

## ADDITIONS TO THE ANGIOSPERMIC FLORA OF RUNCTIA SAL FOREST, BANGLADESH

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### Abstract

In the present paper additional occurrence of 100 species in 75 genera under 40 angiosperm families in the Runtia Sal Forest of Sherpur district is reported. Of these, 71 species in 56 genera are from Magnoliopsida (Dicots) and 29 species in 19 genera are from Liliopsida (Monocots). These species exhibit in diverse life forms in the area, *viz.*, 54 species are herbs, 21 species shrubs, 12 species climbers and 13 trees. *Holigarna longifolia* is threatened in the Sal forest area which needs to give conservation priorities. An enumeration of the species recorded is presented with important synonyms, Bengali names, habit, habitat and representative specimens.

### Introduction

The Runtia Sal Forest in Sherpur district of Bangladesh is a type of deciduous forest. The floristic diversity of the forest has recently been studied and two subsequent reports on the Magnoliopsida and Liliopsida have been published with the occurrence of 153 and 49 species respectively (Tutul *et al.* 2009, 2010). Details about the forest have been stated in Tutul *et al.* (2009). Further investigation to the same forest area has been carried out for extensive survey and collection of additional species which have not been able to collect in the previous field trips. The determination of collected specimens was made and a total of 100 species are recognized, as additions to the previous accounts.

### Materials and Methods

The specimens were collected from different habitats of the forest including forest floors, plain lands, forest margins, streams, swamps, hill slopes and hill tops during 2009-2010. The specimens were identified at Dhaka University Herbarium (DUH), currently known as Salar Khan Herbarium and identifications were confirmed by consulting Hooker (1872-1897), Prain (1903), Kanjilal *et al.* (1934, 1938, 1939, 1940), Dassanayake and Fosberg (1980-1985), Khan (1972-1987), Khan and Rahman (1989-2002), Hajra *et al.* (1997) and Singh *et al.* (2000). The voucher specimens were kept at the Salar Khan Herbarium. An enumeration of these species is prepared with updated nomenclature, important synonyms, habit, habitat, representative specimen and Bengali names (wherever available) of each taxon. In the enumeration, the arrangement of the families is followed according to the system of Cronquist (1981).

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## Taxonomic Enumeration

### MAGNOLIOPSIDA (DICOTS)

#### 1. Annonaceae

**Miliusa velutina** (Dunal) Hook. f. & Thom., Fl. Ind.: 139 (1855). *Uvaria velutina* Dunal (1817). Local name: *Gandhi-gajari*.

A deciduous tree. On the forest floor. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 609 (DUH).

#### 2. Lauraceae

**Dehaasia kurzii** King *ex* Hook. f., Fl. Brit. Ind. 5: 125 (1886). Local name: *Modon-mosto*.

An evergreen tree with subverticillate leaves. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 487 (DUH).

#### 3. Moraceae

**Ficus hispida** L. f., Suppl. Pl.: 442 (1781). *Ficus oppositifolia* Roxb. (1798).

A large shrub to small tree. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 423 (DUH).

**Ficus semicordata** Buch.-Ham. *ex* Smith in Rees, Cycl. 14: Ficus n. 71 (1810). *Ficus cunia* Buch.-Ham. *ex* Roxb. (1832).

A small tree. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 462 (DUH).

**Ficus religiosa** L., Sp. Pl.: 1059 (1753). *Urostigma religiosum* (L.) Gasp. (1853). Local name: *Ashwatha*.

A medium-sized to large deciduous tree. On the hill slope. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 573 (DUH).

#### 4. Urticaceae

**Sarcochlamys pulcherrima** Gaudich., Voy. Bot.: t. 89 (1826). *Urtica pulcherrima* Roxb. (1832).

A shrub or small tree. Near the swamps of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 455 (DUH).

#### 5. Nyctaginaceae

**Boerhaavia diffusa** L., Sp. Pl. 1: 3 (1753). *Boerhaavia repens* L. (1753).

A perennial creeping or climbing herb. Rocky and sandy places of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 599 (DUH).

## 6. Amaranthaceae

**Achyranthes aspera** L., Sp. Pl. 1: 204 (1753). *Cyathula geniculata* Lour. (1790). Local name: *Upatlengra*.

An erect, perennial herb. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 483 (DUH).

