Jacq.) Wight, U.S. Dept. Bur. Pl. Ind. Bull. no. 137: 15 (1909). Annual or biennial herb. *RS*: Tasnim 106.

Family 26. **LYTHRACEAE** Jaume St.-Hilaire (1805).*Key to genera:*

1. Plants shrubs or small trees; inflorescence a terminal panicle. *Lawsonia*
 - Plants herbs; inflorescence axillary cymes, globose, compact, sessile. *Ammannia*

Genus **Ammannia** L., Sp. Pl. 1: 119 (1753).**Ammannia baccifera** L., Sp. Pl. 1: 120 (1753). Annual herb. *RS*: Tasnim 239.Genus **Lawsonia** L., Sp. Pl.: 349 (1753).**Lawsonia inermis** L., Sp. Pl.: 349 (1753). Shrub. *RS*: Tasnim 185.Family 27. **MYRTACEAE** A. L. de Jussieu (1789).*Key to genera:*

1. Carpels 2; ovary 2-locular; berries ovoid or oblong, black when ripe. *Syzygium*
 - Carpels 3-5; ovary more than 2-locular; fruits globose or pyriform, yellow when ripe. *Psidium*

Genus **Psidium** L., Gen. Pl. : 615 (1772).**Psidium guajava** L., Sp. Pl. 1: 470 (1753). Tree. *RS*: Tasnim 103.Genus **Syzygium** Gaertn., Fruct. Sem. Pl. 1: 166, t. 33 (1788).**Syzygium cumini** (L.) Skeels in USDA Bur. Pl. Industr. Bull. 248: 25 (1912). Tree. *RS*: Tasnim 104.Family 28. **PUNICACEAE** Horaninow (1834).Genus **Punica** L., Sp. Pl.: 472 (1753).**Punica granatum** L., Sp. Pl.: 472 (1753). Shrub or low tree. *RS*: Tasnim 137.Family 29. **ONAGRACEAE** A. L. de Jussieu (1789).Genus **Ludwigia** L., Sp. Pl. : 118 (1753).*Key to species:*

1. Plants creeping to floating herb; leaves not cuneate at the base; flowers white. *adscendens*
 - Plants erect herb; leaves cuneate at the base; flowers yellow. 2

2. Branched herb; stamens 8. *hyssopifolia*
 - Unbranched herb; stamens usually 4, rarely 5. *perennis*
- Ludwigia adscendens** (L.) Hara, J. Jap. Bot. 28: 290 (1953). Floating herb. *RS*: Tasnim 260.
- L. hyssopifolia** (G. Don) Exell. Apud A. & R. Fernandes, Garcia de Orta 5: 471 & 474, t. 2 (1957). Herb. *RS*: Tasnim 262.
- L. perennis** L., Obs. Bot.: 142 (1791). Herb. *RS*: Tasnim 265.

Family 30. **COMBRETACEAE** R. Brown (1810).

Genus **Terminalia** L., Syst. Nat. ed. 12, 2: 674 (1767).

Terminalia arjuna (Roxb. ex DC.) Wight & Arn., Prodr.: 314 (1834). Tree. *RS*: Tasnim 127.

Family 31. **EUPHORBIACEAE** A. L. de Jussieu (1789).

Key to genera:

1. Stamen 1. *Euphorbia*
 - Stamens more than 1. 2
2. Leaves palmately lobed. *Ricinus*
 - Leaves not palmately lobed. 3
3. Stipules present; inflorescence axillary, cymose, fascicled or solitary. *Phyllanthus*
 - Stipules absent; inflorescence terminal or axillary racemose or spicate. *Croton*

Genus **Croton** L., Sp. Pl. 2: 1004 (1762).

Croton bonplandianus Baill., Adansonia 4: 339 (1863-64). Woody herb. *RS*: Tasnim 86.

Genus **Euphorbia** L. Sp. Pl.: 450 (1753).

Euphorbia hirta L., Sp. Pl.: 454 (1753). Annual herb. *RS*: Tasnim 14.

Genus **Phyllanthus** L., Sp. Pl. 2: 981 (1753).

Key to species:

1. Stamens 5 in 2 series, outer 2 free, inner 3 filaments connate. *reticulatus*
 - Stamens 3, filaments united into a short or long column, rarely free. 2
2. Annual herb; stipule triangular. *niruri*
 - Deciduous tree; stipule not triangular. *emblica*

Phyllanthus emblica L., Sp. Pl. 2: 982 (1753). Decedious tree. *RS*: Tasnim 90.

P. niruri L. Sp. Pl.: 981 (1753). Annual herb. *RS*: Tasnim 267.

P. reticulatus Poir., Encycl. Meth. 5: 298 (1804). Shrub. *RS*: Tasnim 21.

Genus **Ricinus** L., Sp. Pl.: 1007 (1753).

Ricinus communis L., Sp. Pl.: 1007 (1753). Shrub. *RS*: Tasnim 21.

Family 32. **RHAMNACEAE** A. L. de Jussieu (1789).

Genus **Ziziphus** Mill., Gard. Dict. Abridg. ed. 4 (1754).

Ziziphus mauritiana Lamk., Encycl. Method. Bot. 3: 319 (1789). Tree. *RS*: Tasnim 119.

Family 33. **SAPINDACEAE** A. L. de Jussieu (1789).

Genus **Litchi** Sonn., Voy. Ind. Orient. 3: 255 (1782).

Litchi chinensis Sonn., Voy. Ind. Orient. 3: 255 (1782). Tree. *RS*: Tasnim 313.

Family 34. **ANACARDIACEAE** Lindley (1830).*Key to genera:*

- | | |
|---|------------------|
| 1. Plants evergreen; leaves simple; inflorescence a pyramidal panicle, pseudo-terminal or axillary. | <i>Mangifera</i> |
| - Plants deciduous; leaves compound; inflorescence long panicles, terminal or axillary. | <i>Spondias</i> |

Genus **Mangifera** L. Fl. Zeyl.: 221 (1747).**Mangifera indica** L., Sp. Pl.: 200 (1753). Tree. RS: Tasnim 309.Genus **Spondias** L., Gen. ed. 1: 365 (1737).**Spondias pinnata** (L. f.) Kurz in Pegu Rep. A.: 44 (1875). Tree. RS: Tasnim 55.Family 35. **MELIACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|--|--------------------|
| 1. Leaflets entire. | <i>Swietenia</i> |
| - Leaflets not entire. | 2 |
| 2. Ovary 4-8 celled; seeds oblong with leathery testa. | <i>Melia</i> |
| - Ovary 3-celled; seeds ovoid with thin testa. | <i>Azadirachta</i> |

Genus **Azadirachta** A. Juss., Bull. Sc. Nat. Geol. 23: 236 (1830).**Azadirachta indica** A. Juss., Mem. Mus. Hist. Nat. Paris 19: 221, t. 13 (1832). Tree. RS: Tasnim 26.Genus **Melia** L., Sp. Pl. 1: 384 (1753).**Melia azedarach** L., Sp. Pl. 1: 384 (1753). Tree. RS: Tasnim 306.Genus **Swietenia** Jacq., Enum. Pl. Carib. 4: 20 (1760).**Swietenia mahagoni** Jacq., Enum. Pl. Carib. 4: 20 (1760). Tree. RS: Tasnim 330.Family 36. **RUTACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|--|----------------|
| 1. Rind of fruit woody; leaves more than 1-foliolate. | <i>Limonia</i> |
| - Rind of fruit not woody (coriaceous); leaves 1-foliolate. | 2 |
| 2. Stamens 30-60; filaments long, glandular, glabrous. | <i>Aegle</i> |
| - Stamens 20-60; filaments united at the base to form bundle; disk short, annular. | <i>Citrus</i> |

Genus **Aegle** Corr. ex Koen., Trans. Linn. Soc. Lond. 5: 223 (1800).**Aegle marmelos** (L.) Corr. ex Koen., Trans. Linn. Soc. London 5: 223 (1800). Tree. RS: Tasnim 37.Genus **Citrus** L., Sp. Pl.: 401 (1753).*Key to species:*

- | | |
|---|---------------------|
| 1. Petioles narrowly winged; fruit a globose to ovoid berry; seeds ovoid. | <i>aurantifolia</i> |
| - Petioles broadly winged; fruit spherical, ovoid, pyriform; seeds flattened. | <i>maxima</i> |

Citrus aurantifolia (Christm. & Panzer) Swingle, J. Wash. Acad. Sci. 3: 465 (1913). Small tree. RS: Tasnim 404.**C. maxima** (Burm.) Merr., Interp. Rumph. Herb. Amb.: 296 (1918). Small tree. RS: Tasnim 395.

