

## SYSTEMATIC STUDIES IN THE FAMILY LILIACEAE FROM BANGLADESH

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### Abstract

The family Liliaceae A.L. de Jussieu has been revised for Bangladesh and a total of 34 species with one variant under 16 genera have been recorded. Artificial dichotomous keys to the genera and species have been given. Descriptions have been provided for each taxon, and local names, flowering and fruiting periods have been added wherever available. Out of 34 species, 16 species are native/naturalized and 18 species, including 1 variant, are exotic. Four genera, ten species and one variant have been documented for the first time in Bangladesh.

### Introduction

Liliaceae A.L. de Jussieu, the Lily family, is a moderately large family consisting of about 280 genera and nearly 4000 species, widespread throughout the world, but most abundant and varied in fairly dry, temperate to subtropical regions. The family is characterized by the following diagnostic characters: i) Perennial or annual herbs, rarely shrubs, with starchy rhizome, bulb or corm; ii) Leaves simple, alternate or less often opposite or whorled, often all basal; iii) Flowers in a raceme, spike, panicle or involucre cymose umbel, sometimes solitary or paired in the axils of the leaves; iv) Tepals 6-8, usually in 2 similar petaloid cycles, stamens usually as many as the tepals; v) Carpels 3 (rarely 2 or 4), united, ovary superior or inferior with axile or basal placentation; vi) Fruit a loculicidal or septicidal capsule, less often a berry, seeds often flat (Cronquist 1981).

Many taxonomists, *viz.* Bentham and Hooker (1862-1883), Engler and Prantl (1887-1915), Bessey (1915), Rendle (1925), and Hutchinson (1934) described Amaryllidaceae (ovary inferior) and Liliaceae (ovary superior) separately under the same order or under separate orders mainly on the basis of ovary position, but other characters are more or less the same. So it is more logical to keep both the families under a single larger family as done by Cronquist (1981) and Takhtajan (1980). The same treatment is followed here.

Species of this family are much important for economic uses. Most of the species are poisonous for cattle, but there are many species in this family which are commercially useful for their medicinal value.

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A general account of Liliaceae (including Amaryllidaceae) occurring in Indian subcontinent was given by Hooker (1892) and for the then Bengal by Prain (1903). In the present context, these accounts are not up to date regarding the number of taxa as well as nomenclature. After Hooker and Prain's publications many floras on the smaller areas of present Bangladesh have been published where the authors included Liliaceae and Amaryllidaceae either separately or jointly under Liliaceae, viz. Heinig (1925), Cowan (1926), Raizada (1941), Datta and Mitra (1953), Sinclair (1955), Mia and Khan (1995), Uddin *et al.* (1998), Rahman (2004), and Uddin and Hassan (2004). However, there has been no revisionary work on Liliaceae for Bangladesh.

### Materials and Methods

The present work is mainly based on the fresh materials collected by the first author. The work is also supplemented by the herbarium specimens housed at the Dhaka University Herbarium (DUH) and Bangladesh National Herbarium (DACB). The germplasm of most of the taxa have been collected and planted in the experimental plots of the Dhaka University Botanical Garden for further studies.

The collected specimens were identified consulting standard literature like Hooker (1892), Jackson (1895), Prain (1903), Dassanayake and Clayton (1981), and Deb (1983), and comparing with herbarium specimens available both in the DUH and DACB.

The present work is intended to record all the species growing all over Bangladesh in the wild and also cultivated in the garden and in the field and to make a revision of the family for the country. Short descriptions, important synonyms, precise localities and local names of each species are given wherever available along with the correct botanical names. Flowering and fruiting periods (*Fl.* & *Fr.*) are also noted. The genera and species are arranged alphabetically.

### Results and Discussion

The systematic studies in the family Liliaceae from Bangladesh resulted in the confirmation of 34 species and a variant under 16 genera, whereas Hooker (1892) reported only 17 species under 10 genera and Prain (1903) mentioned 14 species under 11 genera in greater Liliaceae for the present Bangladesh area. For easy identification, dichotomous keys to the genera and also to the species have been constructed on the basis of easily recognizable characters.

Four genera (*Haemanthus*, *Hippeastrum*, *Proiphys* and *Eucharis*), eleven species (*Asparagus densiflorus*, *A. officinalis*, *A. setaceus*, *Crinum jagus*, *Eucharis grandiflora*, *Haemanthus multiflorus*, *Hippeastrum* × *johnsonii*, *Proiphys amboinensis*, *Zephyranthes atamasco*, *Z. candida*, and *Z. grandiflora*), and one variant of *Crinum asiaticum*, most of which are planted in gardens, have been documented for the first time in Bangladesh.