**Aerva lanata** (L.) Juss. *ex* Schult., Syst. Veg. 15(5): 564 (1819). *Aerva elegans* Miq. (1849). Local name: *Chaya*.

An erect, perennial herb. On forest margin. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 403 (DUH).

**Alternanthera sessilis** (L.) R. Br. *ex* Roem. & Schult., Syst. 5: 554 (1819). *Achyranthes villosa* Blanco (1837). Local name: *Highcha*.

A much branched herb. Near the swamps of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 508 (DUH).

**Deeringia amaranthoides** (Lamk.) Merr., Int. Rumph. Herb. Amb.: 211 (1917). *Achyranthes amaranthoides* Lamk. (1785).

A scandent or subscandent shrub. On the forest edges. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 632 (DUH).

## 7. Polygonaceae

**Persicaria barbata** (L.) Hara, Fl. East. Himal.: 70 (1966). *Polygonum barbatum* L. (1753).

An ascending herb. Near the swamps of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 473 (DUH).

**Persicaria flaccida** (Meissn.) H. Gross *ex* Loesen., Beih. Centralbl. 37: 112 (1919). *Polygonum flaccidum* Meissn. (1832). Local name: *Lal-bishkatali*.

An annual herb. Near the swamps of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 590 (DUH).

## 8. Clusiaceae

**Garcinia pedunculata** Roxb. *ex* Buch.-Ham. in Brewster, Edinburgh J. Sci. 7: 45, t. 1 (1827).

A medium-sized, deciduous tree. On the hill slope. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 628 (DUH).

## 9. Elaeocarpaceae

**Elaeocarpus varunua** Buch.-Ham. *ex* Masters in Hook. f., Fl. Brit. Ind. 1: 407 (1874). Local name: *Belphoi*.

A large to medium-sized evergreen tree. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 408 (DUH).

## 10. Tiliaceae

**Corchorus fascicularis** Lamk., *Encycl.* 2: 104 (1786). *Corchorus brachycarpus* Guillemain (1831). Local name: *Jangli-pat*.

A suberect annual herb. Along sides of channel. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 611 (DUH).

**Grewia asiatica** L., *Mant. Pl.*: 122 (1767). *Grewia hainesiana* Hole (1917).

A shrub or small tree. Common on the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 438 (DUH).

**Triumfetta rhomboidea** Jacq., *Enum. Syst. Pl. Carib.*: 22 (1760). *Triumfetta bartramia* L. (1759). Local name: *Bon okra*.

A herb or undershrub. Open places of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 425 (DUH).

## 11. Malvaceae

**Hibiscus mutabilis** L., *Sp. Pl.*: 694 (1753). Local name: *Sthal padma*.

An erect robust shrub. On the hill top. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 569 (DUH).

**Hibiscus cannabinus** L., *Syst. Nat. ed. 10, 2*: 1149 (1759). Local name: *Mesta pat*.

An erect annual herb. On the hill top. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 528 (DUH).

## 12. Flacourtiaceae

**Flacourtia indica** (Burm. f.) Merr., *Interp. Rumph. Herb. Amb.*: 377 (1917). *Flacourtia rotundifolia* Clos (1877).

A much-branched and dense deciduous thorny shrub. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 413 (DUH).

## 13. Cucurbitaceae

**Hodgsonia macrocarpa** (Blume) Cogn. in DC., *Monog. Phan.* 3: 349 (1881). *Trichosanthes macrocarpa* Blume (1826).

A robust, woody climbing herb. On the forests and thickets. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 563 (DUH).

## 14. Myrsinaceae

**Ardisia icara** Wall. & A. DC., *Trans. Linn. Soc.* 17: 125, t. 7 (1834). A large shrub. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 430 (DUH).

**Maesa ramentacea** (Roxb.) A. DC., *Trans. Linn. Soc.* 17: 133 (1834). *Baeobotrys ramentacea* Roxb. (1824). Local name: *Bol-jakhandok*.

A large shrub or small tree. Moist shady places in the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 602 (DUH).

### 15. Caesalpiniaceae

**Senna alata** (L.) Roxb., Fl. Ind. 2: 349 (1832). *Cassia alata* L. (1753). Local name: *Dadmardan*.

A soft wooded shrubby plant. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 460 (DUH).

