

FLORA OF BANGLADESH

NO. 52

ANNONACEAE

EDITORS

M. SALAR KHAN
And
M. MATIUR RAHMAN

July 2002

By

MAHBUBA KHANAM
And
M. MATIUR RAHMAN

BANGLADESH NATIONAL HERBARIUM
MINISTRY OF ENVIRONMENT AND FOREST
GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH

FLORA OF BANGLADESH

NO. 52

ANNONACEAE

EDITORS

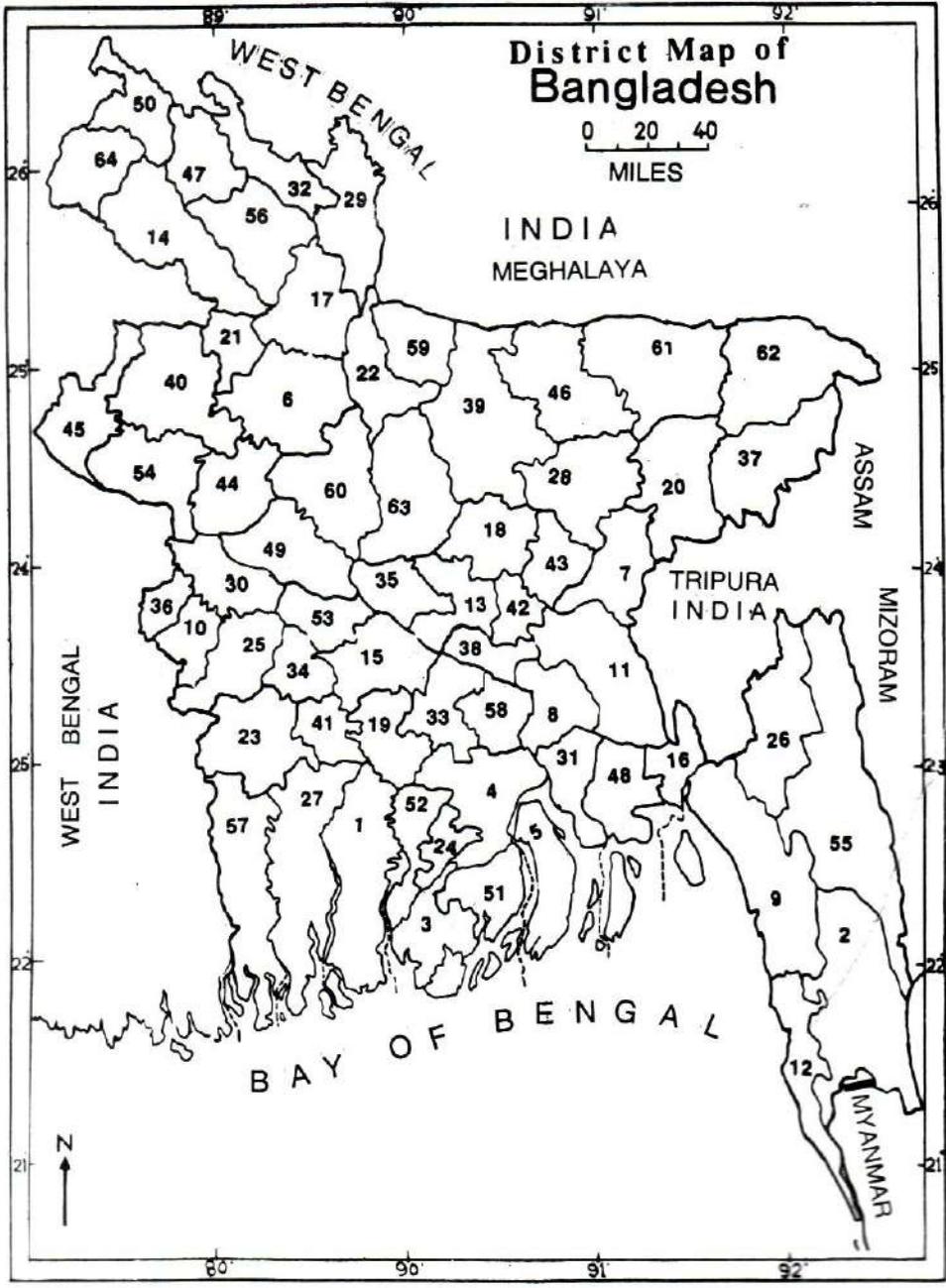
M. SALAR KHAN
And
M. MATIUR RAHMAN

July 2002

By

MAHBUBA KHANAM
And
M. MATIUR RAHMAN

BANGLADESH NATIONAL HERBARIUM
MINISTRY OF ENVIRONMENT AND FOREST
GOVT. OF THE PEOPLE'S REPUBLIC OF BANGLADESH



List of Districts

The serial numbers correspond to those given in the map.