**Key to genera**

- |  |                     |
|--|---------------------|
| 1. Inflorescence surrounded by involucre bracts or spathes   | <b>2</b>            |
| - Inflorescence not surrounded by involucre bracts   | <b>9</b>            |
| 2. Scape 1-flowered  | <b>Zephyranthes</b> |
| - Scape more than 1-flowered   | <b>3</b>            |
| 3. Leaves radical, scapose   | <b>Allium</b>       |
| - Leaves not scapose, usually strap shaped   | <b>4</b>            |
| 4. Scape hollow, arising with or just after the leaves   | <b>Hippeastrum</b>  |
| - Scape solid  | <b>5</b>            |
| 5. Flowers without staminal corona   | <b>6</b>            |
| - Flowers with staminal corona   | <b>7</b>            |
| 6. Leaves usually evergreen  | <b>Crinum</b>       |
| - Leaves appearing along with or after the appearance of scape   | <b>Haemanthus</b>   |
| 7. Leaves without petiole; corona soft   | <b>Pancratium</b>   |
| - Leaves with petiole; corona hard and waxy  | <b>8</b>            |
| 8. Corona 6-partite; scape more than 10-flowered   | <b>Proiphys</b>     |
| - Corona united; scape up to 10-flowered   | <b>Eucharis</b>     |
| 9. Leaves reduced to minute scales, often spinescent, bearing in their axils tufts of leaf-like cladodes | <b>Asparagus</b>    |
| - Leaves simple  | <b>10</b>           |
| 10. Inflorescence branched   | <b>Hemerocallis</b> |
| - Inflorescence unbranched   | <b>11</b>           |
| 11. Fruit indehiscent  | <b>12</b>           |
| - Fruit dehiscent  | <b>13</b>           |
| 12. Perianth tube produced above the ovary; stamens perigynous   | <b>Curculigo</b>    |
| - Perianth tube not produced above the ovary; stamens epigynous  | <b>Molineria</b>    |
| 13. Aerial annual stem climbing, leafy; leaves with tendril-like tips                                    | <b>Gloriosa</b>     |
| - Aerial annual stem or scape erect, leafless  | <b>14</b>           |
| 14. Inflorescence 1 or 2-flowered  | <b>Hypoxis</b>      |
| - Inflorescence many-flowered  | <b>15</b>           |
| 15. Perianth campanulate; seeds many   | <b>Urginea</b>      |
| - Perianth not campanulate; seed usually 1   | <b>Asphodelus</b>   |

**Systematic enumeration of taxa****Allium** [Tourn.] Linn., Syst. ed. 1 (1735).**Key to species**

- |  |                     |
|--|---------------------|
| 1. Leaves fistular   | <b>A. cepa</b>      |
| - Leaves flat  | <b>2</b>            |
| 2. Bulb long, cylindric, simple; heads bearing flowers only    | <b>A. tuberosum</b> |
| - Bulb short, compound; heads bearing both flowers and bulbils | <b>A. sativum</b>   |

1. **Allium cepa** L., Sp. Pl. ed. 1: 300 (1753).

*Local name: Peyaj.*

An annual herb. Leaves fistular, heads dense. Flowers white with mid-green line in tepals. Fruit a capsule. Seeds compressed, black. *Fl. & Fr.*: February-June. Cultivated.

*Specimens examined: Dhaka:* Dhaka University Botanical Garden, 23.4.1940, Atul (DUH); 11.1.2007, Sumona 6 (DUH); 19.3.2007, Sumona 9 (DUH).

2. **Allium sativum** L., Sp. Pl. 1: 296 (1753).

*Local name: Rashun.*

An erect, annual herb. Leaves flat, heads bearing both flowers and bulbils. Flowers greenish-white. Fruits seedless. *Fl. & Fr.*: February-April. Cultivated.

*Specimen examined: Munsigonj:* Shirajdikhan, 23.3.2008, Sumona 48 (DUH).

3. **Allium tuberosum** Rottler *ex* Spreng., Syst. 2: 38 (1825). *A. uliginosum* G. Don, Mem. Wern. Soc. 6: 60 (1827).

*Local name: Banga gandina.*

An erect, annual herb. Leaves flat, heads bearing only flowers. Flowers white or pink. Fruits obcordate. *Fl. & Fr.*: June-August. Cultivated.