**Senna tora** (L.) Roxb., Fl. Ind. 2: 340 (1832). *Cassia tora* L. (1753). Local name: *Chakunda*.

An erect, profusely branched herb or undershrub. Common on the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 504 (DUH).

### 16. Fabaceae

**Crotalaria alata** D. Don, Prod. Fl. Nep.: 241 (1825).

A suberect herb. On the forest edges, also near swamps. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 520 (DUH).

**Desmodium gyroides** (Roxb. ex Link) DC., Prodr. 2: 326 (1825). *Hedysarum gyroides* Roxb. ex Link (1822).

A long shrub. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 452 (DUH).

**Desmodium heterocarpon** (L.) DC., Prodr. 2: 337 (1825). *Desmodium polycarpon* (Poir.) DC. (1825).

An erect or suberect undershrub. On the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 605 (DUH).

**Desmodium triflorum** (L.) DC., Prodr. 2: 334 (1825). *Hedysarum triflorum* L. (1753).

A small herb. Open place on the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 551 (DUH).

**Desmodium triquetrum** (L.) DC., Prodr. 2: 326 (1825). *Hedysarum triquetrum* L. (1753).

A shrub, branches triquetrous, glabrescent. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 445 (DUH).

**Desmodium velutinum** (Willd.) DC., Prodr. 2: 328 (1825). *Desmodium latifolium* (Roxb.) DC. (1825).

An erect undershrub. On the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 518 (DUH).

**Desmodium triquetrum** (L.) DC. subsp. **alatum** (DC.) Prain, J. Asiat. Soc. Beng. 66: 390 (1897). *Desmodium alatum* DC. (1825).

A shrub with triquetrous branches. On the hill slope. *Representative specimen*: Runcitia, 1.11.2009, Ershad Tutul 572 (DUH).

**Pueraria phaseoloides** (Roxb.) Benth., J. Linn. Soc. Bot. 9: 125 (1867). *Dolichos phaseoloides* Roxb. (1832).

A much-branched twining, woody climber. On the hill slope. *Representative specimen*: Runcitia, 1.11.2009, Ershad Tutul 604 (DUH).

**Pueraria phaseoloides** (Roxb.) Benth. var. **subspicata** (Benth.) van der Maesen, Agric. Univ. Wageningen Pap. 81(1): 84 (1985). *Pueraria subspicata* (Benth.) Benth. (1867).

A twinning herb. On the hill slope. *Representative specimen*: Runcitia, 1.11.2009, Ershad Tutul 605 (DUH).

**Spatholobus acuminatus** Benth. in Miq., Pl. Jungh.: 238 (1852). *Butea squamiger* (Prain) Blatter (1929).

A large climber, with glabrous branches. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 424 (DUH).

**Spatholobus parviflorus** (Roxb. ex DC.) O. Kuntze, Rev. Gen. Pl.: 205 (1891). *Butea parviflora* Roxb. ex DC. (1825).

An extensive evergreen climber. On the plants in hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 469 (DUH).

**Uraria lagopus** DC., Ann. Sc. Nat. Ser. 1, 4: 100 (1825). *Uraria rependa* Wall. ex Benth. (1832).

An erect undershrub. On the hill slope. *Representative specimen*: Runcitia, 1.11.2009, Ershad Tutul 562 (DUH).

**Vigna vexillata** (L.) A. Rich., Hist. Fis. Polit. Nat. 1, Cuba 11: 191 (1445). *Phaseolus vexillata* L. (1753).

A perennial climbing or trailing herb. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 416 (DUH).

## 17. Myrtaceae

**Syzygium balsameum** (Wight) Walp., Repert. 2: 17 (1843). *Eugenia balsamea* Wight (1841). Local name: *Buti jam*.

A large shrub or small tree with light grey bark. Near the swamps of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 489 (DUH).

## 18. Onagraceae

**Ludwigia perennis** L., Sp. Pl.: 119 (1753). *Jussiaea perennis* (L.) Brenan (1953).

An erect, unbranched herb. Near the swamps of the forest. *Representative specimen*: Runcitia, 1.11.2009, Ershad Tutul 544 (DUH).