- | | |
|-----------------|------------------|
| 1. Bagerhat | 33. Madaripur |
| 2. Bandarban | 34. Magura |
| 3. Barguna | 35. Manikganj |
| 4. Barisal | 36. Meherpur |
| 5. Bhola | 37. Maulvi Bazar |
| 6. Bogra | 38. Munshiganj |
| 7. Brahmanbaria | 39. Mymensingh |
| 8. Chandpur | 40. Naogaon |
| 9. Chittagong | 41. Narail |
| 10. Chuadanga | 42. Narayanganj |
| 11. Comilla | 43. Narsingdi |
| 12. Cox's Bazar | 44. Natore |
| 13. Dhaka | 45. Nawabganj |
| 14. Dinajpur | 46. Netrakona |
| 15. Faridpur | 47. Nilphamari |
| 16. Feni | 48. Noakhali |
| 17. Gaibandha | 49. Pabna |
| 18. Gazipur | 50. Panchagarh |
| 19. Gopalganj | 51. Patuakhali |
| 20. Habiganj | 52. Pirojpur |
| 21. Jaipurhat | 53. Rajbari |
| 22. Jamalpur | 54. Rajshahi |
| 23. Jessore | 55. Rangamati |
| 24. Jhalakati | 56. Rangpur |
| 25. Jhenaidaha | 57. Satkhira |
| 26. Khagrachari | 58. Shariatpur |
| 27. Khulna | 59. Sherpur |
| 28. Kishoreganj | 60. Sirajganj |
| 29. Kurigram | 61. Sunamganj |
| 30. Kushtia | 62. Sylhet |
| 31. Lakshmipur | 63. Tangail |
| 32. Lalmonirhat | 64. Thakurgaon |

ANNONACEAE

Mahbuba Khanam and M. Matiur Rahman

Trees or shrubs, often climbing woody plants, mostly with thick bark and aromatic. Leaves petiolate, simple, alternate, distichous, quite entire, pinnately veined, exstipulate. Inflorescence determinate, often reduced to a single flower, terminal, axillary, leaf-opposed or internodal, often from the old wood. Pedicels articulated in the middle or near the base, bracteate. Flowers usually bisexual, rarely unisexual, trimerous (dimerous in *Disepalum*). Sepals 3, free or connate, usually valvate, rarely imbricate. Petals 6, distinctly or shortly connate at the base or coherent above the stamens and carpels, hypogynous, 2-seriate, or the inner absent. Stamens many, rarely definite, hypogynous, closely packed on the torus, filaments short or 0; anthers adnate, cells adnate or sublateral, connective produced into an oblong, dilated or truncate head. Pollen granular, with the grains solitary or coherent in tetrad, sulcate or ulcerate or inaperturate. Carpels mostly numerous, inserted on a flat or convex, rarely (*Xylopia*) hollowed receptacle. Ovaries 1 or more, apocarpous, very rarely (*Annona*) syncarpous with distinct or agglutinated stigmas; style short or 0; ovules 1 or more. Fruit 1 or more, sessile or stalked, 1- or many-seeded, usually indehiscent carpels. Seeds large, testa crustaceous or coriaceous, albumen dense, ruminant, often divided almost to the axis into several series of horizontal plates, embryo small or minute; cotyledons divaricating.

Abbreviation used for the herbarium (other than the recognized acronym)

DUH = Dhaka University Herbarium

1. Carpels confluent	Annona
- Carpels not confluent in front	2
2. Petals imbricate	3
- Petals valvate	4
3. Trees or shrubs. Sepals imbricate	5
- Climbers. Sepals valvate	6
4. Anther cells not concealed by overlapping connective	7
- Anther cells concealed by the overlapping connective	8
5. Anthers sunk in the truncate and quadrate connectives. Ovules usually many	Sageraea
- Anthers not sunk in the connectives. Ovule one	Trivalvaria
6. Flowers opening wide when mature	Uvaria
- Flowers not opening wide when mature	Cyathostemma

