



**FLORA OF INDIA VOL. 22**

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# FLORA OF INDIA VOL. 22

This volume includes 21 families (Nyctaginaceae to Thymeliaceae)



# THE THEN STATUS (APRIL 2019) Tentative

## Manuscript available

### Volume 22

Dr. Manas Bhaumik & Team

Nyctaginaceae	4/16	Debasmita Pramanick	Manusript available
Amaranthaceae	13/70	Gita Choudhury	Manusript available
Chenopodiaceae	16/40	T.K. Paul	Manusript available
Basellaceae	2/3	T.K. Paul	Manusript available
Polygonaceae	7/32	R.C Srivastava & S.S.Dash	Manusript available
Podostemaceae	5/16		Manusript available
Nepenthaceae	1/1	Namita Dam	Manusript available
Rafflesiaceae	1/1	Namita Dam	Manusript available
Mitrastemonaceae	1/1	Namita Dam	Manusript available
Aristolochiaceae	4/22		Manusript available
Piperaceae (incl.Peperomiac.)	3/54	P.K. Mukherjee	Manusript available
Chloranthaceae	2/2	Namita Dam	Manusript available
Monimiaceae	1/1	Namita Dam	Manusript available
Lauraceae (incl.Cassythac.)	17/163	Mohon Gangopadhyaya. Trina Bhuiya	Manusript available ( Partly )

Total 21 families, Manuscript available for 15 families at Publication Section

## Manuscript not available

### Volume 22

(Manuscript not available )

Saururaceae	1/1	
Phytolaccaceae	2/3	
Hernandiaceae (incl.Gyrocarpaceae)	2/6	
Proteaceae	2/7	
Thymeleaceae (incl.Aguilariaceae.& Gonystylaceae.)	11/20	
Myristicaceae	4/15	
Elaeagnaceae	2/10	