*Specimen examined: Maulvi Bazar:* Srimangal (Khasia Palli), 25.8.1998, M. Yusuf 1062 (BCSIR Lab.).

**Asparagus** Tourn. *ex* Linn., Syst. ed. 1 (1735).**Key to species**

- |  |                       |
|--|-----------------------|
| 1. Branchlets and cladodes arranged like a fern frond                  | <b>2</b>              |
| - Branchlets and cladodes not arranged like a fern frond               | <b>3</b>              |
| 2. Inflorescence 5-9 flowered; cladodes 2-9 per node                   | <b>A. densiflorus</b> |
| - Inflorescence 1-4 flowered; cladodes 10-15 per node                  | <b>A. setaceus</b>    |
| 3. Stem not terete, rather triquetrous                                 | <b>A. acerosus</b>    |
| - Stem terete  | <b>4</b>              |
| 4. Flowers pendulous, solitary or in pairs in the leaf axils           | <b>A. officinalis</b> |
| - Flowers not pendulous, more than 2 flowers cluster in the leaf axils | <b>5</b>              |

5. Spines straight **A. adscendens**  
 - Spines reflexed **A. racemosus**
4. **Asparagus acerosus** Roxb., Fl. Ind. 2: 150 (1832). *Asparagopsis acerosa* Kunth, Enum. Pl. 5: 102 (1850).  
*Local name: Shatamuli.*  
 A perennial, sub-scandent undershrub. Stem triquetrous. Flowers white. Fruit a berry, 1-seeded. *Fl. & Fr.*: November-March. Native/naturalized.  
*Specimens examined: Tangail:* Madhupur, 29.6.1969, Alo Rani 306 (DUH); Madhupur, 29.6.1969, Asiya 118 (DUH); Madhupur, 29.6.1969, Panna 115 (DUH); Madhupur, 22.12.1982, Mia 892 (DACB); Madhupur, 28.2.1987, Huq *et al.* 8215 (DACB).
5. **Asparagus adscendens** Roxb., Fl. Ind. 2: 153 (1832). *Asparagopsis adscendens* Kunth, Enum. Pl. 5: 102 (1850).  
*Local name: Shatamuli.*  
 A dioecious, evergreen shrub with white tuberous roots. Stem terete, spines straight. Fruit a berry, 1-seeded. Native/naturalized.  
*Specimen examined: Gazipur:* Sal forest, 10.12.1944, Badal Singh (DUH).
6. **Asparagus densiflorus** (Kunth) J.P. Jessop, Bothalia 9: 51 (1966). *Asparagopsis densiflora* Kunth, Enum. Pl. 5: 96 (1850); *Asparagus sprengeri* Regel, Act. Hort. Petrop. 11: 302 (1890); *Protasparagus densiflorus* (Kunth) A.A. Oberm., Fl. South Afr. 5(3): 49 (1992).  
 An evergreen, perennial herb with more or less tuberous roots. Flowers greenish-white with orange anthers. Fruit a bright-red berry, 3-seeded. *Fl. & Fr.*: February-April. Cultivated.  
*Specimens examined: Dhaka:* Baldha Garden, 23.3.2007, Sumona 11 (DUH); Baldha Garden 26.4.2007, Sumona 23 (DUH).
7. **Asparagus officinalis** L., Sp. Pl.: 313 (1753).  
 A dioecious, erect, perennial herb with a robust tuberous rhizome. Flowers white or pink. Fruit a globose berry, red, 1-6-seeded. *Fl. & Fr.*: March-July. Cultivated.  
*Specimen examined: Dhaka:* Dhaka University Botanical Garden, 15.5.2008, Sumona 49 (DUH).
8. **Asparagus racemosus** Willd., Sp. Pl. 2: 152 (1799).  
*Local names: Satmuli, Shatamuli, Hilungbupang* (Tippara).

A perennial, slender, scandent or twinning shrub. Stem terete, spines reflexed. Flowers white with purplish anthers and sweet scented. Fruit a globose berry, turn red when ripe, 1-seeded. *Fl. & Fr.*: November-March. Native/naturalized.

*Specimens examined: Dhaka*: Dhaka University Botanical Garden, 5.2.1983, M.A. Hassan 501 (DUH); Dhaka University Campus (Science Library), 4.2.2006, Sumona 1 (DUH); Dhaka University Campus (Ekushey Hall), 2.12.2006, Sumona 4 (DUH); Dhaka University Botanical Garden, 21.5.2007, Sumona 34 (DUH).

