



## Research paper

### Checklist and key to the Scrophulariaceae of Jharkhand, India

Kumar Avinash Bharati

Central National Herbarium, Botanical Survey of India, Howrah-711103

Email: [avinash.bharati@bsi.gov.in](mailto:avinash.bharati@bsi.gov.in)

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**Abstract:** A checklist of Scrophulariaceae flora of Jharkhand has been prepared with the help of relevant literatures and specimens deposited in Central National Herbarium, herbarium of Ranchi University and National Botanical Research Institute. All the species and varieties are enumerated with identification keys. The generic distributions at global, national and state level have been provided. The valid names of the species along with author(s), flowering and fruiting time and occurrence at district level are mentioned. Our study revealed that the family Scrophulariaceae in Jharkhand is represented by 59 species and 01 variety under 26 genera. The purpose of the checklist is to document the diversity of the family Scrophulariaceae in Jharkhand and taxonomic key is to offer students and botanist a means for identification.

**Keywords:** Scrophulariaceae, Flora, Jharkhand.

#### Introduction:

Jharkhand is forest and mineral rich state of India. It was formed after the bifurcation of the erstwhile state of Bihar in 2000, it lies in between 22°00'–24°37' N

and 83°15'–87°01' E. Geography of the state possess hills, plateau and ridges up to 900 m in altitude. The state has 79,714 km<sup>2</sup> land, of which forest cover is 22,894 km<sup>2</sup> that constitutes 28.72% of total area cover. The forest of Jharkhand may be classified into 3 types, *Moist Tropical Forest*, *Dry Tropical Forest* and *Montane Subtropical Forest* (Champion and Seth, 1968). Main species of Jharkhand forests are Sal (*Shorea robusta*), Dhaura (*Anogeissus latifolia*), Asan (*Terminalia tomentosa*), Gamhar (*Gmelina arborea*) and Mahua (*Madhuca longifolia* var. *latifolia*), etc. (FSI 2011, 2015). There are one National Park, 11 wildlife sanctuaries, one Tiger reserve, one Elephant reserve in the state. Also, 21 major sacred groves are reported in the state (Malhotra et al., 2001). Three major rivers flows in Jharkhand are Sone, the Koel and the Damodar. About 40% of the mineral resources of India are reserved in the state and it ranks first in the production of coal, mica, kyanite and copper in the country. It is the land of 32 indigenous people, major ethnic groups are *Munda*, *Ho*, *Oraon*, *Santhal*, *Paharia*, *Chero* and *Birjea*. The state has seven physiographic zones: (i) Palamau uplands, (ii) Hazaribagh plateau, (iii) Damodar valley, (iv) Santhal Pargana

upland, (v) Patland region, (vi) Ranchi plateau, (vii) Singhbhum region. The soil of the Jharkhand may be classified into five types, *Red soil*, *Micacious soil*, *Sandy soil*, *Black soil* and *Laterite soil*. The state has sub-tropical climate with three district weather: winter, summer and rainy. Overall climate of the state is warm except few plateaus and annual precipitation is in between 110–160 cm.

Jharkhand was explored by many botanists because of presence of natural forest and rich in plant diversity. Anderson (1863) had collected plants in Parashnath hills to study the flora of Bihar. Further, based on the collection of Hooker, Edgeworth and Thomson and after few years Clarke (1884) also studied on the flora of Parasnath. Haines (1910) worked in Chotanagpur plateau and published "A Forest Flora of Chotanagpur" with 275 species recorded from Singhbhum. However, his most significant work was "Botany of Bihar and Orissa" which was published in six parts including 813 species from Singhbhum (Haines, 1921–1925). Later, other botanists like Mooney (1941,1944,1950), Mukerjee (1947,1956), Bressers (1951), Sanyal (1957), Ara (1960,1966), Kanodia & Malick (1966), Panigrahi (1966), Meher–Homji (1971), Paul (1976,1978,1984,1990), Paul and Prasad (1978), Raizada (1978), Majumdar and Biswas (1979), Biswas and Maheshwari (1980), Paul (1984, 1990), Mishra (1985), Paria and Chattopadhyay (2000, 2005), Sarma and Sarkar (2002) and Ranjan (2014) have significantly contributed to the flora of Jharkhand (undivided Bihar). Singh *et al.*, 2001 reported 2963 species under 1151 genera and 186 families from undivided Bihar. Of them, five species, *Eulophia campbellii*, *Peristylus sahanii*, *Saurauia parasnathensis*, *Seseli alboalatum*, *Thesium unicaule* are strictly endemic to Jharkhand. The past publications revealed that family Scrophulariaceae of Jharkhand

was not studied so far, therefore, the present work was taken up to evaluate the diversity of the families in the state.