Genus **Limonia** L., Sp. Pl. ed. 2: 554 (1762).

Limonia acidissima L., Sp. Pl. ed. 2.: 554 (1762). Semi-deciduous tree. *RS*: Tasnim 392.

Family 37. **OXALIDACEAE** R. Brown (1817).

Key to genera:

- | | |
|--|-----------------|
| 1. Trees; leaves pinnately compound; fruit fleshy, indehiscent. | <i>Averrhoa</i> |
| - Herbs; leaves digitately or palmately trifoliolate; fruit not fleshy, dehiscent. | <i>Oxalis</i> |

Genus **Averrhoa** L., Sp. Pl.: 428 (1753).

Averrhoa carambola L., Sp. Pl. 1: 428 (1753). Tree. *RS*: Tasnim 261.

Genus **Oxalis** L., Sp. Pl.: 433 (1753).

Oxalis corniculata L., Sp. Pl.: 435 (1753). Herb. *RS*: Tasnim 13.

Family 38. **APIACEAE** Lindley (1836).

Key to genera:

- | | |
|---|-------------------|
| 1. Plants prostrate-creeping or ascending herbs; stylopodium absent; fruits orbicular to ellipsoid. | <i>Centella</i> |
| - Plants erect herbs; stylopodium conic; fruits globose. | <i>Coriandrum</i> |

Genus **Centella** L., Gen. Pl. ed. 6: 485 (1764).

Centella asiatica (L.) Urban in Mart., Fl. Braz. 11(1): 187 (1879). Herb. *RS*: Tasnim 74.

Genus **Coriandrum** L., Sp. Pl. 1: 256 (1753).

Coriandrum sativum L., Sp. Pl. 1: 256 (1753). Annual herb. *RS*: Tasnim 197.

Family 39. **APOCYNACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|---|------------------------|
| 1. Plants armed. | <i>Carissa</i> |
| - Plants unarmed. | 2 |
| 2. Leaves in whorl. | <i>Rauvolfia</i> |
| - Leaves opposite. | 3 |
| 3. Plants perennial herbs or undershrubs; disc present. | <i>Catharanthus</i> |
| - Plants shrubs; disc absent. | <i>Tabernaemontana</i> |

Genus **Carissa** L., Mant. 1: 7 (1767).

Carissa carandas L., Mant. 1: 52 (1767). Shrub or small tree. *RS*: Tasnim 195.

Genus **Catharanthus** G. Don, Gen. Hist. 4: 71 (1837).

Catharanthus roseus (L.) G. Don, Gen. Hist. 4: 95 (1837). Herb. *RS*: Tasnim 256.

Genus **Rauvolfia** L., Sp. Pl.: 208 (1753).

Rauvolfia serpentina (L.) Benth. *ex* Kurz, Forest Fl. Brit. Burm. 2: 171 (1877). Herb. *RS*: Tasnim 350.

Genus **Tabernaemontana** L., Fl. Trop. Africa 4(1): 126 (1902).

Tabernaemontana divaricata (L.) R. Br. *ex* Roem & Schult., Syst. 4: 427 (1819). Shrub or small tree. *RS*: Tasnim 344.

Family 40. **ASCLEPIADACEAE** R. Brown (1810).*Key to genera:*

- | | |
|---|-------------------|
| 1. Leaves fleshy; flowers pale violet or white; corona lobes spurred on the back. | <i>Calotropis</i> |
| - Leaves not fleshy; flowers orange red to red; corona lobes not spurred on the back. | <i>Asclepias</i> |

Genus **Asclepias** L., Sp. Pl. : 214 (1753).**Asclepias curassavica** L., Sp. Pl.: 215 (1753). Herb. *RS*: Tasnim 03.Genus **Calotropis** R. Br., Mem. Werner. Soc. 1: 39 (1811).**Calotropis gigantea** (L.) R. Br. in Ait., Hort. Kew. ed. 2, 2: 78 (1811). Shrub. *RS*: Tasnim 183.Family 41. **SOLANACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|--|---------------------|
| 1. Fruit berry. | 2 |
| - Fruit capsule. | 5 |
| 2. Fruit enclosed in the bladder-like calyx. | <i>Physalis</i> |
| - Fruit not enclosed in the bladder-like calyx. | 3 |
| 3. Anthers opening by pores at the apex. | 4 |
| - Anthers opening longitudinally. | <i>Capsicum</i> |
| 4. Flowers in dichotomously branched lateral or terminal cymes. | <i>Solanum</i> |
| - Flowers in lax few-flowered cymes, not dichotomously branched. | <i>Lycopersicon</i> |
| 5. Fruiting calyx winged, capsule without spines. | <i>Nicotiana</i> |
| - Fruiting calyx not winged, capsule with spines. | <i>Datura</i> |

Genus **Capsicum** [Tourn.] L., Syst. ed. 1 (1735).**Capsicum frutescens** L., Sp. Pl.: 189 (1753). Shrubby perennial. *RS*: Tasnim 171.Genus **Datura** L., Syst. ed. 1 (1753).**Datura metel** L., Sp. Pl.: 179 (1753). Robust herb or undershrub. *RS*: Tasnim 182.Genus **Lycopersicon** Mill., Gard. Dict. Abridg. ed. 4 (1754).**Lycopersicon esculentum** Mill., Gard. Dict. ed. 8, no. 2 (1768). Herb. *RS*: Tasnim 382.Genus **Nicotiana** L., Syst. ed. 1 (1735).**Nicotiana plumbaginifolia** Viv., Elench, Pl. Hort. Dinegro: 26, t. 5 (1802). Herb. *RS*: Tasnim 214.Genus **Physalis** L., Syst. ed. 1 (1735).**Physalis minima** L., Sp. Pl.: 183 (1753). Herb. *RS*: Tasnim 217.Genus **Solanum** L., Syst. ed. 1 (1735).*Key to species:*

- | | |
|--|------------------|
| 1. A viscid herb with underground tubers; leaves pinnate. | <i>tuberosum</i> |
| - An erect or suberect herb or undershrub without underground tuber; leaves not pinnate. | 2 |

2. Mature berries more than 3 cm across; calyx enlarged in fruit;
seeds lenticular to reniform, flattened. *melongena*
- Mature berries less than 2 cm across; calyx not enlarged in fruit;
seeds discoid, compressed. *villosum*

Solanum melongena L., Sp. Pl.: 186 (1753). Herb or undershrub. *RS*: Tasnim 374.