9. **Asparagus setaceus** (Kunth) J.P. Jessop, *Bothalia* 9: 51 (1966). *Asparagopsis setacea* Kunth, Enum. Pl. 5: 82 (1850); *Asparagus plumosus* Baker, J. Linn. Soc. 14: 613 (1875).

*Local name: Fern asparagus.*

A woody vine, branchlets and cladodes arranged like a fern frond. Flowers white, fragrant. Fruit a berry, purplish-black, 1-3-seeded. *Fl. & Fr.*: February-June. Cultivated.

*Specimens examined: Dhaka*: Nazimuddin Road, 20.1.1956, Shajahan (DUH); Baldha Garden, 17.2.1988, Rezia *et al.* 249 (DACB).

#### **Asphodelus** [Tourn.] Linn., Syst. ed. 1 (1735).

10. **Asphodelus tenuifolius** Cavan, Anal. Cienc. Nat. 3: 46, t. 27 (1801). *A. fistulosus* L., Sp. Pl.: 309 (1753); *A. parviflorus* Wight, Ic. t. 2062 (1853).

An annual herb. Flowers white with a brownish costa. Fruit a globose capsule. Seeds trigonal with 3-4 dorsal ridges. *Fl. & Fr.*: May-July. Native/naturalized.

*Specimens examined: Chuadanga*: Chuadanga, 2.1.1976, Huq, Rahman and Mia 1758 (DACB). **Kushtia**: 24.4.1957, M.Q. Kabir 52 (DUH). **Narayanganj**: Postogola, 21.5.1970, M.A. Rahman 133 (DUH). **Rajshahi**: Biral dah, 5.2.1973, Huq 778 (DACB).

#### **Crinum** L., Gen. Pl. ed. 1: 97 (1737); Sp. Pl.: 291 (1753).

##### **Key to species**

- |   |                                 |
|---|---------------------------------|
| 1. Perianth tube straight, erect                                    | 2                               |
| - Perianth tube curved, declinate                                   | 3                               |
| 2. Umbels more than 15-flowered                                     | 4                               |
| - Umbels up to 15-flowered  | 5                               |
| 3. Leaf margin scabrous; perianth vertically reddish on the back    | <b>C. latifolium</b>            |
| - Leaf margin smooth; perianth white                                | <b>C. jagus</b>                 |
| 4. Scape and perianth tube green                                    | <b>C. asiaticum</b>             |
| - Scape and perianth tube purplish                                  | <b>C. asiaticum</b> , a variant |
| 5. Bulbs with a fusiform, stoloniferous base; perianth lobes linear | <b>C. defixum</b>               |
| - Bulbs not stoloniferous; perianth lobes lanceolate                | 6                               |

6. Leaves acuminate, scabrous; perianth lobes shorter than the tube **C. amoenum**  
 - Leaves obtuse or sub-acute; perianth lobes longer than the tube **C. pratense**

11. **Crinum amoenum** Roxb., Fl. Ind. 2: 127 (1832).

*Local name: Gang kachu.*

A bulbous perennial herb. Leaf margin scabrous. Flowers white, filament purple in upper half portion. Fruit a capsule. *Fl. & Fr.:* May-August. Native/naturalized.

*Specimens examined: Dhaka:* Uttara (Sector-5), 24.5.2007, Sumona 36 (DUH); Baldha Garden, 26.5.2007, Sumona 38 (DUH).

12. **Crinum asiaticum** L., Sp. Pl.: 292 (1753). *Crinum toxicarium* Roxb., Fl. Ind. 2: 134 (1832).

*Local names: Bara kanur, Gaerhonar pata, Kachori, Nagdal, Sukhdarshan.*

A perennial herb. Flowers white. Fruit a capsule, green. Seeds round, concave. *Fl. & Fr.:* March-November. Treated here as *Crinum asiaticum* L., proper. *Chromosome no.:*  $2n = 22$  (Lubna *et al.* 2004). Native/naturalized.

*Specimens examined: Dhaka:* Dhaka University Botanical Garden, 1.7.1968, Mozahar 155 (DUH); Uttara (Sector-3), 12.7.2007, Sumona 43 (DUH); Dhaka University Botanical Garden, 8.8.2007, Sumona 41 (DUH). **Jhalakathi:** Chankati, 3.3.1987, Huq and Mia 6667 (DACB).

13. **Crinum asiaticum** L., a variant.