### Methodology:

Under internal research project of Central National Herbarium, the work was initiated. The authentic literatures like, the Botany of Bihar & Orissa (1921–1925), Flora of Bihar analysis (2001), Flora of Palamau (2002), Flora of Parasnath (2014) and some additions to the Botany of Bihar & Orissa (1941) and Supplement to the Botany of Bihar & Orissa (1950) were referred. Also, herbarium specimens deposited in Central National Herbarium (CAL), herbarium of Ranchi University and National botanical research Institute (LWG) have been consulted. Worldwide distribution of species was verified through Mabberley (2008, 2017). Distribution of genera and species have been also taken from Plants of the World Online (<https://powo.science.kew.org>), Flora of India (<https://efloraindia.bsi.gov.in/>) and district level distribution was verified from Flora of Bihar analysis (2001). The nomenclatures were updated through authentic online databases: Plants of the World Online (<https://powo.science.kew.org>), Tropicos (<https://www.tropicos.org>) and International Plant Name Index (<http://www.ipni.org>). The present study followed Bentham and Hooker's system of classification and key to the genera and species have also been provided for easy identification of taxa.

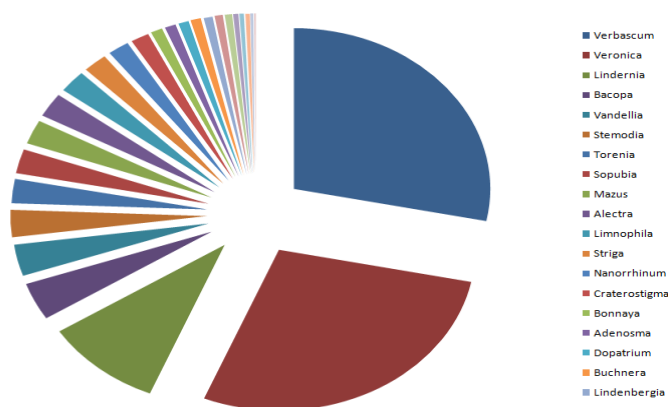
### Results and Discussion:

Family Scrophulariaceae is represented by about 66 genera & 1800 species worldwide, cosmopolitan in distribution, especially in tropical and warm climatic conditions, especially in South Africa (Mabberley, 2017); 62 genera & 368

species in India (Karthikeyan, 2000); 26 genera and 59 species in Jharkhand.

**Table 1: Diversity of Scrophulariaceae at global, national and state level.**

	Genera	Global	India	Jharkhand
1.	<i>Verbascum</i>	464	6	1
2.	<i>Veronica</i>	461	32	1
3.	<i>Lindernia</i>	160	27	15
4.	<i>Bacopa</i>	62	3	2
5.	<i>Vandellia</i>	52	9	2
6.	<i>Stemodia</i>	45	3	1
7.	<i>Torenia</i>	40	12	3
8.	<i>Sopubia</i>	40	3	2
9.	<i>Mazus</i>	40	5	1
10.	<i>Alectra</i>	40	2	1
11.	<i>Limnophila</i>	37	20	8
12.	<i>Striga</i>	33	7	3
13.	<i>Nanorrhinum</i>	29	3	1
14.	<i>Craterostigma</i>	25	3	2
15.	<i>Bonnaya</i>	16	9	3
16.	<i>Adenosma</i>	15	3	1
17.	<i>Dopatrium</i>	14	3	1
18.	<i>Buchnera</i>	14	3	1
19.	<i>Lindenbergia</i>	12	7	2
20.	<i>Scoparia</i>	11	1	1
21.	<i>Mecardonia</i>	10	1	1
22.	<i>Mimulus</i>	7	2	1
23.	<i>Glossostigma</i>	6	3	1
24.	<i>Centranthera</i>	6	3	2
25.	<i>Parasopubia</i>	4	2	1
26.	<i>Microcarpaea</i>	2	1	1
	<b>Total</b>	<b>1645</b>	<b>173</b>	<b>59</b>