S. tuberosum L., Sp. Pl.: 185 (1753). Herb. *RS*: Tasnim 162.

S. villosum Mill., Gard. Dict. ed. 8, no. 2 (1768). Herb. *RS*: Tasnim 35.

Family 42. **CONVOLVULACEAE** A. L. de Jussieu (1789).

Key to genera:

1. Inner surface of the corolla hairy; style simple. *Ipomoea*
- Both the surface of the corolla glabrous; style filiform. *Merremia*

Genus **Ipomoea** L., Sp. Pl.: 159 (1753).

Key to species:

1. Herb, usually floating; stem creeping; seeds grey, pubescent
or glabrous. *aquatica*
- Shrub, not floating; stem erect; seeds black, sericeo-villous. *fistulosa*

Ipomoea aquatica Forssk., Fl. Aeg.-Arab.: 44 (1755). Aquatic herb. *RS*: Tasnim 257.

I. fistulosa Mart. *ex* Choisy in DC., Prodr. 9: 349 (1845). Shrub. *RS*: Tasnim 269.

Genus **Merremia** Dennstedt, Schluss. Hort. Malab.: 34 (1818).

Key to species:

1. Plant herbaceous or woody twiner; leaves ovate, oblong or
lanceolate; corolla white. *umbellata*
- Plant glabrous or patently hirsute twiner; leaves palmately lobed,
lobes triangular to lanceolate; corolla bright to light yellow. *vitifolia*

Merremia umbellata (L.) Hallier f., Bot. Jahrb. 16: 552 (1893). Herbaceous or woody twiner. *RS*: Tasnim 341.

M. vitifolia (Brum. f.) Hallier f., Bot. Jahrb. 16: 552 (1893). Large twiner. *RS*: Tasnim 173.

Family 43. **CUSCUTACEAE** Dumortier (1829).

Genus **Cuscuta** L., Sp. Pl.: 124 (1753).

Cuscuta reflexa Roxb., Pl. Corom. 2: 3, t. 104 (1798). Parasitic herb. *RS*: Tasnim 16.

Family 44. **BORAGINACEAE** A. L. de Jussieu (1789).

Genus **Heliotropium** L., Sp. Pl. 1: 130 (1753).

Heliotropium indicum L., Sp. Pl. 1: 130 (1753). Herb. *RS*: Tasnim 63.

Family 45. **VERBENACEAE** Jaume St.-Hilaire (1805).

Key to genera:

1. Leaves digitately 3-5 foliolate. *Vitex*
- Leaves simple. 2
2. Flowers pedicellate. 3
- Flowers sessile or subsessile. 4

3. Calyx campanulate; corolla hypocrateriform; stamens 5-6. *Tectona*
 - Calyx cup-shaped, funnel-shaped or truncate; corolla tube
 cylindrical; stamens 4. *Clerodendrum*
 4. Plants prostrate herbs; flowers white. *Phyla*
 - Plants usually shrubs or undershrubs; flowers light purple. *Lippia*

Genus **Clerodendrum** Burm. *ex* L., Gen. Pl. ed. 1: 186 (1737).

Clerodendrum viscosum Vent, Jard. Malm. 1: 25 (1803). Undershrub or shrub. *RS*: Tasnim 25.

Genus **Lippia** L., Sp. Pl. 2: 633 (1762).

Lippia alba (Mill.) Britton *et* Wilson, Sci. Surv. Puerto Rico. Vergin 6: 141 (1925). Undershrub or shrub. *RS*: Tasnim 225.

Genus **Phyla** Lour., Fl. Cochinch. ed. 1: 66 (1790).

Phyla nodiflora (L.) Greene, Pittonia 4: 46 (1899). Creeping herb. *RS*: Tasnim 43.

Genus **Tectona** L. f., Suppl.: 151 (1781).

Tectona grandis L. f., Suppl.: 151 (1781). Tree. *RS*: Tasnim 82.

Genus **Vitex** [Tourn.] L., Sp. Pl. ed. 1: 635 (1753).

Vitex negundo L., Sp. Pl.: 638 (1753). Shrub or low tree. *RS*: Tasnim 101.

Family 46. **LAMIACEAE** Lindley (1836).

Genus **Ocimum** L., Sp. Pl.: 597 (1753).

Ocimum americanum L., Cent. Pl. 1: 15 (1755). Annual herb. *RS*: Tasnim 10.

Family 47. **OLEACEAE** Hoffman. & Link (1813-1820).

Genus **Jasminum** L., Sp. Pl. 1: 7 (1753).

Jasminum sambac (L.) Ait., Hort. Kew. 1: 8 (1789). Shrub. *RS*: Tasnim 51.

Family 48. **SCROPHULARIACEAE** A. L. de Jussieu (1789).

Key to genera:

1. Flowers in terminal or axillary racemes; anterior anther cells
 spurred; stigmas 2-lamellate. *Lindernia*
 - Flowers axillary, solitary or geminate; anther cells not spurred;
 stigmas notched or truncate. *Scoparia*

Genus **Lindernia** All., Misc. Taur. 3: 178, t. 5 (1766).

Key to species:

1. Leaves sub-acuminate at apex; calyx lobes linear-lanceolate, subequal;
 capsule linear-cylindric or subulate-cylindric. *antipoda*
 - Leaves obtuse at apex; calyx lobes lanceolate, equal; capsule ovoid-
 globose. *rotundifolia*

Lindernia antipoda (L.) Alston in Trimen, Handb. Fl. Ceylon. 6: 214 (1931). Prostrate herb. *RS*: Tasnim 204.

L. rotundifolia (L.) Alston in Trimen, Hand. Fl. Ceyl. 6: 214 (1931). Annual herb. *RS*: Tasnim 255.

Genus **Scoparia** L., Sp. Pl.: 116 (1753).

Scoparia dulcis L., Sp. Pl.: 116 (1753). Herb. *RS*: Tasnim 102.

Family 49. **ACANTHACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|--|---------------------|
| 1. Stamens 4. | 2 |
| - Stamens 2. | 4 |
| 2. Bracts inconspicuous or absent. | <i>Ruellia</i> |
| - Bracts conspicuous, prominent. | 3 |
| 3. Bracts leafy; corolla distinctly or indistinctly 2- lipped, 5- lobed. | <i>Hygrophila</i> |
| - Bracts 4- ranked; corolla tubular - ventricose or funnel shaped, 5- lobed. | <i>Hemigraphis</i> |
| 4. Capsule with a basal solid beak; anther base shortly appendaged. | 5 |
| - Capsule without a basal solid beak; anther base bearded with tuft of hairs. | <i>Andrographis</i> |
| 5. Flowers in one-sided spikes; bracts usually in 2-4 rows, 2 of the rows barren. | <i>Rungia</i> |
| - Flowers not in one-sided spikes; bracts in one rows, linear or subulate to large foliaceous. | <i>Justicia</i> |

Genus **Andrographis** Wall. *ex* Nees in Wall., Pl. As. Rar. 3: 77, 116 (1832).

Andrographis paniculata (Burm. f.) Wall. *ex* Nees in Wall., Pl. As. Rar. 3: 116 (1832). Herb. RS: Tasnim 05.

Genus **Hemigraphis** Nees in DC., Prodr. 11: 722 (1847).

Hemigraphis hirta (Vahl) T. Anders., Journ. Linn. Soc. 9: 462 (1867). Prostrate herb. RS: Tasnim 244.

Genus **Hygrophila** R. Br., Prodr.: 479 (1810).

Hygrophila schulli (Buch.-Ham.) M.R. & S.N. Almeida, Journ. Bomb. Nat. Hist. Soc. 83 (Suppl.): 221 (1986). Herb. RS: Tasnim 192.