*Local name: Sukhdarshan.*

A perennial herb. Flowers purplish. Fruit and seed were not found. *Fl. & Fr.:* almost throughout the year. *Chromosome no.:*  $2n = 33$  (Lubna *et al.* 2004). Cultivated. It is perhaps a triploid plant.

*Specimen examined: Dhaka:* Dhaka University Botanical Garden, 15.11.2006, Sumona 3 (DUH).

14. **Crinum defixum** Ker-Gawl., Quart. Journ. Sci. 3: 105 (1817). *C. asiaticum* Roxb., Hort. Beng. 23 (1814).

*Local name: Sukhdarshan.*

A very stout, bulbous herb. Flowers white, perianth tube straight, erect. Fruit an ellipsoid capsule, 1-2-seeded. *Fl. & Fr.:* May-August. Native/naturalized.

15. **Crinum jagus** (Thomps.) Dandy, Journ. Bot. Lond. 77: 64 (1939). *Amaryllis jagus* Thomps., Bot. Displ. t. 6 (1798); *C. giganteum* Andr., Bot. Rep. t. 169 (1810).

*Local name: Sukhdarshan.*

A bulbous, perennial herb. Flowers white, fragrant, perianth tube curved. Fruit a subglobose capsule. *Fl. & Fr.*: April-July. Cultivated.

*Specimens examined: Dhaka:* Dhaka University Campus (Science Library), 3.5.2007, Sumona 25 (DUH); Dhaka University (Charukala Campus), 26.5.2007, Somona 39 (DUH).

16. **Crinum latifolium** L., Sp. Pl.: 291 (1753). *C. zeylanicum* L., Syst. ed. 12 (1767); *C. moluccanum* Roxb., Fl. Ind. 2: 140 (1832); *C. ornatum* Herb., Amaryll.: 262 (1837).

*Local name: Sukhdarshan.*

A bulbous, perennial herb. Flowers white, more or less streaked or tinged with red towards the centre, sometimes red-purple, nearly all over dorsal surface. Fruit a subglobose capsule, pinkish-maroon. *Fl. & Fr.*: May-September. Native/naturalized.

*Specimens examined: Dhaka:* Dhaka University Botanical Garden, 28.4.2007, Somona 24 (DUH); Dhaka University Campus (Science Library), 19.9.2007, Sumona 44 (DUH).

17. **Crinum pratense** Herb., Amaryll.: 256 (1837). *C. longifolium* Roxb., Fl. Ind. 2: 130 (1832).

*Local names: Bon peyaj, Sukhdarshan.*

A bulbous, perennial herb. Flowers white, perianth lobes longer than the tube. Fruit a capsule. *Fl. & Fr.*: May-August. Native/naturalized.

*Specimen examined: Dhaka:* Dhaka University Botanical Garden, 1.6.2000, Zashim Uddin 835 (DACB).

**Curculigo** Gaertn., Fruct. 1: 63, t. 16 (1788).

#### Key to species

1. Slender herbs; leaves small, linear; flowers in distichous spikes on scapes, hidden by the leaf-sheaths **C. orchioides**
  - Large stout herbs; leaves large, lanceolate, plicate; flowers on scapes projecting beyond the leaf-sheaths **C. latifolia**
18. **Curculigo latifolia** [Dryand.] Ait., Hort. Kew. ed. 2, 2: 253 (1811). *C. sumatrana* Roxb., Fl. Ind. 2: 146 (1832); *Molineria latifolia* (Dryand.) Herb. ex Kurz, Tijds. Ned. Ind. 27: 232 (1864).
- A large, stout herb. Flowers on scape projecting beyond the leaf-sheaths, unisexual (male) and bisexual, yellow. *Fl. & Fr.*: May-October. Native/naturalized.
- Specimen examined: Sylhet:* Rema-Kalenga range, 24.5.1999, Zashim Uddin 719 (DACB).



19. **Curculigo orchioides** Gaertn., Fruct. 1: 63, t. 16 (1788). *C. brevifolia* [Dryand.] Ait., Hort. Kew. ed. 2, 2: 253 (1811).

*Local name: Talmuli.*

A slender herb. Flowers distichous, hidden by the leaf-sheaths, the lowest bisexual, all the rest male, yellow. Fruit a capsule, 1-4-seeded. Seeds black. *Fl. & Fr.*: June-August. Native/naturalized.