**Figure 1: Share of genera in family Scrophulariaceae at global scale**

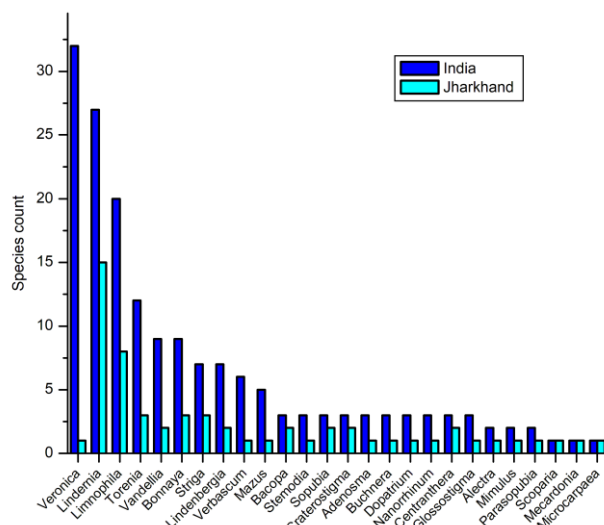


Figure 2: Share of genera in family in India and Jharkhand

In present study, the diversity in the genera and species of the Jharkhand has been compared at global and national level (Table-1). In comparative study on diversity of genera, it was observed that most diversified genera is *Verbascum* (464 species) followed by *Veronica* (461 species), *Lindernia* (160 species), *Bacopa* (62 species), *Vandellia* (52 species), etc (Fig. 1). In India, about 173 species are found in India and *Veronica* has maximum number of species (32 species), followed by *Lindernia* (27 species), *Limnophila* (20 species), *Torenia* (12 species), etc. In Jharkhand, 59 species and 1 variety have been reported in present study, the most diversified genera is *Lindernia* with 15 species, followed by *Limnophila* (8 species), *Striga* and *Torenia* (3 species each), etc (Fig. 2).

Enumerations of taxa are as follows:

#### ADENOSMA R. Br.

About 15 species are known to occur in China, Indo-Malesia and Australia (Mabberley, 2017) and 3 species in India (Santapau & Henry, 1973). One species in Jharkhand.

**Adenosma indianum** (Lour.) Merr., Trans. Amer. Phil. Soc. 24(2): 351. 1935; N.P. Singh *et al.*, Fl. Bihar: 349. 2001.

*Manulea indiana* Lour., Fl. Cochinch. 2: 386. 1790. *Adenosma capitatum* Benth. ex Hance in J. Linn. Soc. London (Bot.) 13: 114. 1873; Hook.f., Fl. Brit. India 4: 264. 1884; Haines, Bot. Bihar Orissa 625. 1922 (Repr. ed., 2: 655. 1961).

*Fl. & Fr.*: August - February.

*Distrib.*: Ranchi.

#### ALECTRA Thunb.

About 40 species from tropical Africa to Asia (Mabberley, 2008, 2017); 2 species in India; 1 species in Jharkhand.

**Alectra sessiliflora** (Vahl) Kuntze, Revis. Gen. Pl. 2: 458. 1891; N.P. Singh *et al.*, Fl. Bihar: 349. 2001. *Gerardia sessiliflora* Vahl, Symb. Bot. 3: 79. 1794. *Alectra thomsonii* Hook.f., Fl. Brit. India 4: 297. 1884. *Alectra indica* Benth. in DC., Prodr. 10: 339. 1846; Hook.f., Fl. Brit. India 4: 297. 1884; Haines, Bot. Bihar Orissa 639. 1922 (Repr. ed., 2: 670. 1961).

*Fl. & Fr.*: October - November.

*Distrib.*: Giridih, Hazaribagh, Singhbhum.

#### BACOPA Aubl., nom. cons.

About 56 species distributed in warm countries especially America (Mabberley, 2017); 3 species in India (Santapau & Henry, 1973); 2 species in Jharkhand.

*Key to the species*

1a. A creeping herb; branches terete; corolla pale blue to white; capsule ovoid...

**B. monnieri**

1b. An erect herb; branches quadrangular; corolla pink or yellow; capsule never ovoid.....

**B. hamiltoniana**

**Bacopa hamiltoniana** (Benth.) Wettst., Engler & Prantl, Nat. Pflanzenfam. IV. 3b: 77. 1891; N.P. Singh et al., Fl. Bihar: 350. 2001. *Herpestis hamiltoniana* Benth., Scroph. Ind. 30. 1835; Hook.f., Fl. Brit. India 4: 272. 1884; Haines, Bot. Bihar Orissa 622. 1922 (Repr. ed., 2: 652. 1961).  
*Fl. & Fr.:* September - December.

*Distrib.:* Ranchi, Singhbhum.

**Bacopa monnieri** (L.) Wettst., Engler & Prantl, Nat. Pflanzenfam. IV. 3b: 77. 1891; N.P. Singh et al., Fl. Bihar: 350. 2001. *Lysimachia monnieri* L., Cent. Pl. 2: 9. 1756. *Herpestis monnieri* (L.) Rothm. Repert. Spec. Nov. Regni Veg. 50: 73. 1941.; Benth., Scroph. Ind. 30. 1835; Hook.f., Fl. Brit. India 4: 272. 1884; Haines, Bot. Bihar Orissa 622. 1922 (Repr. ed., 2: 652. 1961).