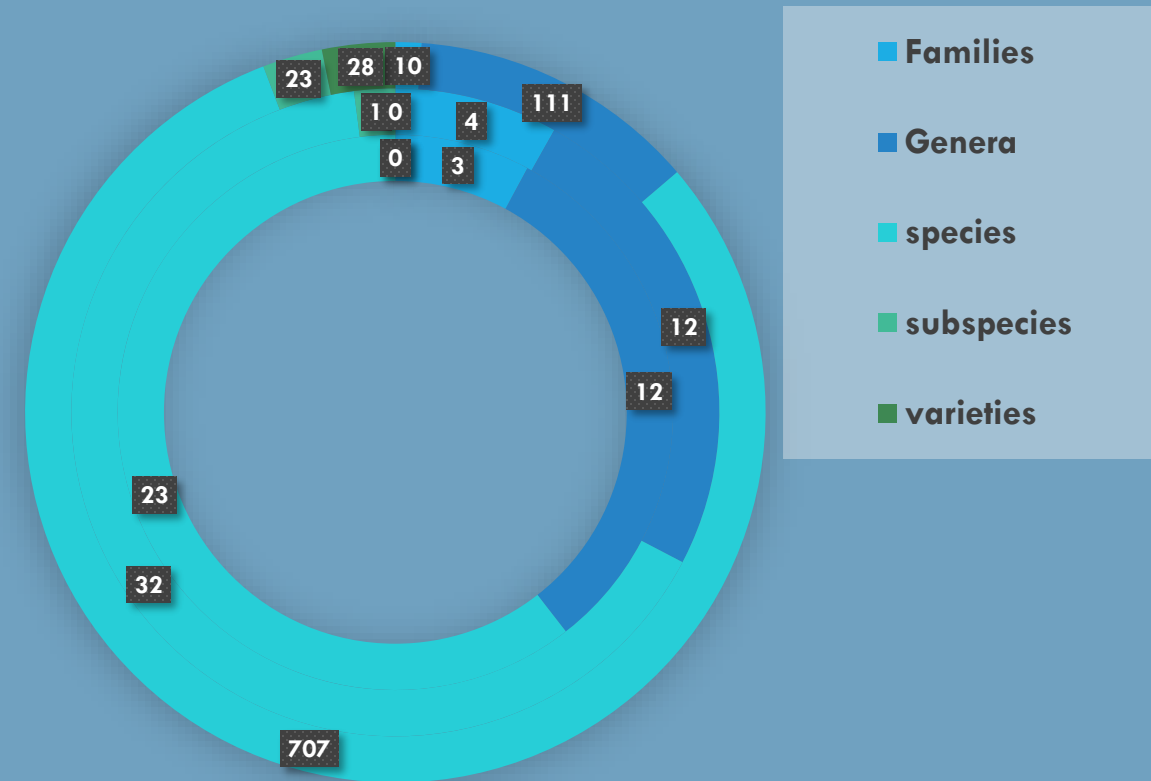
# TENTATIVE DISTRIBUTION OF WORK

Sl. No.	Family No.	Name of the Family	Genera	Species	Sub-species	Variety	Forma	Executing officials
1.	128	Nyctaginaceae	4	15	---	---	---	MB; SD
2.	130	Amaranthaceae	20	60	3	18	---	GC; SD; BCD
3.	131	Chenopodiaceae	24	71	1	1	1	MB; GC; BCD
4.	131.1	Basellaceae	1	1	---	---	---	BCD; SKS
5.	132	Phytolaceae	4	6	---	---	---	AKS; SKS
6.	134	Polygonaceae	18	164	10	63	---	MB; SD; SKS
7.	135	Podostemaceae	9	20	---	---	---	MB; SKS
8.	137	Rafflesiaceae	2	2	---	---	---	SD; SKS
9.	138	Aristolochiaceae	5	25	---	5	---	MB; SD; BCD
10.	139	Piperaceae	4	101	9	1	---	MB; BCD; SKS
11.	140	Chloranthaceae	2	3	1	---	---	AKS; SD
12.	141	Myristicaceae	5	25	2	2	---	GC; SD; SKS
13.	143	Lauraceae	17	212	1	31	---	MB; GC; SKS
14.	143.1	Hernandiaceae	2	8	---	---	---	AKS; SKS
15.	144	Proteaceae	2	7	---	---	---	MB; BCD
16.	145	Thymelaceae	14	23	1	1	---	MB; AKS; SD
17.	147	Elaeagnaceae	2	19	4	6	---	GC; SD; SKS
			128	762	32	128	1	

MB: Manas Bhaumik; AKS: A. K. Sahoo; GC: Geeta Chowdhury; SD: Sudeshna Datta; BCD: B.C. Dey; SKS: S.K. Sharma

# QUARTER WISE WORK OUT PLAN ON FAMILIES, GENERA, SPECIES, SUB SPECIES AND VARIETIES

Period	Families	Genera	species	Sub Spp.	varieties
Q1	Typing and updating of Mss.				
Q2	3	12	23	0	0
Q3	4	12	32	9	0
Q4	10	111	707	23	128



Quarter wise work out on families, genera, species, sub species and varieties

# PROCUREMENT OF MSS.

1. In first phase 10 families and Litsea of Lauraceae (hard copy) received from Dr. S.S. Dash, Publication section
2. Later Polygonaceae and Piperaceae (word file/soft copy) received from Dr. S.S. Dash publication section
3. The family Lauraceae (except Lindera and Neolitsea) and Myristicaceae received from Author Dr. Mohan Gangopadhyay and Dr. Dipwanita Banik respectively
4. Updated version of Lindera and Neolitsea of Lauraceae also procured from Author Dr. Tapas Chakraborty
5. There are 5 families like Hernandiaceae, Proteaceae, Thymeleaceae, Elaeagnaceae, Saurauraceae no materials were available.
6. Later Dr. P. V. Prasanna sir agreed to do the Thymeleaceae and Saurauraceae by Dr. Sankara Rao
7. Further Proteaceae carried out by Dr. Kangkan Pagag, Thymeliaceae by Dr. Sudeshna Datta and Hernandiaceae by myself.

# WORK IN PROGRESS.....

- ❖ Nyctaginaceae by Dr. Debasmita Dutta Pramanik, Chenopodiaceae and Basellaceae by Dr. T.K. Paul were received in almost updated form
- ❖ Phytolaccaceae, Podostemaceae, Chloranthaceae, Monimiaceae were prepared in 1995, so lot of updation was required
- ❖ Nepenthaceae, Rafflesiaceae and Mitrastemonaceae were very poorly prepared. Although represented by solitary species, most of the cases it was rewritten by me.
- ❖ Aristolochiaceae and Myristicaceae prepared by our former scholar of BSI Dr. Madhumita Mishra and Dr. Dipwanita Banik respectively during 2000-2005.
- ❖ Much efforts given on Piperaceae (by Late Dr. P.K. Mukherjee) and Polygonaceae (by Dr. R.C. Srivastava et Dr. S.S. Dash) because Piperaceae was not in Flora of India Format and treatment of Polygonum in sensu lato thought which is contrary in current trend. Polygonaceae is the second largest family in vol. 22 with 145 taxa under 16 genera