*Specimens examined: Bandarban:* Kechua, 22.8.1987, Khan, Huq and Mia 7788 (DACB); **Chittagong:** Sitakund, 24.6.1979, Mia and Rahman 158 (DACB); 3.10.1940, S.K. Sen (DUH); **Cox's Bazar:** Goalmara Beat, 4.8.1990, Khan, Huq and Alam 8426 (DACB); **Dinajpur:** Singra (Sal forest), 25.8.1998, Mia *et al.* 4242 (DACB); **Sylhet:** Astagram, 21.4.1985, Huq and Mia 7032 (DACB).

**Eucharis** Planch. and Linden, Cat. no. 8: 3 (1853) *et in* Fl. des Serres, Ser. 1, 8: 107 (1852-1853).

20. **Eucharis grandiflora** Planch. and Linden, Fl. des Serr. Ser. 1, 9: 255 (1853-1854).

A bulbous, perennial herb. Leaves lanceolate. Flowers white with staminal corona, waxy. *Fl. & Fr.*: May-July. Cultivated.

*Specimen examined: Dhaka:* Dhaka University Campus (Science Library), 6.6.2007, Sumona 40 (DUH).

**Gloriosa** L., Syst. ed. 1 (1735); Sp. Pl.: 305 (1753).

21. **Gloriosa superba** L., Sp. Pl.: 305 (1753). *G. simplex* D. Don, Prod. Fl. Nep. 51 (1825).

*Local names: Agnishikha, Bilambuli, Bishlanguli, Kalihari, Ulatchandal.*

A climbing herb. Flowers axillary, greenish at first, then turning yellow, and in sequence to orange, scarlet and finally crimson. Fruit a capsule. Seeds sub-globose, orange. *Fl. & Fr.*: July-November. Native/naturalized.

*Specimens examined: Dhaka:* Baldha Garden, 16.8.1966, Zeyauddin 223 (DUH); Govt. Nursery, 11.10.1970, M.A. Rahman 268 (DUH); Dhaka University Botanical Garden, 25.9.2007, Somona 47 (DUH). **Dinajpur:** Biral (Mayer pukur), 28.8.1998, Mia *et al.* 4392 (DACB). **Gazipur:** Zoydebpur, 28.6.1969, Subhash Chandra Ghosh 88 (DUH).

**Haemanthus** [Tourn.] L., Syst. ed. 1 (1735).

22. **Haemanthus multiflorus** Martyn *ex* Willd., Sp. Pl. 2: 25 (1799). *Scadoxus multiflorus* Rafin., Fl. Tell. 5: 19 (1836).

*Local names: Agni golock, Ball phul, May flower.*

A bulbous, perennial herb. Flowers reddish-pink. Fruit a berry, globose, red when ripe. *Fl. & Fr.*: May-June (flowers usually in May). Cultivated.

*Specimens examined: Dhaka*: Dhaka University Botanical Garden, 28.5.1968, Mozahar 131 (DUH); Dhaka University Botanical Garden, 5.5.2007, Sumona 27 (DUH).

**Hemerocallis** L., Syst. ed. 1 (1735); Sp. Pl.: 324 (1753).

23. **Hemerocallis fulva** L., Sp. Pl. ed. 2: 462 (1764). *H. disticha* Donn, Hort. Contab. ed. 6: 93 (1811); *H. longituba* Miq., Ann. Mas. Bot. Lugd. Bat. 3: 152 (1867).

*Local name: Komola lily.*

A showy herb. Flowers orange. Fruit a loculicidal capsule. Seeds black, shining. *Fl. & Fr.*: June-July. Cultivated.

*Specimens examined: Dhaka*: Dhaka University Botanical Garden, 28.5.1968, Mozahar 133 (DUH); Dhaka University Botanical Garden, 30.6.1970, Huq 81 (DACB); Dhaka University Botanical Garden, 12.5.2007, Sumona 33 (DUH).

**Hippeastrum** Herb., App. Bot. Reg.: 31 (1821).

24. **Hippeastrum** × **johnsonii**, a hybrid between *H. reginae* Herb. and *H. vittatum* Herb., Herbartia 15: 31-35 (1959).

*Local name: Lal lily.*

A herb with subterranean bulb. Flowers showy, funnel-shaped, more or less declinate, perianth red with white stripe towards the centre. *Fl. & Fr.*: March-May. Cultivated.

*Specimen examined: Dhaka*: Dhaka University Campus (Science Library), 24.3.2007, Sumona 14 (DUH).