*Fl. & Fr.:* July - March.

*Distrib.:* Singhbhum.

**MECARDONIA** Ruiz & Pav.

About 10 species in warm regions of America (Mabberley, 2017); 1 introduced and almost naturalized in India including Jharkhand (Santapau & Henry, 1973).

**Mecardonia procumbens** (Mill.) Small, Fl. S.E. U.S.: 1065. 1903. *Bacopa procumbens* (Mill.) Greenm., Field Columb. Mus. Bot. ser. 2, 261. 1907; N.P. Singh et al., Fl. Bihar: 350. 2001. *Erinus procumbens* Mill., Gard. Diet. ed. 8. n. 6. 1768. *Lindernia dianthera* Sw., Prodr. 92. 1788. *Mecardonia dianthera* (Sw.) Pennell in Proc. Acad. Nat. Sci. Philadelphia 98: 87. 1946.

*Fl. & Fr.:* August - September.

*Distrib.:* Palamau, Ranchi, Singhbhum.

**BUCHNERA** L. About 14 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 3 species

in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Buchnera hispida** Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 91. 1825; Hook.f., Fl. Brit. India 4: 298. 1884; Haines, Bot. Bihar Orissa 640. 1922 (Repr. ed., 2: 671. 1961); N.P. Singh et al., Fl. Bihar: 350. 2001.

*Fl. & Fr.:* August - December.

*Distrib.:* Giridih, Hazaribagh, Palamau, Singhbhum.

**CENTRANTHERA** R. Br.

About 5 – 6 species distributed from China to Australia (Mabberley, 2008); 3 species in India and 2 species in Jharkhand (Santapau & Henry, 1973).

*Key to the species*

1a. Erect, hispid; corolla purple.....

**C. nepalensis**

1b. Diffuse, hispidulous or usually glabrous; corolla yellow.....

**C. tranquebarica**

**Centranthera nepalensis** D. Don, Prodr. Fl. Nepal. 88. 1825; N.P. Singh et al., Fl. Bihar: 351. 2001. *C. hispida auct. non R. Br.*, 1810: Hook.f., Fl. Brit. India 4: 301. 1884; Haines, Bot. Bihar Orissa 637. 1922 (Repr. ed., 2: 668. 1961).

*Fl. & Fr.:* July - October.

*Distrib.:* Hazaribagh, Palamau, Ranchi, Singhbhum.

**Centranthera tranquebarica** (Spreng.) Merr., Sunyatsenia 5: 182. 1940; N.P. Singh et al., Fl. Bihar: 351. 2001. *Razumovia tranquebarica* Spreng., Mant. Prim. Fl. Hal. 45. 1807. *Centranthera humifusa* Wallich ex Benth., Scroph. Ind. 50. 1835; Hook.f., Fl. Brit. India 4: 301. 1884; Haines, Bot. Bihar Orissa 638. 1922 (Repr. ed., 2: 668. 1961).

*Fl. & Fr.:* August - October.

*Distrib.:* Giridih, Hazaribagh, Ranchi, Singhbhum.

**DOPATRIUM** Buch.-Ham. ex Benth.

About 14 species, distributed in tropical Asia to Australia (Mabberley, 2008, 2017); 3 species in India (Santapau & Henry 1973); 1 species in Jharkhand.



**Dopatrium junceum** (Roxb.) Buch.-Ham.  
*ex* Benth., Edwards's Bot. Reg. 21: t. 1770.  
4.1835; Hook.f., Fl. Brit. India 4: 274.  
1884; Haines, Bot. Bihar Orissa 623. 1922  
(Repr. ed., 2: 653. 1961); N.P. Singh et al.,  
Fl. Bihar: 351. 2001. *Gratiola juncea*  
Roxb., Pl. Corom. 2: 16. 1799.

*Fl. & Fr.*: August - November.

*Distrib.*: Ranchi, Singhbhum.

**GLOSSOSTIGMA** Wight & Amott *ex*  
Amott, *nom. cons.*

About 6 species in Australia, 1 of them in  
Africa and India (Mabberley, 2008, 2017); 1  
species in Jharkhand

**Glossostigma diandrum** (L.) Kuntze,  
Revis. Gen. Pl. 2: 461. 1891; N.P. Singh et  
al., Fl. Bihar: 351. 2001. *Limosella*  
*diandra* L., Mant. Pl. 252. 1771.  
*Microcarpaea spathulata* Hook., Bot.  
Misc. 2: 101. Suppl. t. 4. 1830.  
*Glossostigma spathulatum* (Hook.) Wight  
& Amott *ex* Amott, Nova Acta Acad.  
Leop. Nat. Cur. 18: 355. 1836; Hook.f., Fl.  
Brit. India 4: 288. 1884; Haines, Bot.  
Bihar Orissa 636. 1922 (Repr. ed., 2: 667.  
1961).