- | | | |
|-----|---|----------------------|
| 7. | Petals of inner series larger than those of outer | Miliusa |
| - | Petals subequal. Ovules 4-8 | Alphonsea |
| 8. | Peduncles hooked; petals connivent at concave base | Artabotrys |
| - | Peduncles not hooked | 9 |
| 9. | Petals of both series subequal, flat, lanceolate, spreading from the base | 10 |
| - | Petals of two series unequal | 11 |
| 10. | Ovules many, 2-seriate | Cananga |
| - | Ovules definite | 12 |
| 11. | Inner petals connivent, arching over the stamens and carpels forming a dome | 13 |
| - | Inner petals usually triquetrous, touching each other vertically | Fissistigma |
| 12. | Ovules 2-6, 1-seriate on the ventral suture | Desmos |
| - | Ovules 1-2, basal or subbasal | Polyalthia |
| 13. | Inner petal clawed | 14 |
| - | Inner petal not clawed | Friesodielsia |
| 14. | Flowers axillary; stigma usually bifid | Goniöthalamus |
| - | Flowers extra-axillary; stigma capitate | Mitrephora |

ALPHONSEA Hook.f. & Thom.,

Fl. Ind.: 152 (1855).

Type species: *A. lutea* (Roxb.) Hook. f. & Thom.

Medium-sized tree. Stem with slender leafy branches, minutely puberulous with simple or partly stellate hairs. Leaves petiolate; lamina symmetrical at base and decurrent along petiole, thinly coriaceous, glabrous above. Inflorescence densely bracteate, internodal or leaf-opposed, rarely axillary. Flowers pedicellate, pedicel bracteate in lower half. Sepal valvate in bud, broadly ovate, shortly fused at base, pubescent to tomentose outside, glabrous within. Petals 6, in two series, valvate in bud, ovate saccate at base, tips recurved; outer petals spreading, densely pubescent to tomentose outside; inner petals shorter than the outer ones, puberulous outside. Stamens 15-50, loosely arranged, in several series, ovate or triangular, obtuse. Carpels (-1)-3-6, distinct, densely pubescent with erect fulvous hairs; stigma faintly capitate. Ripe carpels globose, yellowish or brownish, tomentose. Seeds not separating from fruit-wall.

- | | | |
|----|---|-------------------|
| 1. | Leaves more than 15 cm long; sepals free | ventricosa |
| - | Leaves less than 15 cm long; sepals connate | lutea |

LIST OF FAMILIES PUBLISHED

	Fl. No.		Fl.No.
Aizoaceae	34	Martyniaceae	1
Annonaceae	52	Menispermaceae	51
Asclepiadaceae	48	Menyanthaceae	49
Averrhoaceae	18	Molluginaceae	17
Avicenniaceae	31	Moringaceae	2
Basellaceae	2	Nymphaeaceae	9
Bixaceae	35	Ochnaceae	3
Buddlejaceae	13	Onagraceae	6
Burmanniaceae	38	Orobanchaceae	21
Burseraceae	36	Oxalidaceae	15
Butomaceae	2	Pedaliaceae	2
Cannabidaceae	14	Peperomiaceae	37
Caricaceae	1	Periplocaceae	47
Cassythaceae	43	Phytolaccaceae	1
Casuarinaceae	1	Plumbaginaceae	42
Ceratophyllaceae	10	Polemoniaceae	2
Combretaceae	50	Pontederiaceae	24
Commelinaceae	4	Potamogetonaceae	40
Convolvulaceae	30	Punicaceae	22
Costaceae	45	Rhizophoraceae	7
Dichapetalaceae	23	Ruppiaceae	19
Dipterocarpaceae	25	Salicaceae	20
Elatinaceae	39	Sonneratiaceae	12
Flagellariaceae	3	Sphenocleaceae	5
Fumariaceae	3	Stemonaceae	41
Haloragaceae	8	Stylidiaceae	32
Hydrocharitaceae	28	Trapaceae	27
Hydrocotylaceae	44	Tropaeolaceae	3
Hydrophyllaceae	1	Turneraceae	3
Juncaceae	29	Xyridaceae	46
Linaceae	26	Zannichelliaceae	11
Loranthaceae	33	Zygophyllaceae	16

Published by: **Bangladesh National Herbarium**
 Ministry of Environment and Forest
 Chiriakhana Road, Mirpur-1
 Dhaka-1216, Bangladesh.

Price : Taka ~~1000~~
 \$ ~~1000~~
 £ ~~700~~

Printed by
 Md. Hamidur Rahman
 Manager
 Bangla Academy Press
 Bangla Academy
 Dhaka 1000