**Hypoxis** L., Syst. ed. 10: 986 (1759).

25. **Hypoxis aurea** Lour., Fl. Cochinch.: 200 (1790). *H. minor* D. Don, Prod. Fl. Nep. 53 (1825); *Curculigo graminifolia* Nimmo, J. Grah. Cat. Pl. Bomb. 215 (1839); *Hypoxis franquevillii* Miq., Fl. Ind. Bat. 3: 586 (1858).

A small, perennial herb. Inflorescence 1 or 2-flowered. Flowers yellow. Fruit a capsule. Seeds sub-globose, black, tuberculate. *Fl. & Fr.*: May-August. Cultivated.

**Molineria** Colla, Hort. Repub. App. 2: 333, t. 18 (1826).

26. **Molineria recurvata** (Dryand.) Herb., Amaryll.: 84 (1834). *Leucojum capitulatum* Lour., Fl. Cochinch. 199 (1790); *Curculigo recurvata* [Dryand.] Ait., Hort. Kew. ed. 2, 2: 253 (1811); *C. capitulata* (Lour.) O. Kuntze, Rev. Gen. 703 (1891).

*Local name: Satipata.*

A stout herb. Flowers yellow. Ovary hardly produced upwards into a long beak or stipe. Fruit a berry, more than 20-seeded. Seeds black. *Fl. & Fr.*: June-September. Native/naturalized.

*Specimens examined: Dhaka:* Dhaka University Botanical Garden, 5.9.2006, Sumona 2 (DUH). **Cox's Bazar:** Teknaf, 25.3.1973, M.M. Islam 792 (DUH); Teknaf, 16.6.1991, Khan *et al.* 8475 (DACB). **Mymensingh:** Haluaghat, 23.5.1989, Mia 2034 (DACB). **Rangamati:** Kaptai, 24.4.1997, Khan *et al.* 9835 (DACB). **Sylhet:** Lawachhera, 15.8.1976, Khan *et al.* 4227 (DACB).

**Pancratium** Dill. *ex* Linn., Syst. ed. 1 (1735).

### Key to species

- |  |                      |
|--|----------------------|
| 1. Staminal cup not bi-fid between the filaments | <b>P. biflorum</b>   |
| - Staminal cup bi-fid between the filaments      | <b>2</b>             |
| 2. Scape equal or longer than the leaves         | <b>P. verecundum</b> |
| - Scape shorter than the leaves                  | <b>P. triflorum</b>  |

27. **Pancratium biflorum** Roxb., Fl. Ind. 2: 125 (1832). *Pancratium longiflorum* Buch.-Ham. *ex* Roxb., Fl. Ind. 2: 125 (1832).

A perennial, bulbous herb. Flowers white with funnel-shaped, erose staminal corona. Fruit a capsule, 3-angled. *Fl. & Fr.*: May-September. Cultivated.

*Specimen examined: Dhaka:* Baldha Garden, 23.3.2007, Sumona 12 (DUH).

28. **Pancratium triflorum** Roxb., Fl. Ind. 2: 126 (1832). *P. malabathricum* Herb., Amaryll.: 202, 206 (1837); *Crinum pauciflorum* Miq. *ex* Hook. f., Fl. Brit. Ind. 6: 285 (1892).

A perennial herb. Flowers white with broadly 2-toothed staminal corona between the filaments. *Fl. & Fr.*: April-May. Native/naturalized.

*Specimen examined: Khagrachari:* Khagrachari, 6.4.2004, M. Yusuf 1602 (BCSIR Lab.).

29. **Pancratium verecundum** Ait., Hort. Kew. 1: 412 (1810).

*Local names: Bakphul, Gor rashun.*

A perennial, bulbous herb. Flowers spider-like, with 2-toothed staminal corona between the filaments. Fruit a sub-globose capsule. Seeds angled. *Fl. & Fr.*: March-July. Native/naturalized.

*Specimen examined: Dhaka:* Dhaka University Botanical Garden, 5.2.2007, Sumona 7 (DUH).

**Proiphys** Herb., App. [Bot. Reg.] 42 (1821).

30. **Proiphys amboinensis** (L.) Herb., App. [Bot. Reg. 7] 42 (1821). *Pancratium amboinensis* L., Sp. Pl.: 291 (1753); *Eurycles sylvestris* Salisb., Trans. Hort. Soc. 1: 337 (1812); *E. amboinensis* (L.) Lindl. in Loud., Enc. Pl. 242 (1829).

A herb with tunicated bulb. Leaves cordate-reniform. Flowers white, waxy. Staminal corona 6-partite. Fruit a globose berry. *Fl. & Fr.*: April-August. Cultivated.