*Fl. & Fr.*: August - March.

*Distrib.*: Palamau.

**NANORRHINUM** Betsche

About 29 species are found globally  
(Mabberley, 2017;  
<https://powo.science.kew.org/>); 3 species  
in India (<https://efloraindia.bsi.gov.in/>); 1  
species in Jharkhand.

**Nanorrhinum incanum** (Wall.) Betsche,  
Courier Forschungsinst. Senckenberg 71:  
132. 1984. *Kickxia incana* (Wallich)  
Pennell, Acad. Nat. Sci. Philadelphia  
Monogr. 5 (Scroph. W. Himal.): 59. 1943;  
N.P. Singh et al., Fl. Bihar: 352. 2001.  
*Linaria incana* Wallich, Pl. Asiat. Rar. 2:  
43. 1831; Hook.f., Fl. Brit. India 4: 252.  
1883. *L. cabulica* Benth. in DC., Prodr. 10:  
270. 1846; Hook.f., Fl. Brit. India 4: 251.  
1883; Haines, Bot. Bihar Orissa 620. 1922  
(Repr. ed., 2: 650. 1961).

*Fl. & Fr.*: September - December.

*Distrib.*: Chota Nagpur.

**LIMNOPHILA** R. Br., *nom. cons.*

About 37 species in Old World tropics  
(Mabberley, 2017); c. 20 species in India  
(Santapau & Henry, 1973); 8 species and 1  
variety in Jharkhand.

*Key to the species*

1a. Leaves pinnatifid or pinnatisect and  
few upper entire ..... **2**

1b. Leaves entire, crenate or serrate or  
denticulate..... **3**

2a. Flowers sessile or subsessile, if  
subsessile pedicel shorter than calyx.....

**L. heterophylla**

2b. Flowers pedicelled, pedicels longer  
than calyx..... **L. indica**

3a. Leaf veins parallel  
..... **L. connata**

3b. Leaf veins pinnate or veins not  
promi..... **4**

4a. Leaves  
subamplexicaul..... **5**

4b. Leaves not  
subamplexicaul..... **6**

5a. Flowers sessile or subsessile; leaves  
opposite..... **L. repens**

5b. Flowers pedicelled; Leaves in whorls  
of usually 3 or rarely 4..... **L.**

**aromatica**

6a. Leaves in whorls of usually 3 or rarely  
4; 1-nerved..... **L.**

**chinensis**

6b. Leaves opposite, pinnately nerved  
..... **7**

7a. Calyx lobes striate in fruit  
..... **L. pulcherrima**

7b. Calyx lobes not striate in  
fruit..... **L. rugosa**

**Limnophila aromatica** (Lam.) Merr.,  
Interpr. Herb. Amboin. 466. 1917; Philcox  
in Kew Bull. 24: 145. 1970; N.P. Singh et  
al., Fl. Bihar: 352. 2001. *Ambulia*  
*aromatica* Lam., Encycl. 1: 128. 1783.  
*Limnophila gratissima* Blume, Bijdr. 749.  
1826; Hook.f., Fl. Brit. India 4: 268. 1884;  
Haines, Bot. Bihar Orissa 627. 1922 (Repr.  
ed., 2: 657. 1961).

*Fl. & Fr.*: October - February.

*Distrib.*: Hazaribagh.

**Limnophila chinensis** (Osborne) Merr., Interpr. Herb. Amboin.: 47. 1917; N.P. Singh et al., Fl. Bihar: 353. 2001. *Columnnea chinensis* Osb., Dagb. Ostind. Resa 230. 1757. *Stemodia hirsuta* Heyne ex Benth. in Lindl., Bot. Reg. 17: t. 1470. sp. 15. 1832. *Limnophila hirsuta* (Heyne ex Benth.) Benth. in DC., Prodr. 10: 388. 1846; Hook.f., Fl. Brit. India 4: 268. 1884; Haines, Bot. Bihar Orissa 627. 1922 (Repr. ed., 2: 658. 1961).

*Key to the varieties*

1a. Glabrous herb; leaves oblong or elliptic-oblong; capsule broadly ellipsoid... var. **clarkei**

1b. Hairy herb; leaves broader elliptic; capsule orbicular..... var. **chinensis**

var. **chinensis**

*Fl. & Fr.:* September - December.