Genus **Justicia** L., Sp. Pl. 1: 15 (1753).

Justicia gendarussa Burm. f., Fl. Ind.: 10 (1768). Undershrub. RS: Tasnim 13.

Genus **Ruellia** L., Sp. Pl.: 634 (1753).

Ruellia tuberosa L., Sp. Pl.: 635 (1753). Herb. RS: Tasnim 65.

Genus **Rungia** Nees in Wall., Pl. Asiat. Rar. 3: 77 (1832).

Rungia pectinata (L.) Nees in DC., Prodr. 11: 469 (1847). Prostrate herb. RS: Tasnim 223.

Family 50. **PEDALIACEAE** R. Brown (1810).

Genus **Sesamum** L., Sp. Pl.: 634 (1753).

Sesamum indicum L., Sp. Pl.: 634 (1753). Herb. RS: Tasnim 116.

Family 51. **BIGNONIACEAE** A. L. de Jussieu (1789).

Genus **Tecoma** Juss., Gen.: 139 (1789).

Tecoma stans (L.) Juss. *ex* Kunth in H. B. & K., Nov. Gen. Sp. 3: 144 (1819). Shrub. RS: Tasnim 61.

Family 52. **RUBIACEAE** A. L. de Jussieu (1789).*Key to genera:*

- | | |
|--|---------------------|
| 1. Corolla narrowly infundibular; anthers basifixed. | <i>Neolamarckia</i> |
| - Corolla not narrowly infundibular; anthers dorsifixed. | 2 |

2. Large shrubs; inflorescence corymbose, panicle-like. *Ixora*
 - Small shrubs; inflorescence terminal. *Mussaenda*

Genus ***Ixora*** L., Sp. Pl.: 110 (1753).

Ixora coccinea L., Sp. Pl.: 110 (1753). Shrub. *RS*: Tasnim 189.

Genus ***Mussaenda*** L., Sp. Pl. 1: 177 (1753).

Mussaenda erythrophylla Schum. & Thonn., Beskr. Guin. Pl.: 116 (1827). Shrub. *RS*: Tasnim 122.

Genus ***Neolamarckia*** Bosser, Bull. Mus. Hist. Nat. Paris Ser. 6 (B), Adans. 3: 247 (1984).

Neolamarckia cadamba (Roxb.) Bosser, Bull. Mus. Nat. Hist. Nat. B, Adansonia Ser. 4, 6(3): 247 (1985). Tree. *RS*: Tasnim 53.

Family 53. **ASTERACEAE** Dumortier (1822).

Key to genera:

- | | |
|--|-------------------|
| 1. Cypsela 2 in each capitulum, included in the hardened, spiny involucre. | <i>Xanthium</i> |
| - Cypsela more than 2 in each capitulum, not included in the hardened, spiny involucre. | 2 |
| 2. Head homogenous. | 3 |
| - Head heterogenous. | 7 |
| 3. Flowers ligulate. | 4 |
| - Flowers not ligulate. | 5 |
| 4. Pappus bristles, 1-2 seriate; cypsela fusiform. | <i>Youngia</i> |
| - Pappus not bristles, many seriate; cypsela not fusiform. | <i>Sonchus</i> |
| 5. Pappus bristles or scaly. | <i>Ageratum</i> |
| - Pappus hairy. | 6 |
| 6. Pappus segment 1-seriate; plants climber. | <i>Mikania</i> |
| - Pappus segment 2-seriate; plants not climber. | <i>Vernonia</i> |
| 7. Pappus usually absent. | 8 |
| - Pappus usually present. | 10 |
| 8. Leaves sessile, bracts 4-foliaceous. | <i>Enhydra</i> |
| - Leaves petiolate; bracts not foliaceous. | 9 |
| 9. Involucre short; cypsela dorsally compressed. | <i>Spilanthes</i> |
| - Involucre campanulate; cypsela laterally compressed. | <i>Weddelia</i> |
| 10. Leaves alternate. | 11 |
| - Leaves opposite. | 13 |
| 11. Pappus usually cupulate; leaves sinuate-pinnatifid. | <i>Grangea</i> |
| - Pappus not cupulate; leaves not sinuate-pinnatifid. | 12 |
| 12. Plants woolly or densely tomentose; leaves quite entire; cypsela sub-compressed. | <i>Gnaphalium</i> |
| - Plants not woolly or densely tomentose; leaves not quite entire; cypsela sub-terete or angled. | <i>Blumea</i> |
| 13. Branches leafy; leaves pinnatifid, gland-dotted. | <i>Tagetes</i> |
| - Branches not leafy; leaves not pinnatifid, without gland-dotted. | 14 |

14. Ray-floretes neuter; pappus aristate. *Helianthus*
 - Ray-floretes female; pappus not aristate. 15
15. Foliaceous bracts present; leaves petiolate; petals yellow. *Synedrella*
 - Foliaceous bracts absent; leaves sessile; petals white. *Eclipta*
- Genus **Ageratum** L., Sp. Pl.: 839 (1753).
Ageratum conyzoides L., Sp. Pl.: 839 (1753). Herb. RS: Tasnim 39.
- Genus **Blumea** DC. in Guill., Arch. Bot. 2 : 514 (1833).
Blumea lacera (Burm. f.) DC. in Wight., Contrib. Bot. Ind. 14 (1834). Herb. RS: Tasnim 169.
- Genus **Eclipta** L., Mant. 2: 157 (1771), nom. cons.
Eclipta alba (L.) Hassk., Pl. Jav. Rar.: 528 (1848). Herb. RS: Tasnim 252.
- Genus **Enhydra** Lour., Fl. Cochinch.: 510 (1780).
Enhydra fluctuans Lour. Fl. Cochinch.: 511 (1790). Aquatic herb. RS: Tasnim 190.
- Genus **Gnaphalium** L., Sp. Pl.: 850 (1753).
Gnaphalium luteo-album L., Sp. Pl.: 851 (1753). Herb. RS: Tasnim 253.
- Genus **Grangea** Adans., Fam. 2: 121 (1763).
Grangea maderaspatana (L.) Poir., Enc. Suppl. 2: 825 (1811). Herb. RS: Tasnim 227.
- Genus **Helianthus** L., Sp. Pl.: 904 (1753).
Helianthus annuus L., Sp. Pl.: 904 (1753). Tall herb. RS: Tasnim 164.
- Genus **Mikania** Willd., Sp. Pl. 3: 1742 (1803).
Mikania cordata (Burm. f.) Robinson, Contr. Gray Herb. 104: 65 (1934). Twining perennial herb.
 RS: Tasnim 02.
- Genus **Sonchus** L., Sp. Pl.: 794 (1753).
Sonchus oleraceus L., Sp. Pl.: 794 (1753). Herb. RS: Tasnim 64.
- Genus **Spilanthes** Jacq., Enum. Pl. Carib. 8: 28 (1760).
Spilanthes calva DC. in Wight, Contrib. Bot. Ind.: 19 (1834). Herb. RS: Tasnim 44.
- Genus **Synedrella** Gaertn., Fruct. 2: 456, t. 171 (1791).
Synedrella nodiflora (L.) Gaertn., Fruct. Sem. 2: 456, t. 171 (1791). Herb. RS: Tasnim 56.
- Genus **Tagetes** L., Sp. Pl.: 887 (1753).
Tagetes erecta L., Sp. Pl.: 887 (1753). Herb. RS: Tasnim 155.
- Genus **Vernonia** Schreb., Gen. Pl. 2: 541 (1791).
Vernonia cinerea (L.) Less, Linnaea 4(1): 291 (1829). Herb. RS: Tasnim 01.
- Genus **Wedelia** Jacq., Stirp. Amer.: 217, t. 130 (1783).
Wedelia chinensis (Osbeck) Merr., Philipp. J. Sci. 12: 111 (1917). Herb. RS: Tasnim 58.
- Genus **Xanthium** L., Sp. Pl.: 987 (1753).
Xanthium indicum Koen. *ex* Roxb., Fl. Ind. 3: 601 (1832). Herb. RS: Tasnim 215.
- Genus **Youngia** Cass., Ann. Sci. Nat. Bot. 1, 23: 88 (1831).
Youngia japonica (L.) DC., Prodr. 7: 194 (1838). Herb. RS: Tasnim 247.