*Specimens examined: Dhaka:* Govt. Nursery, 26.4.1946, Sukhdeo (DUH); Dhaka University Botanical Garden, 25.5.1968, Mozahar 129 (DUH); Dhaka University Botanical Garden, 5.5.2007, Sumona 28 (DUH).

**Urginea** Steinh., Ann. Sc. Nat. Ser. 2, t. 14, 1: 322 (1834).

31. **Urginea indica** (Roxb.) Kunth, Enum. Pl. 4: 333 (1843). *Scilla indica* Roxb., Fl. Ind. 2: 147 (1832); *S. coromandeliana* Roxb., Fl. Ind. 2: 147 (1832); *Urginea coromandeliana* (Roxb.) Hook. f., Fl. Brit. Ind. 6: 347 (1892); *U. senegalensis* Kunth, Enum. Pl. 4: 334 (1843).

*Local names: Bon peyaj, Jongli peyaj, Kanda, Shamudra peyaj.*

A perennial, bulbous herb. Flowers campanulate, greenish-white. Fruit a capsule, brownish-yellow. Seeds black, compressed. *Fl. & Fr.*: February-May. Native/naturalized.

*Specimen examined: Dhaka:* Dhaka University Botanical Garden, 6.4.2007, Sumona 20 (DUH).

**Zephyranthes** Herb., App. [Bot. Reg.] 36 (1821).**Key to species**

- |  |                       |
|--|-----------------------|
| 1. Leaves terete; spathe covering the ovary            | <b>Z. candida</b>     |
| - Leaves flat; spathe not covering the ovary           | <b>2</b>              |
| 2. Spathe bi-fid                                       | <b>3</b>              |
| - Spathe not bi-fid                                    | <b>Z. tubispatha</b>  |
| 3. Perianth segments 6 or up to 8, pink colour         | <b>Z. grandiflora</b> |
| - Perianth segments 6, white but turn pink at maturity | <b>Z. atamasco</b>    |

32. **Zephyranthes atamasco** (Linn.) Herb., App. Bot. Reg.: 36 (1821). *Amaryllis atamasco* Blanco, Fl. Filip. 254 (1837).

*Local name: Sada ghash-phul.*

A perennial, bulbous herb. Flowers white but turn pink as it ages. Fruit a capsule. *Fl. & Fr.*: April-May. Cultivated.

*Specimen examined:* **Dhaka:** Dhaka University Botanical Garden, 11.4.2007, Sumona 21 (DUH).

33. **Zephyranthes candida** (Lindl.) Herb., Bot. Mag. 53: t. 2607 (1826). *Amaryllis candida* Lindl., Bot. Reg. (1825).

*Local name:* Sada ghash-phul.

A perennial, clump-forming, bulbous herb. Flowers white, spathe covering the ovary. Fruit a sub-globose capsule, yellowish-green. Seeds angular, flattened, testa black. *Fl.* & *Fr.*: August-November. Cultivated.

*Specimen examined:* **Dhaka:** Dhaka University Campus (Science Library), 20.9.2007, Sumona 46 (DUH).

34. **Zephyranthes grandiflora** Lindl., Bot. Reg.: t. 902 (1825). *Z. carinata* Herb., Bot. Mag. t. 2594 (1825); *Z. rosea* Lindl., Bot. Reg. t. 821 (1825).

*Local name:* Golapi ghash-phul.

A bulbous, clump-forming, perennial herb. Flowers pink, spathe bi-fid. Fruit a capsule, deep green. Seeds angular, flattened, testa black. *Fl.* & *Fr.*: June-October. Blooming soon after a heavy rainfall. Cultivated.

*Specimen examined:* **Dhaka:** Dhaka University Botanical Garden, 19.9.2007, Sumona 45 (DUH).

35. **Zephyranthes tubispatha** (L'Her.) Herb. ex Traub, Taxon 7: 110 (1958). *Amaryllis tubispatha* L'Her., Sert. Angl. 9 (1789); *Z. nervosa* Herb., Amaryll.: 172 (1837).

*Local name:* Holde ghash-phul.

A small, perennial herb. Flowers yellow. Fruit a capsule, yellowish-green. Seeds angular, flattened, testa black. *Fl.* & *Fr.*: June-September. Native/naturalized.

*Specimens examined:* **Dhaka:** Dhaka University Botanical Garden, 10.4.1968, Mozahar 101 (DUH); Dhaka University Botanical Garden, 26.5.2007, Sumona 37 (DUH).

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