*Distrib.:* Ranchi.

var. **clarkei** (Haines) Murti, Bangladesh J. Bot. 10(1): 34. 1981; N.P. Singh et al., Fl. Bihar: 353. 2001. *Limnophila hirsuta* var. *clarkei* Haines, Bot. Bihar Orissa 628. 1922 (Repr. ed., 2: 658. 1961).

*Fl. & Fr.:* September - November.

*Distrib.:* Ranchi.

**Limnophila connata** (Buch.-Ham. ex D. Don) Hand.-Mazz., Symb. Sin. 7: 837. 1936; N.P. Singh et al., Fl. Bihar: 353. 2001. *Cybbanthera connata* Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 87. 1825. *Stemodia hypericifolia* Benth. in Lindl., Bot. Reg. 17, sub. t. 1470, 6. 1832 & Scroph. Ind. 23. 1835. *Limnophila hypericifolia* (Benth.) Benth. in DC., Prodr. 10: 386. 1846; Hook.f., Fl. Brit. India 4: 269. 1884; Haines, Bot. Bihar Orissa 627. 1922 (Repr. ed., 2: 657. 1961).

*Fl. & Fr.:* September - November.

*Distrib.:* Palamau.

**Limnophila heterophylla** (Roxb.) Benth., Scroph. Ind. 25. 1835; Hook.f., Fl. Brit. India 4: 270. 1884; Haines, Bot. Bihar Orissa 629. 1922 (Repr. ed., 2: 659. 1961); N.P. Singh et al., Fl. Bihar: 353. 2001.

*Columnnea heterophylla* Roxb., Fl. Ind. 3: 97. 1832.

*Fl. & Fr.:* October - December.

*Distrib.:* Santal Pargana.

**Limnophila indica** (L.) Druce, Rep. Bot. Exch. Club Brit. Isles 1913(3): 420. 1914; N.P. Singh et al., Fl. Bihar: 353. 2001. *Hottonia indica* L., Sp. Pl. ed. 2: 208. 1762. *Limnophila gratioloides* R. Br., Prodr. 442. 1810; Hook.f., Fl. Brit. India 4: 271. 1884, incl. vars. *elongata* and *intermedia*; Haines, Bot. Bihar Orissa 628. 1922 (Repr. ed., 2: 658. 1961).

*Fl. & Fr.:* September - February.

*Distrib.:* Hazaribagh, Singhbhum.

**Limnophila pulcherrima** (Griff.) Hook.f., Fl. Brit. India 4: 267. 1884, *excl. descr.* *Herpestis pulcherrima* Griff., Notul. 4: 104. 1854; N.P. Singh et al., Fl. Bihar: 354. 2001. *Limnophila diffusa* Benth. in DC., Prodr. 10: 387. 1846; Hook.f., Fl. Brit. India 4: 266. 1884; Haines, Bot. Bihar Orissa 627. 1922 (Repr. ed., 2: 657. 1961).

*Fl. & Fr.:* November - February.

*Distrib.:* Singhbhum.

**Limnophila repens** (Benth.) Benth. in DC., Prodr. 10: 387. 1846; N.P. Singh et al., Fl. Bihar: 354. 2001. *Stemodia repens* Benth. in Lindl., Bot. Reg. 17. sub t. 1470. sp. 11. 1832. *Limnophila conferta* Benth. in DC., Prodr. 10: 387. 1846; Hook.f., Fl. Brit. India 4: 266. 1884; Haines, Bot. Bihar Orissa 626. 1922 (Repr. ed., 2: 657. 1961).

*Fl. & Fr.:* October - December.

*Distrib.:* Hazaribagh, Lohardaga, Singhbhum.

**Limnophila rugosa** (Roth) Merr., Interpr. Herb. Amboin. 466. 1917; N.P. Singh et al., Fl. Bihar: 354. 2001. *Herpestis rugosa* Roth, Nov. Pl. Sp. 290. 1821. *Limnophila roxburghii auct. non* G. Don, 1837-1838: Hook.f., Fl. Brit. India 4: 265. 1884; Haines, Bot. Bihar Orissa 626. 1922 (Repr. ed., 2: 656. 1961).

*Fl. & Fr.:* August - December.

*Distrib.:* Hazaribagh, Ranchi.

### LINDENBERGIA Lehm.

About 12 species in Old world tropics (Mabberley, 2017); 7 species in India (Santapau & Henry 1973); 2 species in Jharkhand.