# WORK IN PROGRESS.....

- ❖ Lauraceae is the largest family in volume 22 represented by 19 genera and 229 species prepared by four contributors Dr. Mohan Gangopadhyay, Dr. Tapas Chakraborty, Dr. Trina Bhuiya and Dr. P. Singh. Descriptions were too elaborate in Gangopadhyay's treatment
- ❖ Amaranthaceae by Geeta Chaudhury received very late and much time devoted for editing job.
- ❖ Concise excellent account of Thymeleaceae received from Dr. P.V. Prasanna Sir
- ❖ The inhouse work by Dr. Pagag and Dr. Dutta on Proteaceae and Elaeagnaceae help me a lot.
- ❖ My effort on Hernandiaceae allow me to learn a lot, shortage of time restrict to full justice to the family



# WORK IN PROGRESS....

- ❖ Checklist of Flora of India vol. 22 edited, compiled along with contribution of four families.  
Bibliography of Flora of India Checklist Vol. 22 prepared and submitted.

## **Photographs provided to Flora of India vol. 18, 21, 31 & 32**

1. Twenty images belonging to 13 species sent to Dr. Umar Sharief, BSI SRC for FI India vol. 21.
2. Thirty three Grass images given to Dr. P. V. Prasanna Scientist G regarding Flora of India Vol. 31 & 32.
3. Thirteen images belongs to 8 taxa sent to Dr. S.L. Meena BSI, HQRS for Flora of India Vol. 18.

# CURRENT POSITION OF FAMILIES AFTER SPLITTING

Sl. No.	Family	Family no	Genera (India)	Species (India)	Genera (world)	Species (World)
1.	Nyctaginaceae	128	6	14	30	390
2.	Amaranthaceae	130	19	55(4/7)	71	750
3.	Chenopodiaceae	131.01	20	60(-/2)	103	1300
4.	Basellaceae	131.02	2	3	4	20
5.	Phytolaccaceae	132.01	3	5	16	63
6.	Polygonaceae	134	16	116(-/29)	49	1100
7.	Podostemaceae	135.01	8	23(-/2)	50	280
8.	Nepanthaceae	29.03	1	1	1	67
9.	Rafflesiaceae	137.01	1	1	9	50
10.	Mitrastemonaceae		1	1	1	1
11.	Aristolochiaceae	138	3	29	12	475
12.	Piperaceae	139.01	3	70(-/3)	8	3000
13.	Saururaceae	139.03	1	1	4	6
14.	Chloranthaceae	140	2	3	4	75
15.	Myristicaceae	141	5	17(5/-)	18	400
16.	Monimiaceae	142.01	1	1	34	440
17.	Lauraceae	143.01	19	208(-/29)	52	2850
18.	Hernandiaceae	143.02	3	9	5	57
19.	Proteaceae	144	2	6	77	1600
20.	Thymeleaceae	145.01	14	21(1/3)	53	750
21.	Elaeagnaceae	147	2	16(1/-)	3	45



a. *Boerhavia diffusa* L., Flower in insect  
b. *Boerhavia diffusa* L., Flower in insect



c. *Fissosia umbellifera* (Font.) Seem.  
d. *Fissosia umbellifera* (Font.) Seem.

Plate 1



a. *Bisorta officinalis* DeClerbe  
b. *Bisorta perpusilla* Greene



c. *Koenigia mollis* var. *griffithii* (Hook. f.) T.M. Schoul. & Reveal

Plate 2



a. *Oxyria digyna* (L.) Hill  
c. *Rheum australe* D. Don



b. *Rheum acuminatum* Hook. f. & Thoms.



a. *Sapria himalayana* Griff.



b. *Sapria himalayana* Griff.



a. *Thottea punnudiiana* Sivag  
c. *Thottea tomentosa* (Blume) Ding Hou



b. *Thottea sivarajani* Samborsk. Kurian, A.L.S. Khan & S. Him

Plate 11



a. *Piper acutangulum* C. DC.  
c. *Piper beteloides* C. DC.



a. *Piper sylvaticum* Roeb., male plant



b. *Piper betle* L.

Plate 13



b. *Piper sylvaticum* Roeb., female plant

Plate 14



a. *Chloranthus elatior* Link.



b. *Sarcanthus glabra* subsp. *brachystachys* (Blume) Vensk.