LILIOPSIDA**Key to families of Liliopsida:**

- | | | |
|-----|---|----------------|
| 1. | Plants body thalloid. | Lemnaceae |
| - | Plants body not thalloid. | 2 |
| 2. | Stem triangular, leaves usually tristichous. | Cyperaceae |
| - | Stem not triangular, leaves not tristichous. | 3 |
| 3. | Plants with pseudo-stem. | Musaceae |
| - | Plants with true stem. | 4 |
| 4. | Stem hollow except node. | Poaceae |
| - | Stem solid. | 5 |
| 5. | Leaves with reticulate venation; inflorescence spadix. | Araceae |
| - | Leaves with parallel venation; inflorescence not spadix. | 6 |
| 6. | Plant climbing herbs. | 7 |
| - | Plant free floating or erect marshy herbs. | 8 |
| 7. | Plants with prickles; ovary superior; tendrils arising from the sheathing petiole. | Smilacaceae |
| - | Plants without prickles; ovary inferior; tendrils not arising from the sheathing petiole. | Dioscoriaceae |
| 8. | Plants aquatic. | Pontederiaceae |
| - | Plants terrestrial or epiphytic. | 9 |
| 9. | Flower with inferior ovary. | 10 |
| - | Flower with superior ovary | 12 |
| 10. | Plants aromatic; leaves ligulate. | Zingiberaceae |
| - | Plants not aromatic; leaves without ligule. | 11 |
| 11. | Inflorescence a raceme, spike or paniculate; stamens petaloid. | Orchidaceae |
| - | Inflorescence terminal; stamens not petaloid. | Cannaceae |
| 12. | Stem unbranched; leaves crowded at the top the stem. | Areaceae |
| - | Stem branched; leaves not crowded at the top the stem. | 13 |
| 13. | Perianth segments connate. | 14 |
| - | Perianth segments free. | Aloaceae |
| 14. | Leaves simple, alternate; seeds often flat. | Liliaceae |
| - | Leaves sessile, ovate, lanceolate or linear; seeds elliptic or angular. | Commelinaceae |

Family 1. **ARECACEAE** C. H. Schultz-Schultzen (1832).**Key to genera:**

- | | | |
|----|---|-----------------|
| 1. | Leaves fan-shaped; petiole spinous. | <i>Borassus</i> |
| - | Leaves not fan-shaped; petiole not spinous. | 2 |
| 2. | Fruit ovoid, terete or 3-gonous; endocarp hard with 3 basal eyes. | <i>Cocos</i> |
| - | Fruit not ovoid, terete or 3-gonous; endocarp not hard, without 3 basal eyes. | 3 |
| 3. | Carpels 3, syncarpous; spathe coriaceous; endocarp membranous. | <i>Phoenix</i> |
| - | Carpels 3, apocarpous; spathe not coriaceous; endocarp not membranous. | <i>Areca</i> |

Genus **Areca** L., Sp. Pl.: 1189 (1753).

Areca catechu L., Sp. Pl.: 1189 (1753). Tall palm. *RS*: Tasnim 356.

Genus **Borassus** L., Sp. Pl.: 1187 (1753).

Borassus flabellifer L., Sp. Pl.: 1187(1753). Unbranched palm. *RS*: Tasnim 346.

Genus **Cocos** L., Sp. Pl.: 1188 (1753).

Cocos nucifera L., Sp. Pl.: 1189 (1753). Tall palm. *RS*: Tasnim 278.

Genus **Phoenix** L., Sp. Pl. 2: 1188 (1753).

Phoenix sylvestris (L.) Roxb., Hort. Beng. : 73 (1814), nom. nud & Fl. Ind. 3: 787 (1832). Tall palm. *RS*: Tasnim 283.

Family 2. **ARACEAE** A. L. de Jussieu (1789).

Key to genera:

- | | |
|-----------------------------------|----------------------|
| 1. Flowers bisexual. | <i>Rhaphidophora</i> |
| - Flowers unisexual. | 2 |
| 2. Plants aquatic. Leaves entire. | <i>Pistia</i> |
| - Plants terrestrial. | 3 |
| 3. Fruit greenish-white. | <i>Colocasia</i> |
| - Fruit orange to red. | <i>Alocasia</i> |

Genus **Alocasia** (Schott) G. Don in Sweet, Hort. Brit., ed. 3: 631 (1839).

Alocasia macrorrhizos (L.) G. Don in Sweet, Hort. Brit. ed. 3: 631 (1839). Robust herb. *RS*: Tasnim 202.

Genus **Colocasia** Schott in Schott & Endl., Melet. Bot.: 18 (1832).

Colocasia esculenta (L.) Schott in Schott & Endl., Melet. Bot.: 18 (1832). Herb with underground tubers. *RS*: Tasnim 92.

Genus **Pistia** L., Sp. Pl.: 963 (1753).

Pistia stratiotes L., Sp. Pl.: 963 (1753). Aquatic herb. *RS*: Tasnim 175.

Genus **Rhaphidophora** Hassk., Flora 25 (Beibb. 2): 11 (1842).

Rhaphidophora aurea (Linden & Andre) Birdsey in Bailey 10: 155 (1962). Long climber. *RS*: Tasnim 249.

Family 3. **LEMNACEAE** S. F. Gray (1824).

Genus **Lemna** L., Sp. Pl.: 970 (1753).

Lemna perpusilla Torrey, F. N. Y. 2: 245 (1843). Free floating herb. *RS*: Tasnim 177.

Family 4. **COMMELINACEAE** R. Brown (1810).

Key to genera:

- | | |
|--|---------------------|
| 1. Perfect stamens 6. | 2 |
| - Perfect stamens 3. | <i>Commelina</i> |
| 2. Bracts overlapping, boat-like. | <i>Rhoeo</i> |
| - Bracts not overlapping, not boat-like. | <i>Tradescantia</i> |

Genus **Commelina** L., Sp. Pl.: 40 (1753).

Commelina benghalensis L., Sp. Pl.: 41(1753). Diffused herb. *RS*: Tasnim 09.

Genus **Rhoeo** Hance in Walp., Ann. 3: 659 (1853).

Rhoeo discolor (L'Her.) Hance in Walp., Ann. 3: 660 (1853). Stout herb. *RS*: Tasnim 111.

Genus **Tradescantia** L., Sp. Pl.: 288 (1753).

Tradescantia pallida (Rose) D.R. Hunt, Kew Bull. 30 (3): 452 (1975). Herb. *RS*: Tasnim 370.

Family 5. **CYPERACEAE** A. L. de Jussien (1789).

Genus **Courtoisina** Sojak, Cas. Nar. Muz. (Prague) 148 (3-4): 193 (1980).

Courtoisina cyperoides (Roxb.) Sojak, Cas. Nar. Muz. (Prague) 148 (3-4): 193 (1980). Herb. *RS*: Tasnim 109.

Genus **Cyperus** L., Sp. Pl. 1: 44 (1753).