#### Key to the species

1a. Tufted herb; corolla up to 15 mm long; stamens exserted ..... **L. indica**

1b. Erect herb; corolla more than 20 mm long; stamens included ..... **L. muraria**

**Lindenbergia indica** (L.) Vatke, Osterr. Bot. Z. 25: 10. 1875; N.P. Singh et al., Fl. Bihar: 355. 2001. *Dodartia indica* L., Sp. Pl. 633. 1753. *Lindenbergia polyantha* Royle ex Benth., Scroph. Ind. 22. 1835; Hook.f., Fl. Brit. India 4: 262. 1884; Haines, Bot. Bihar Orissa 624. 1922 (Repr. ed., 2: 654. 1961).

*Fl. & Fr.*: October - March.

*Distrib.*: Hazaribagh, Palamau.

**Lindenbergia muraria** (Roxb. ex D. Don) Bruehl, J. Dept. Sci. Cal. Univ. (Bot.) 2: 27. 1920; N.P. Singh et al., Fl. Bihar: 355. 2001. *Stemodia muraria* Roxb. ex D. Don, Prodr. Fl. Nepal. 89. 1825. *Lindenbergia urticaefolia* Lehm. in Link & Otto, Icon. Pl. Rar. 95. t. 48. 1828; Hook.f., Fl. Brit. India 4: 262. 1884; Haines, Bot. Bihar Orissa 624. 1922 (Repr. ed., 2: 654. 1961).

*Fl. & Fr.*: October - May.

*Distrib.*: Hazaribagh, Ranchi.

### LINDERNIA All.

About 160 species distributed in warm regions, especially Old World tropics (Mabberley, 2008); c. 27 species in India (Santapau & Henry, 1973); 15 species in West Bengal.

#### Key to the species

1a. Fertile stamens 4 ..... **2**

1b. Fertile stamens 2 ..... **3**

2a. Plant hairy; leaves petiolate; pedicels c. 1 cm long, quadrangular, hairy; capsule smaller than caly ..... **L. hookeri**

2b. Plant glabrous; leaves sessile; pedicels c. 1.5 cm long, slender, glabrous; capsule slightly longer than calyx; ..... **L. procumbens**

3a. Calyx strongly ribbed; capsules shorter than calyx ..... **L. hyssopioides**

3b. Calyx not ribbed; capsules 2 times longer than the calyx ..... **L. parviflora**

**Lindernia hookeri** (C.B. Clarke ex Hook.f.) Wettst., Engler & Prantl, Nat. Pflanzenfam. 4. 3b: 80. 1891; N.P. Singh et al., Fl. Bihar: 357. 2001. *Vandellia hookeri* C.B. Clarke ex Hook.f., Fl. Brit. India 4: 280. 1884. *V. stemonoides* Miq., Fl. Ind. Bat. Suppl. 563. 1861; Haines, Bot. Bihar Orissa 631. 1922 (Repr. ed., 2: 661. 1961).

*Fl. & Fr.*: September - December.

*Distrib.*: Hazaribagh, Palamau.

**Lindernia hyssopioides** (L.) Haines, Bot. Bihar Orissa 635. 1922 (Repr. ed., 2: 666. 1961); N.P. Singh et al., Fl. Bihar: 357. 2001. *Gratiola hyssopioides* L., Mant. Pl. 2:174. 1771. *Ilysanthes hyssopioides* (L.) Benth. in DC., A.P. de Candolle, Prodr. 10: 419. 1846; Hook. f. Fl. Brit. India 4: 283. 1884.

*Fl. & Fr.*: November - April.

*Distrib.*: Chota Nagpur.

**Lindernia parviflora** (Roxb.) Haines, Bot. Bihar Orissa 635. 1922 (Repr. ed., 2: 665. 1961); N.P. Singh et al., Fl. Bihar: 358. 2001. *Gratiola parviflora* Roxb., Pl. Corom. 3: 3. t. 203. 1811. *Ilysanthes parviflora* (Roxb.) Benth. in DC., Prodr. 10: 419. 1846; Hook.f., Fl. Brit. India 4: 283. 1884.

*Fl. & Fr.*: August - October.

*Distrib.*: Palamau, Singhbhum.

**Lindernia procumbens** (Krock.) Philcox, Taxon 14: 30. 1965; N.P. Singh et al., Fl. Bihar: 358. 2001. *Anagalloides procumbens* Krock., Fl. Siles. 2(1): 398. t. 26. 1790. *Lindernia pyxidaria* L., Mant. Pl. 2:252. 1771, *p.p.* (*quoad spec. excl. syn.*); Haines, Bot. Bihar Orissa 634. 1922 (Repr. ed., 2: 665. 1961).