Plate 19



a. *Horsfieldia kingii* (Hook. f.) Warb.



b. *Horsfieldia kingii* (Hook. f.) Warb. fruits, and seeds

Plate 21



a. *Elaeagnus conferta* Roeb.  
b. *Elaeagnus infundibularis* Momy.



c. *Helicia robusta* (Roeb.) R. Br. ex Blume

Plate 24

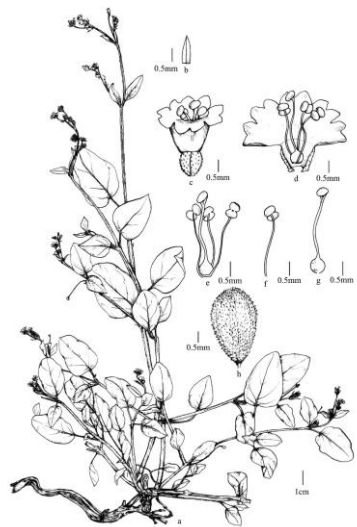


Fig. 2. *Boerhavia diffusa* L.: a. portion of flowering twig; b. floral bract; c. flower; d. flower splitted open; e. carpel surrounded by stamens; f. stamen; g. carpel; h. anthocarp. [drawn from a. R. P. Pandey 8823 (CAL); b-h. Debasmita Pramanik 36405 (CAL).]

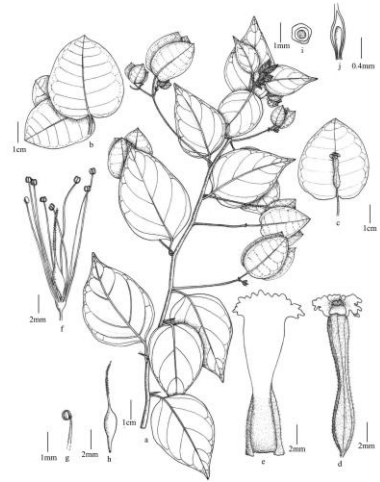


Fig. 5. *Bougainvillea glabra* Choisy: a. portion of flowering twig; b. coloured bract; c. single coloured bract bearing flower; d. flower; e. perianth splitted open; f. carpel surrounded by stamens; g. stamens; h. carpel; i. transverse sections of ovary; j. anthocarp. [drawn from a-j. without any collector's name 1275 (CAL).]

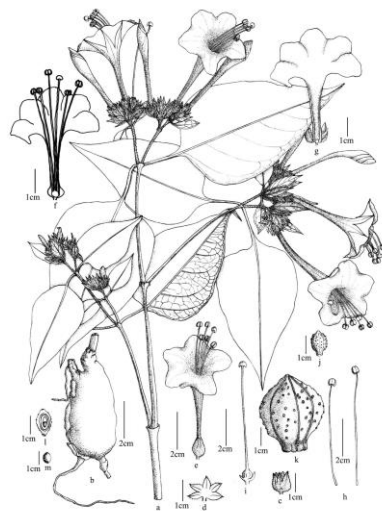


Fig. 10. *Mirabilis jalapa* L.: a. portion of flowering twig; b. tuberous root; c. involucre bract; d. involucre bract splitted open; e. flower; f. flower splitted open; g. perianth splitted open - stamens and carpel removed; h. stamens; i. carpel; j. anthocarp; k. anthocarp (magnified); l. longitudinal section of anthocarp; m. seed. [drawn from a. R. L. Data 509 (CAL); b. without any collector's name 41425 (CAL); c-e. m. Debasmita Pramanik 38426 (CAL).]



Fig. 17. *Achyranthe bitantata* Blume: a. habit; b. hairs; c. bract; d. bractlets; e. flower; f. outer tepal; g. inner tepal; h. stamens with pseudo-staminodes; i. carpel; j. seed. [after Machimón s.n. 369129 (CAL).]



Fig. 23. *Amaranthus caudatus* L.: a. habit; b. bract; c. & d. bractlets; e. male flower; f. g. & h. male tepals; i. female flower; j. female tepal; k. l. & m. female tepals; n. fruit; o. seed.

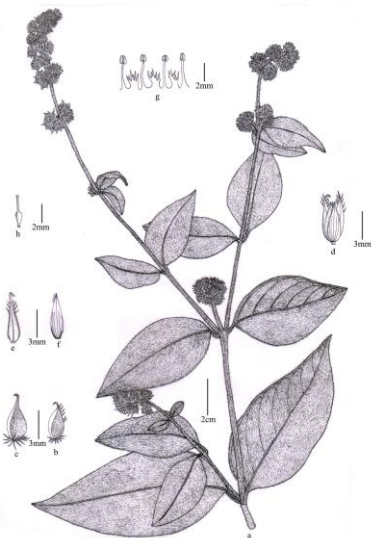


Fig. 36. *Cyathula tomentosa* Moq.: a. habit; b. bract; c. bractlets; d. flower; e. outer tepal; f. inner tepal; g. stamens with pseudo-staminodes; h. carpel. [after Jamathian 52989 (CAL).]