**19. Melastomataceae**

**Osbeckia rostrata** D. Don, Prod. Fl. Nepal: 221 (1825). *Osbeckia stellata* var. *rostrata* (D. Don) Hansen (1977).

A small shrub. On the forest edges. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 451(DUH).

**20. Combretaceae**

**Calycopteris floribunda** (Roxb.) Lamk., Enc. Meth. Bot. Suppl. 2: 41 (1811). *Getonia floribunda* Roxb. (1798).

A diffuse or scandent shrub. On the hill top of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 457 (DUH).

**21. Euphorbiaceae**

**Glochidion velutinum** Wight, Ic. Pl. Ind. Or. 5(2): 29, t. 1907, f. 2 (1852). *Phyllanthus velutinus* (Wight) Muell.-Arg. (1865).

A small evergreen tree. On the hill slope. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 454 (DUH).

**Jatropha curcas** L., Sp. Pl. 2: 1006 (1762). Local name: *Sadajeol*.

A glabrous, soft-wooded shrub or small tree. On the forest margin. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 529 (DUH).

**Phyllanthus acidus** (L.) Skeels, U.S. Dept. Agric. Bur. Pl. Ind. Bull. 148: 17 (1909). *Averrhoa acida* L. (1753).

A deciduous glabrous tree. On the hill slope. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 515 (DUH).

**22. Rhamnaceae**

**Ziziphus rugosa** Lamk., Encycl. 3: 319 (1789). *Ziziphus tomentosa* Roxb. (1820). Local name: *Jangli boroi*.

A prickly shrub to small tree. On the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 442 (DUH).

**23. Vitaceae**

**Ampelopsis glandulosa** (Roxb.) Momiyama, Fl. Eastern Himalaya 2: 78 (1979). *Vitis glandulosa* (Roxb.) Wall. (1824).

A slender, branched climber. On the hill slopes. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 444 (DUH).

**24. Anacardiaceae**

**Holigarna longifolia** Roxb., Fl. Ind. 2: 80 (1824). Local name: *Barola*.

A tall tree with glabrous ash-coloured bark. Moist places in the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 465 (DUH).

## 25. Rutaceae

**Murraya koenigii** (L.) Spreng., Syst. Veg. 2: 315 (1825). *Chalcas koenigii* (L.) Kurz (1875). Local name: *Currypata*.

A large shrub or small tree. Moist places of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 414 (DUH).

## 26. Convolvulaceae

**Argyreia argentea** (Roxb.) Choisy, Mem. Soc. Phys. Geneve. 6: 418 (1833). *Lettsomea argentea* Roxb. (1824).

A common large climber. On the hill slope of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 461 (DUH).

**Aniseia martinicensis** (Jacq.) Choisy, Mem. Soc. Phys. Geneve. 8: 66 (1838). *Convolvulus martinicensis* Jacq. (1763).

A twiner. On the hill slope of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 55 4 (DUH).

## 27. Verbenaceae

**Clerodendrum indicum** (L.) O. Kuntze, Revis. Gen. Pl. 2: 506 (1891). *Clerodendrum verticillatum* D. Don (1825).

A shrub. On the hill top of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 579 (DUH).

## 28. Lamiaceae

**Anisomeles malabarica** (L.) R. Br. *ex* Sims, Bot. Mag.: t. 2071 (1819). *Anisomeles intermedia* Wight *ex* Benth. (1835).

A tall shrubby plant. Common on the hill slope. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 435 (DUH).

**Hyptis suaveolens** (L.) Poit., Ann. Mus. Par. 7: 472, t. 29 (1806). *Ballota suaveolens* L. (1759). Local name: *Tokma*.

A sweet smelling rigid herb. Along the forest edges. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 581 (DUH).

**Ocimum americanum** L., Cent. Pl. 1: 15 (1753). *Ocimum canum* Sims (1823). Local name: *Bon tulshi*.

An erect, aromatic herb. Open places of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 608 (DUH).



**Pogostemon paniculatus** (Willd.) Benth. in Wall., Pl. As. Rar. 2: 30 (1830). *Elsholtzia paniculata* Willd. (1801).

An erect, branched herb. On the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 523 (DUH).