Key to species:

- | | | |
|----|--|-------------------|
| 1. | Plants annual. | 2 |
| - | Plants perennial. | 3 |
| 2. | Culms tufted; stamens 1-2; spikelet not spicately arranged; nutlets yellowish when mature. | <i>difformis</i> |
| - | Culms 1 to few; stamens 2-3; spikelets spicately arranged; nutlets dark brown when mature. | <i>iria</i> |
| 3. | Stoloniferous herb; spikes usually solitary; culms woody. | <i>tuberosus</i> |
| - | Rhizomatous herb; spikes more usually in sessile clusters; culms not woody. | <i>imbricatus</i> |

Cyperus difformis L., Cent. Pl. 2: 6 (1756). Herb. *RS*: Tasnim 67.

C. imbricatus Retz., Obs. Bot. 5: 12 (1789). Herb. *RS*: Tasnim 145.

C. iria L., Sp. Pl. ed. 1: 45 (1753). Herb. *RS*: Tasnim 89.

C. tuberosus Rottb., Descr. et Icon. : 28, t. 7, f. 1 (1773). Stoloniferous herb. *RS*: Tasnim 107.

Genus **Kyllinga** Rottb., Descr. Icon. Rar. Nov. Pl.: 12 (1773).

Kyllinga nemoralis (J. R. Forst. & G. Forst.) Dandy *ex* Hutchins. & Dalziel, Fl. W. Trop. Africa 2: 486 (1936). Rhizomatous herb. *RS*: Tasnim 23.

Family 6. **POACEAE** Barnhart (1895).

Key to genera:

- | | | |
|----|---|-----------------|
| 1. | Culms woody. | <i>Bambusa</i> |
| - | Culms usually herbaceous. | 2 |
| 2. | Spikelets with 1 to many florets, but if 2-flowered, either with a rachilla extension, or both florets or lower one bisexual, or spikelets falling from above glumes and awnless. | 3 |
| - | Spikelets 2-flowered, lower floret of fertile spikelet male or barren, upper bisexual or female and usually different in appearance; spikelets falling entire. | 6 |
| 3. | Spikelets borne alternately on opposite sides of axis of solitary spikes or racemes. | <i>Triticum</i> |
| - | Spikelets usually in panicles or 1-sided spikes or racemes, rarely on opposite sides of axis of solitary spikes. | 4 |

- | | | |
|----|--|-------------------|
| 4. | Spikelets with 2 or more fertile florets or if with 1 fertile floret, with a rachilla projecting or sterile florets above it. | <i>Eragrostis</i> |
| - | Spikelets with 1 fertile floret, with or without or 2 male or sterile florets below it, and 1 or 2 above it. | 5 |
| 5. | Inflorescence of digitate 1-sided spikes, sometimes borne in 2 or more closely spaced whorls. | <i>Cynodon</i> |
| - | Inflorescence a distant panicle. | <i>Oryza</i> |
| 6. | Spikelets axillary, sessile, single at the nodes of a firm. | <i>Zea</i> |
| - | Spikelets not axillary or sessile, not single at the nodes of a firm. | 7 |
| 7. | Spikelets lanceolate, disarticulation below the glumes, sessile spikelets falling with the contiguous internodes and pedicels. | <i>Saccharum</i> |
| - | Spikelets solitary, rarely paired and all alike; glumes usually membranous. | 8 |
| 8. | Fertile lemma chartaceous to cartilaginous, finely longitudinally striate, with its hyaline margin enfolding often more or less darkly coloured. | <i>Digitaria</i> |
| - | Fertile lemma more or less brittle, with margins which are firm, inrolled and glabrous or ciliate. | 9 |
| 9. | Inflorescence an open, compound, contracted or spike-like panicle. | <i>Panicum</i> |
| - | Inflorescence composed of 2-many lateral racemes and a terminal racemes similar to the laterals. | <i>Brachiaria</i> |

Genus **Bambusa** Schreber, Gen. Plant. ed. 8, 1: 236 (1789).

Key to species:

- | | | |
|----|--|-----------------|
| 1. | Blade of stem-sheaths triangular. | 2 |
| - | Blade of stem-sheaths 2-morphic. | <i>balcooa</i> |
| 2. | Ligules narrow, obscure; blade of stem-sheaths with cordate base. | <i>tulda</i> |
| - | Ligules not narrow, distinct; blade of stem-sheaths with rounded base. | <i>vulgaris</i> |

Bambusa balcooa Roxb., Fl. Ind. 2: 196 (1832). Sympodial bamboo. *RS*: Tasnim 59.

B. tulda Roxb., Fl. Ind. 2: 193 (1832). A loosely tufted bamboo. *RS*: Tasnim 333.

B. vulgaris Schrad. *ex* Wendl., Collect Pl. 2: 26, t. 27 (1810). Tufted bamboo. *RS*: Tasnim 187.

Genus **Brachiaria** (Trin.) Griseb., Fl. Ross. 4: 460 (1853).

Brachiaria reptans (L.) Gard. & Hubb. in Hook., Ic. Pl.: 34, sub t. 3363 (1938). Annual grass. *RS*: Tasnim 108.

Genus **Cynodon** Rich., Syn. Pl. 1: 85 (1805).

Cynodon dactylon (L) Pres. Syn Pl. 1: 85 (1805). Perennial grass. *RS*: Tasnim 232.

Genus **Digitaria** Heister *ex* Fabricius, Enum. ed. 1: 207 (1759).

Key to species:

- | | | |
|----|---|--------------------|
| 1. | Culms geniculate at the base; inflorescence a panicle, composed of 3 to more racemes; caryopsis ovoid, deep purple. | <i>stricta</i> |
| - | Culms decumbent at the base; inflorescence digitate or sub-digitate, composed of 2-16 racemes; caryopsis lanceolate, grey or light brown. | <i>sanguinalis</i> |

Digitaria sanguinalis (L.) Scop., Fl. Carn., ed. 2, 1: 52 (1772). Annual grass. *RS*: Tasnim 144.

D. stricta Roth *ex* Roem. & Schult. Syst. Veget. 2: 474 (1817). Annual grass. *RS*: Tasnim 400.

Genus **Eragrostris** Host, Ic. Gram. 4: 14 (1809).*Key to species:*

1. Inflorescence a terminal panicle, elliptic or pyramidal; caryopsis ellipsoid, golden brownish. *tenella*
- Inflorescence a panicle, ovate; caryopsis subglobose or orbicular, dark reddish brown. *cilianensis*

Eragrostis cilianensis (All.) Vignolo-Lutai, Malpighia 18: 386 (1904). Annual grass. *RS*: Tasnim 302.

E. tenella (L.) P. Beauv. *ex* Roem. & Schult., Syst. Veg. 2: 576 (1817). Annual grass. *RS*: Tasnim 11.

Genus **Oryza** L., Sp. Pl. ed. 1, 1: 333 (1753).*Key to species:*

1. Spikelets persistent. *sativa*
- Spikelets caducous. *rufipogon*

Oryza rufipogon Griff., Notul. 3: 5 (1851). Aquatic grass. *RS*: Tasnim 156.

O. sativa L., Sp. Pl. ed. 1, 1: 333 (1753). Annual or rarely perennial grass. *RS*: Tasnim 388.

Genus **Panicum** L., Sp. Pl. 1: 55 (1753).*Key to species:*

1. Aquatic grass; ovary ovate, stipitate; caryopsis oblong. *paludosum*
- Terrestrial grass; ovary elliptic; caryopsis elliptic. *notatum*

Panicum notatum Retz., Obs. Bot. 4: 18 (1786). Perennial grass. *RS*: Tasnim 148.