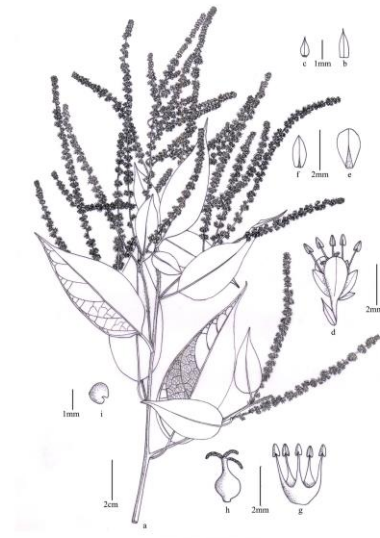


Fig. 37. *Decretia amaranthoides* Merr.: a. habit; b. bract; c. bractlets; d. flower; e. outer tepal; f. inner tepal; g. stamens with anthers; h. carpel; i. seed. [after Sidar 4024 (CAL).]

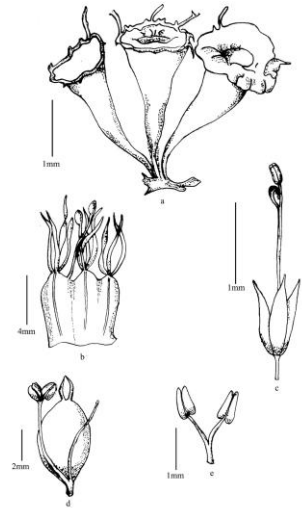


Fig. 60. *Cladopus bookerianus* (Tul.) C. Cusset: a. habit; b. secondary shoot; c. flower with spathe; d. ovary with stamens; e. stamens.

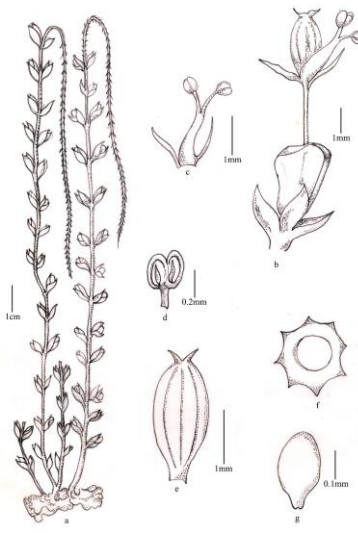


Fig. 66. *Polypogon elongatum* (Gaillard.) J. D. Hall: a. habit; b. flower with spathe; c. stamen with androphorum; d. anther; e. capsule; f. transverse section of capsule (not to scale); g. seed.



Fig. 108. *Reichardia gmeliana* King ex Hook. f.: a. branch with flowers; b. branch with fruits; left hand upper leaf; upper surface; lower branch; left hand upper leaf; lower surface; c. flower; d. outer tepal - dorsal view; e. idem - ventral view; f. inner tepal - dorsal view; g. idem - ventral view; h-o. stamens and staminodes; h. whorl I - dorsal view; i. idem - ventral view; j. whorl II - dorsal view; k. idem - ventral view; l. whorl III - dorsal view; m. idem - ventral view; n. whorl IV - dorsal view; o. idem - ventral view; p. pistil. [after Gamble 2934 A - fl.; Kari 28 & Biswas 4057 - fr. (CAL).]

# CONCLUSION

- ❖ The treatment of Nepenthaceae in vol. 22 is anomalous. Although Hookers's in Fl. Brit. India put it in Vol. 5 between Podostemaceae and Cytenaceae (Rafflesiaceae). Current evolutionary trend Nepenthaceae belongs to Order Caryophyllales and closest family Droseraceae.
- ❖ Finally the Vol. 22 represented by 21 families, 131 genera, 660 species, 11 subspecies and 75 varieties (128 genera, 762 species, 32 subspecies and 128 varieties)
- ❖ The report contains I-XXIX + 785 pages, 30 photo plates and 167 illustrations submitted to HQRS on 30.10.2020
- ❖ I sincerely acknowledge to all the contributors, their efforts for updating mss and those who are not available for their preliminary contribution.
- ❖ I also sincerely acknowledge Dr. Suseshna Datta for preparing/updating all photo plates and illustrations as per Fl. of India format.
- ❖ Finally I acknowledge Director Sir, Dr. A.A. Mao to give me the responsibility for editing and updating **FLORA OF INDIA Vol. 22.**

Thank you