### 29. Scrophulariaceae

**Limnophila heterophylla** (Roxb.) Benth., Scroph. Ind.: 25 (1835). *Columnnea heterophylla* Roxb. (1832).

An aquatic herb. Near the swamps of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 499 (DUH).

**Limnophila repens** (Benth.) Benth. in DC., Prodr. 10: 387 (1846). *Limnophila conferta* Benth. (1846).

An aquatic herb. Near the swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 555 (DUH).

**Limnophila sessiliflora** (Vahl) Blume, Bijdr.: 749 (1826). *Hottonia sessiliflora* Vahl (1791).

An aquatic herb. Near the swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 591 (DUH).

**Lindernia crustacea** (L.) F. Muell., Census Austral. Pl. 1: 97 (1882). *Capraria crustacea* L. (1767).

A small herb. Near the swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 513 (DUH).

**Lindernia procumbens** (Krocker) Philcox, Taxon 14: 30 (1965). *Anagalloides procumbens* Krocker (1790).

An aquatic herb. Near the swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 560 (DUH).

### 30. Acanthaceae

**Barleria prionitis** L., Sp. Pl.: 636 (1753). *Barleria flava* Jacq. (1781).

A branched shrub. On the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 521 (DUH).

**Lepidagathis incurva** Buch.-Ham. ex D. Don, Prodr. Fl. Nep.: 119 (1825). *Lepidagathis hyalina* Nees (1832).

A perennial, suberect herb. Moist places in the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 409 (DUH).

**Rungia pectinata** (L.) Nees in DC., Prodr. 11: 469 (1847). *Rungia parviflora* var. *pectinata* (L.) C. B. Clarke (1885). Local name: *Birlongopark*.

A much branched herb. On the hill slope. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 594 (DUH).

**Thunbergia fragrans** Roxb., Pl. Corom. 1: 47, t. 67 (1795). *Thunbergia fragrans* Roxb. var. *laevis* (Nees) C. B. Clarke (1884).

A twiner or climber. On the *Jarul* tree of this forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 565 (DUH).

### 31. Lentibulariaceae

**Utricularia bifida** L., Sp. Pl. 1: 18 (1753). *Utricularia recurva* Lour. (1790). Local name: *Chotojhanjhi*.

A very small, annual insectivorous herb. On moist places near the water body. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 527 (DUH).

### 32. Rubiaceae

**Dentella repens** (L.) J. R. & G. Forst., Char. Gen. Pl. Ins. Mar. Austr.: 26, t. 13 (1776). *Oldenlandia repens* L. (1768).

An aquatic herb. Near the swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 509 (DUH).

### 33. Asteraceae

**Sphaeranthus indicus** L., Sp. Pl. ed. 2: 1314 (1762). *Sphaeranthus hirtus* Willd. (1804).

An erect, annual herb. Cultivated by *Kuch* tribes in their inhabitants. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 550 (DUH).

**Spilanthes calva** DC. in Wight, Contrib. : 19 (1834). *Spilanthes acmella* auct. non. L., Thw. (1860).

An annual, glabrous herb. On the forest edges. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 517 (DUH).

**Synedrella nodiflora** (L.) Gaertn., Fruct. 2: 456, t. 171 (1791). *Verbesina nodiflora* L. (1787). Local name: *Highcha*.

An erect, branched, pubescent herb. On the hill slope of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 603 (DUH).

## LILIOPSIDA (MONOCOTS)

### 34. Xyridaceae

**Xyris indica** L., Sp. Pl.: 42 (1753). *Xyris robusta* Mart (1832).

A tufted herb. Marshy areas of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 536 (DUH).

**35. Commelinaceae**

**Commelina paleata** Hassk., Pl. Jungh.: 139 (1852).

A long creeping herb. On the wetlands of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 598 (DUH).

**Floscopa scandens** Lour., Fl. Cochin.: 192 (1790). *Dithyrocarpus rothii* Wight (1836).

A perennial herb. Near the swamps and on the edges of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 589 (DUH).

**36. Cyperaceae**

**Cyperus cuspidatus** Kunth in Humb., Bonpl. & Kunth, Nov. Gen. & Sp. Pl. 1: 204 (1815). *Cyperus uncinatus* Camus (1912).

An annual herb. On the edges and near the swamps of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 510 (DUH).