P. paludosum Roxb., Fl. Ind. 1: 310 (1820). Perennial grass. *RS*: Tasnim 270.

Genus **Saccharum** L., Sp. Pl. ed. 1, 1: 54 (1753).

Saccharum spontaneum L., Mart. Alt.: 183 (1771). Rhizomatous grass. *RS*: Tasnim 79.

Genus **Triticum** L., Sp. Pl. ed. 1, 1: 85 (1753).

Triticum aestivum L., Sp. Pl. ed. 1, 1: 85 (1753). Annual or biennial grass. *RS*: Tasnim 167.

Genus **Zea** L., Sp. Pl. ed. 1, 2: 971 (1753).

Zea mays L., Sp. Pl. ed. 1, 2: 971 (1753). Annual grass. *RS*: Tasnim 170.

Family 7. **MUSACEAE** A. L. de Jussieu (1789).Genus **Musa** L., Sp. Pl.: 1043 (1753).

Musa paradisiaca L., Sp. Pl.: 1043 (1753). Tree-like herb. *RS*: Tasnim 278.

Family 8. **ZINGIBERACEAE** Lindley (1835).*Key to genera:*

1. Lateral staminodes broad, petaloid. *Curcuma*
- Lateral staminodes small or absent. *Zingiber*

Genus **Curcuma** Roxb., Asiat. Res. 11: 329 (1810).

Curcuma longa L., Sp. Pl. 1: 2 (1753). Rhizomatous herb. *RS*: Tasnim 153.

Genus **Zingiber** Boehmer, Lud. Def. Gen. Pl.: 89 (1760).

Zingiber officinale Rosc., Trans. Linn. Soc. Lond. 8: 348 (1807). Herb. *RS*: Tasnim 85.

Family 9. **CANNACEAE** A. L. de Jussieu (1789).

Genus **Canna** L., Sp. Pl. ed. 1 (1753).

Canna indica L., Sp. Pl. 1 : 1 (1753). Perennial rhizomatous herb. *RS*: Tasnim 194.

Family 10. **PONTEDERIACEAE** Kunth (1816).

Key to genera:

- | | |
|---|-------------------|
| 1. Flowers distinctly pedicelled; perianth actinomorphic. | <i>Monochoria</i> |
| - Flowers sessile; perianth zygomorphic. | <i>Eichhornia</i> |

Genus **Eichhornia** Kunth, Enum. 4: 129 (1843).

Eichhornia crassipes (Mart.) Solms in A. DC., Mon. Phan. 4: 527 (1883). Aquatic herb. *RS*: Tasnim 94.

Genus **Monochoria** Presl, Rel. Haenk. 1: 127 (1830).

Monochoria hastata (L.) Soloms in A. DC., Mon. Phan. 4: 523 (1883). Perennial herb. *RS*: Tasnim 193.

Family 11. **LILIACEAE** A. L. de Jussieu (1789).

Genus **Allium** L., Sp. Pl.: 294 (1753).

Key to species:

- | | |
|---|----------------|
| 1 Leaves cylindrical, sub-distichous; fruit with seed. | <i>cepa</i> |
| - Leaves flat, not cylindrical, distichous; fruit without seed. | <i>sativum</i> |

Allium cepa L., Sp. Pl. 1: 300 (1753). Annual herb. *RS*: Tasnim 163.

A. sativum L., Sp. Pl. 1: 297 (1753). Annual herb. *RS*: Tasnim 205.

Family 12. **ALOACEAE** Batsch (1802).

Genus **Aloe** L., Sp. Pl. 1: 319 (1753).

Aloe vera (L.) Burm. f., Fl. Ind.: 83 (1768). Succulent herb. *RS*: Tasnim 347.

Family 13. **SMILACACEAE** Ventenat (1799).

Genus **Smilax** L., Sp. Pl. 2: 1028 (1753).

Smilax perfoliata Lour., Fl. Cochinch.: 622 (1790). Spinous climber. *RS*: Tasnim 62.

Family 14. **DIOSCOREACEAE** R. Brown (1810).

Genus **Dioscorea** L., Sp. Pl.: 1033 (1753).

Dioscorea bulbifera L., Sp. Pl.: 1033 (1753) var. **bulbifera**. Twining herb. *RS*: Tasnim 06.

Family 15. **ORCHIDACEAE** A. L. de Jussieu (1789).

Genus **Zeuxine** Lindl., Orch. Scel.: 9 (1826).

Zeuxine strateumatica (L.) Schltr., Feddes Report.: 77 (1911). Terrestrial herb. *RS*: Tasnim 245.

The present study reveals that Asteraceae appears to be the largest family in Magnoliopsida consisting of 16 species, whereas Poaceae is the largest family in Liliopsida with 16 species. Some other dominant families include Cucurbitaceae (8 spp), Solanaceae (8 spp), Amaranthaceae (8 spp) and Moraceae (7 spp). In Magnoliopsida, 23 families are represented by a single species, whereas in Liliopsida, 7 families are symbolized by a single species. *Ficus* appears to be the largest genus with 6 species. Of the recorded 204 taxa from Dhohar upazila, approximately 13% have been found to be rare. Very recently, Sarker and Rahman (2019) documented 295 angiosperm taxa from Gobindaganj upazila of Gaibandha district where 21.35% were reported as rare. In a floristic study in Baraiyadhala National Park of Chittagong, Rashid *et al.* (2018) showed 31.25% of the identified

Magnoliids and Eudicots as rare. Haque *et al.* (2018) found 25 species as threatened in the Rajkandi Reserve forest under Moulvibazar district, while Uddin and Hassan (2010) documented 19 threatened species from Lawachara National Park of the same district, as cited in the Red Data Book of vascular plants of Bangladesh (Khan *et al.*, 2001).

The study area comprises diverse aquatic habitats, *viz.*, ponds, tanks, beels and other low-lying areas filled with seasonal water, and some of the common aquatic angiosperms including species found in muddy areas are *Alternanthera philoxeroides*, *Pistia stratiotes*, *Enhydra fluctuans*, *Ipomoea aquatica*, *Courtoisina cyperoides*, *Cyperus difformis*, *Lemna perpusilla*, *Nymphaea pubescens*, *Monochoria hastata*, *Ludwigia adscendens*, *Ludwigia hyssopifolia* etc. Some economically important species in homestead areas include *Aegle marmelos*, *Annona reticulata*, *Annona squamosa*, *Artocarpus heterophyllus*, *Averrhoa carambola*, *Carica papaya*, *Carissa carandas*, *Citrus aurantifolia*, *Citrus maxima*, *Cocos nucifera*, *Elaeocarpus varunua*, *Hydnocarpus kurzii*, *Limonia acidissima*, *Litchi chinensis*, *Luffa cylindrica*, *Mangifera indica*, *Musa paradisiaca*, *Neolamarckia cadamba*, *Phyllanthus emblica*, *Psidium guajava*, *Punica granatum*, *Spondias pinnata*, *Swietenia mahagoni*, *Syzygium cumini*, *Tamarindus indica*, *Tectona grandis*, *Zizipus mauritiana* etc. Though Dohar upazila is floristically moderately rich, many medicinally important species *viz.*, *Andrographis paniculata*, *Asclepias curassavica*, *Calotropis gigantea*, *Crateva magna*, *Datura metel*, *Ficus heterophylla*, *Hygrophylla schulli*, *Melia azedarach*, *Physalis minima*, *Rauwolfia serpentina*, *Vitex negundo* and *Zeuxine strateumatica* are going to be rare and endangered because of over-exploitation, industrialization, urbanization and agricultural developments. Therefore, immediate steps to be undertaken to conserve the plant species of the area, particularly the medicinally important and threatened species through both *in-situ* and *ex-situ* approaches.