**Cyperus haspan** L., Sp. Pl. ed. 1: 45 (1753). *Cyperus micranthus* Presl. (1828).

An annual or perennial herb. Near the swamps of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 595 (DUH).

**Cyperus iria** L., Sp. Pl. ed. 1: 45 (1753). *Cyperus diaphaniria* Steud. (1855).

An annual or perennial herb. On the edges of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 537 (DUH).

**Cyperus pilosus** Vahl, Enum. Pl. 2: 354 (1806). *Cyperus obliquus* Nees (1834).

An annual herb. On the edges and near the wetland of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 535 (DUH).

**Cyperus procerus** Rottb., Descr. & Icon. Rar. Nov. Pl. 1: 29, t. 5, f. 3 (1773). *Pycurus puncticulatus* Ridl. (1907).

A perennial herb. Near the swamps of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 585 (DUH).

**Cyperus tenuispica** Steud., Syn. Pl. Glum. 2: 11 (1855). *Cyperus flavidus* (*non* Retz.) C. B. Clarke (1893).

An annual or perennial herb. Near the swamps and along the edges of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 501 (DUH).

**Fimbristylis dichotoma** (L.) Vahl subsp. **dichotoma**, Enum. Pl. 2:287 (1806). *Scirpus dichotoma* L. (1753).

An annual or perennial herb. Near the swamps and along the margin of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 500 (DUH).

**Fimbristylis miliacea** (L.) Vahl, Enum. Pl. 2:287 (1806). *Scirpus miliacea* L. (1759).

An annual or perennial herb. Near the swamps and wetlands of the forest. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 534 (DUH).

**Fimbristylis ovata** (Burm. f.) Kern, Blumea 15: 126 (1967). *Carex ovata* Burm. f. (1768).

A perennial herb. Near the swamps and wetlands of the forest. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 540 (DUH).

**Fuirena ciliaris** (L.) Roxb., Fl. Ind. ed. Carey 1: 184 (1820). *Scirpus ciliaris* L. (1771).

An annual herb. Near the swamps of the forest. *Representative specimen*: Gazni, 1.11.2009, Ershad Tutul 542 (DUH).

**Kyllinga bulbosa** Beauv., Fl. d'Oware & Benin 1:11 t. 8, f. 1 (1804). *Cyperus triceps* (Rottb.) Endl. (1842).

A perennial herb. Open places and edges of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 459 (DUH).

**Pycnus stramineus** (Nees) C. B. Clarke in Hook. f., Fl. Brit. Ind. 6: 589 (1893). *Cyperus stramineus* Nees (1834).

An annual herb. Along the wetlands and margin of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 537 (DUH).

### 37. Poaceae

**Arthraxon nudus** (Nees *ex* Steud.) Hochst., Flora 39: 188 (1856). *Bathratherum nudum* Nees *ex* Steud. (1854).

An annual creeping grass, rooting at the nodes. Near swamps, and moist and shady places. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 491 (DUH).

**Cyrtococcum accrescens** (Trin.) Stapf in Hook., Ic. Pl.: sub t. 3096 (1922). *Panicum accrescens* Trin. (1828).

A scrambling grass. Shady places along the forest edges. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 476 (DUH).

**Eragrostis gangetica** (Roxb.) Steud., Syn. Pl. Glum. 1: 266 (1854). *Poa gangetica* Roxb. (1820).

An annual or short-lived perennial grass. Near swamps, and open places of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 495 (DUH).

**Eragrostis japonica** (Thunb.) Trin., Mem. Acad. Sci. Petersb. Ser. 6, 1: 405 (1830). *Poa japonica* Thunb. (1784).

An annual or short-lived perennial grass. Near swamps of the forest. *Representative specimen*: Runtia, 1.11.2009, Ershad Tutul 625 (DUH).

**Isachne globosa** (Thunb.) O. Kuntze, Rev. Gen. Pl. 2: 778 (1891). *Milium globosum* Thunb. (1784).

An annual or short-lived perennial grass. Near swamps, and open places of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 496 (DUH).

**Oplismenus compositus** (L.) P. Beauv., Ess. Agrost. 54: 169 (1812). *Panicum compositum* L. (1753).

A grass with tall and creeping culms. Shady places along edges of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 405 (DUH).

**Panicum brevifolium** L., Sp. Pl. ed. 1, 1: 59 (1753). *Panicum ovalifolium* Poir. (1816).

A grass with tall culms. Shady places along edges and near the swamps of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 401 (DUH).

**Panicum notatum** Retz., Obs. Bot. 4: 18 (1786). *Panicum courtallense* Nees & Wall. (1854).

A perennial grass with tall culms. On the forest edges and near swamps. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 477 (DUH).

**Paspalum cartilagineum** J. S. Presl ex C. B. Presl, Rel. Haenk. 1: 216 (1830).

A perennial grass with erect culms. Open places of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 511 (DUH).

**Sporobolus indicus** R. Br., Prodr.: 170 (1810). *Sporobolus elongatus* R. Br. (1810).

A perennial grass with tufted culms. Open places of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 547 (DUH).

### 38. Arecaceae

**Calamus guruba** Buch.-Ham. ex Martius, Hist. Nat. Palm. 3: 211 (1838). *Calamus nitidus* Martius (1853). Local name: *Jalibet*.

A scandent, spiny rattan. On the edges of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 420 (DUH).

### 39. Liliaceae

**Molinera recurvata** (Dryand.) Herbert, Amaryl.: 84 (1834). *Curculigo recurvata* Dryand. (1811).

A stout herb. On the hill slopes of the forest. *Representative specimen*: Runctia, 1.11.2009, Ershad Tutul 634 (DUH).

### 40. Smilacaceae

**Smilax ocreata** A. DC. in DC., Monogr. Phan. 1: 191 (1878). *Smilax roxburghiana* Wall. (1831-1832).

A woody climber. On the hill slopes of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 447 (DUH).

**Smilax pseudo-china** L., Sp. Pl. 2: 1031 (1753). *Smilax leptanthera* Pennell (1916).

An annual climber. On the hill slopes and near channel of the forest. *Representative specimen*: Gazni, 31.10.2009, Ershad Tutul 479 (DUH).

## Results and Discussion

The present study revealed the occurrence of additional 100 angiosperm species under 75 genera in 40 families, amongst which Magnoliopsida is represented by 71 species under 56 genera and 33 families, whereas Liliopsida is represented by 29 species, 19 genera and 7 families. These species exhibit in diverse life forms in the area, viz., herbs are represented by 54, shrubs by 21, trees 13 and climbers by 12 species. The family Fabaceae appears as the largest in Magnoliopsida represented by 13 species, whereas the Cyperaceae is the largest family in Liliopsida comprising 12 species in this addition. Among the genera *Desmodium* is the largest in dicots comprising *D. gyroides*, *D. heterocarpon*, *D. triflorum*, *D. triquetrum*, *D. triquetrum* subsp. *alatum* and *D. velutinum*, whereas *Cyperus* is the largest in monocots possessing *C. cuspidatus*, *C. haspan*, *C. iria*, *C. pilosus*, *C. procerus* and *C. tenuispica*. The low lands are dominated by the members of the family Cyperaceae and Poaceae.

In the present study *Holigarna longifolia*, a member of the family Anacardiaceae has been reported as threatened from Runtia sal forest, whereas previous studies have reported *Cymbidium aloifolium* and *Rauwolfia serpentina* as threatened from the forest (Tutul *et al.*, 2009, 2010). These species recorded from the Runtia forest have been included in the Red list of vascular plants of Bangladesh (Khan *et al.*, 2001).

At present the floral diversity of the forest is in great risk because of many threats as observed during field visits including illegal sand and stone collection from forest bed, clear felling and exotic monoculture plantation, frequent forest fire during dry season, illegal logging, fire wood collection, over-exploitation of the medicinal plants, lack of awareness among the local people etc. Therefore, the following recommendations should be adopted for the sake of better management of the forest and botanical diversity: i) steps should be undertaken to protect the habitats of the species; ii) conservation priorities should be given to the rare, threatened and endangered species; iii) distribution map of threatened plants should be made on priority basis that will facilitate accurate location and home range of threatened species in the forest; iv) public awareness to be built up to preserve floral diversity, particularly the medicinal plants; v) monitoring activities should be strengthened; and vi) in severe cases, *ex situ* conservation measure for particular species may be applied for replicating the population.

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