Acknowledgement

The first author is grateful to the University of Dhaka for financial support to cover partial expenses for carrying out the study.

References

- Ahmed, Z.U., Begum, Z.N.T. Hassan M.A., Khondker, M., Kabir, S.M.H., Ahmad, M., Ahmed, A.T.A., Rahman, A.K.A. and Haque, E.U. (Eds) 2008-2009. *Encyclopedia of Flora and Fauna of Bangladesh*, Vols. 6-12. Asiatic Society of Bangladesh, Dhaka.
- Alam, M.S., Hassan, M.A. and Uddin, M.Z. 2006. A preliminary checklist of the angiospermic flora of Ghagotia union under Kapasia upazila in Gazipur district, Bangladesh. *Bangladesh J. Plant Taxon.* **13**(2): 155-170.
- Cronquist, A. 1981. *An Integrated System of Classification of Flowering Plants*. Columbia University Press, New York, 1262 pp.
- Dassanayake, M.D. and Fosberg, F.R. (Eds) 1980-1985. *A Revised Handbook to the Flora of Ceylon*, Vols. 1-6. Amerind Publishing Co. Pvt. Ltd., New Delhi.
- Haque, A.K.M. Kamrul, Khan, S.A., Uddin, S.N. and Shetu, S.S. 2018. An annotated checklist of the angiospermic flora of Rajkandi Reserve Forest of Moulvibazar, Bangladesh. *Bangladesh J. Plant Taxon.* **25**(2): 187-207.
- Heywood, V. 2004. Modern approaches to floristics and their impact on the region of SW Asia. *Turk. J. Bot.* **28**: 7-16.
- Hooker, J.D. 1872-1897. *The Flora of British India*. Vols. 1-7. Bishen Singh Mahendra Pal Singh, Dehra Dun, India.
- Hyland, B.P.M. 1972. A technique for collecting botanical specimens in rain forest. *Flora Malesiana Bull.* **26**: 2038-2040.

- Khan, M.S. (Ed.) 1972-1987. Flora of Bangladesh, Nos. **1–39**. Bangladesh National Herbarium and Bangladesh Agricultural Research Council, Dhaka.
- Khan, M.S. and Rahman, M.M. (Eds) 1989-2002. Flora of Bangladesh, Nos. **40–53**. Bangladesh National Herbarium, Dhaka.
- Khan, M.S., Rahman, M.M. and Ali, M.A. (Eds) 2001. Red Data Book of Vascular Plants of Bangladesh, Vol. **1**. Bangladesh National Herbarium, Dhaka, Bangladesh, pp. 1–179.
- Khan, M.S., Rahman, M.M., Huq, A.M., Mia, M.M.K. and Hassan, M.A. 1994. Assessment of biodiversity of Teknaf game reserve in Bangladesh focusing on economically and ecologically important plants species. *Bangladesh J. Plant. Taxon.* **1**(1): 21–33.
- Mahmudah, Z., Islam, M.M., Haque, T. and Uddin, M.Z. 2017. Taxonomic enumeration of angiosperm flora of Sreenagar upazila, Munshiganj, Dhaka, Bangladesh. *J. Asiat. Soc. Bangladesh, Sci.* **43**(2): 161–172.
- Moniruzzaman, M., Hassan, M.A., Rahman, M.M., Layla, S. and Islam, M.R. 2012. A preliminary checklist of the angiospermic flora of Daulatpur Upazila in Kushtia district, Bangladesh. *J. Asiat. Soc. Bangladesh, Sci.* **38**(1): 53–65.
- Prain, D. 1903. (Indian Reprint 1981). *Bengal Plants*, Vols. **1 & 2**. Bishen Singh Mahendra Pal Singh Dehra Dun, India.
- Rahman, M.O. and Alam, M.T. 2013. A taxonomic study on the angiospermic flora of Trishal upazila, Mymensingh. *Dhaka Univ. J. Biol. Sci.* **22**(1): 63–74.
- Rahman, M.O. and Hassan, M.A. 1995. Angiospermic Flora of Bhawal National Park, Gazipur (Bangladesh). *Bangladesh J. Plant Taxon.* **2**(1&2): 47–79.
- Rahman, M.O., Antara, R.T., Begum, M. and Hassan, M.A. 2012. Floristic diversity of Dhamrai upazila of Dhaka, Bangladesh with emphasis on medicinal plants. *Bangladesh J. Bot.* **41**(1): 71–85.
- Rahman, M.O., Begum, M. and Ullah, M.W. 2013. Angiosperm flora of sadar upazila of Munshiganj district, Bangladesh. *Bangladesh J. Plant Taxon.* **20**(2): 213–231.
- Rahman M.O., Hassan, S. and Begum, M. 2019a. Floristic study in Lalpur upazila of Natore district, Bangladesh: Identification, distribution and economic potential. *J. Asiat. Soc. Bangladesh, Sci.* **45**(1): 71–91.
- Rahman, M.O., Sayma, N.J. and Begum, M. 2019b. Angiospermic flora of Gafargaon upazila of Mymensingh district focusing on medicinally important species. *Bangladesh J. Plant Taxon.* **26**(2): 269–283.
- Rashid, M.H., Islam, S. and Kashem, S.B. 2018. Floristic diversity (Magnoliids and Eudicots) of Baraiyadhala National Park, Chittagong, Bangladesh. *Bangladesh J. Plant Taxon.* **25**(2): 273–288.
- Sarker, K., Islam, M.R., Uddin, M.Z. and Hassan, M.A. 2013. Angiosperm flora of Manikgonj Sadar upazila, Bangladesh. *J. Asiat. Soc. Bangladesh, Sci.* **39**(2): 147–166.
- Sarker, P. and Rahman, A.H.M. Mahbubur. 2019. Angiosperms in Gobindaganj upazila of Gaibandha district, Bangladesh. *Bangladesh J. Plant Taxon.* **26**(2): 285–298.
- Siddiqui, K.U., Islam, M.A., Ahmed, Z.U., Begum, Z.N.T., Hassan, M.A., Khondker, M., Rahman, M.M., Kabir, S.M.H., Ahmad, M., Ahmed, A.T.A., Rahman, A.K.A. and Haque. E.U. (Eds) 2007. *Encyclopedia of Flora and Fauna of Bangladesh*, Vol. **11**. Angiosperms: Monocotyledons. Asiatic Society of Bangladesh, Dhaka.
- The Plant List, 2013. The Plant List, a working list of all plant species. Version 1.1 <<http://www.theplantlist.org/>>. Accessed on 5 June 2020.
- TROPICOS, 2017. Tropicos.org. <www.tropicos.org>. Missouri Botanical Garden, Saint Louis, Missouri, USA. Accessed on 5 June 2020.
- Tutul, E., Uddin, M.Z., Rahman, M.O. and Hassan, M.A. 2009. Angiospermic flora of Runctia Sal forest, Bangladesh-1. Liliopsida (Monocots). *Bangladesh J. Plant Taxon.* **16**(1): 83–90.
- Tutul, E., Uddin, M.Z., Rahman, M.O. and Hassan, M.A. 2010. Angiospermic flora of Runctia sal forest, Bangladesh-2. Magnoliopsida (Dicots). *Bangladesh J. Plant Taxon.* **17**(1): 33–53.
- Uddin, M.Z. and Hassan, M.A. 2010. Angiosperm diversity of Lawachara National Park (Bangladesh): A preliminary assessment. *Bangladesh J. Plant Taxon.* **17**(1): 9–22.