*Fl. & Fr.*: October - April.

*Distrib.*: Ranchi.

### VANDELLIA L.

About 52 species are found globally (Mabberley, 2017;



<https://powo.science.kew.org/>); 9 species in India (<https://efloraindia.bsi.gov.in/>); 2 species in Jharkhand.

*Key to the species*

1a. Stem glabrous; leaves sessile, linear or linear-lanceolate, apex obtuse, veins parallel; calyx glabrous; capsules linear-lanceolate, more than twice in length of the persistent calyx; seeds brown..... **V. micrantha**

1b. Stem clothed with white hispid hairs; leaves subsessile, ovate to suborbicular, apex acute, veins pinnate; capsules subglobose, equalling the persistent calyx; seeds light yellow..... **V. pusilla**

**Vandellia micrantha** (D.Don) Eb.Fisch., Schäferh. & Kai Müll., Willdenowia 43: 234. 2013. *Vandellia angustifolia* Benth., Scroph. Ind.: 37. 1835; Hook.f., Fl. Brit. India 4: 282. 1884 *Lindernia angustifolia* Wettst. in Engler & Prantl, Nat. Pflanzenfam. 4. 3b: 73. 1891; N.P. Singh et al., Fl. Bihar: 356. 2001.

*Fl. & Fr.*: April - November.

*Distrib.*: Chota Nagpur.

**Vandellia pusilla** (Willd.) Merr., Philipp. J. Sci., C 7: 246. 1912. *Lindernia caespitosa* (Blume) Panigrahi, Taxon 33: 320. 1984; N.P. Singh et al., Fl. Bihar: 356. 2001. *Diceros caespitosus* Blume, Bijdr. 753. 1826. *Vandellia scabra* Benth., Scroph. Ind. 36. 1835; Hook.f., Fl. Brit. India 4: 281. 1884; Haines, Bot. Bihar Orissa 632. 1922 (Repr. ed., 2: 662. 1961). *Lindernia pusilla* (Thunb.) Merr., Philipp. J. Sci. Bot. 11: 312. 1916.

*Fl. & Fr.*: August - April.

*Distrib.*: Palamau, Ranchi.

**BONNAYA** Link & Otto

About 16 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 9 species in India (<https://efloraindia.bsi.gov.in/>); 3 species in Jharkhand.

*Key to the species*

1a. Stem prostrate or decumbent; leaves petiolate, apex acute; stigma cup-shaped;

capsules slightly pubescent at the tip ..... **B. antipoda**

1b. Stem erect; leaves sessile, apex obtuse or subacute; stigma globose or flattened; Capsules glabrous ..... **2**

2a. Pedicels c. 3 mm long, not deflexed in fruit; style 3–4 mm long; stigma globose; seeds irregular

..... **B. ciliata**

2b. Pedicels 4-8 mm long, deflexed in fruit; style 1.0-1.5 mm long; stigma flattened; seeds

ellipsoid..... **B. tenuifolia**

**Bonnaya antipoda** (L.) Druce, Rep. Bot. Exch. Club Soc. Brit. Isles 3: 415. 1914. *Lindernia antipoda* (L.) Alston in Trimen, Handb. Fl. Ceylon Suppl. 6. 214. 1931; N.P. Singh et al., Fl. Bihar: 356. 2001. *Ruellia antipoda* L., Sp. Pl. 635. 1753. *Gratiola veronicifolia* Retz., Observ. Bot. 4: 8. 1786. *Bonnaya veronicifolia* (Retz.) Spreng., Syst. Veg. 1: 41. 1824; Hook.f., Fl. Brit. India 4: 285. 1884. *Vandellia veronicifolia* (Retz.) Haines, Bot. Bihar Orissa 633. 1922 (Repr. ed., 2: 664. 1961), 'iveronicaefolia'. *Gratiola verbenifolia* Colsm., Prodr. Descr. Gratiol. 9. 1793. *Bonnaya verbenifolia* (Colsm.) Spreng., Syst. Veg. 1: 42. 1824. *Vandellia verbenifolia* (Colsm.) Haines, Bot. Bihar Orissa 634. 1922 (Repr. ed., 2: 664. 1961), 'verbenaefolia'. *Bonnaya veronicifolia* (Retz.) Spreng. var. *verbenifolia* (Colsm.) Hook.f., Fl. Brit. India 4: 285. 1884.

*Fl. & Fr.*: August - February.

*Distrib.*: Ranchi, Santal Pargana.

**Bonnaya ciliata** (Colsm.) Spreng., Syst. Veg. 1: 41. 1824. *Lindernia ciliata* (Colsm.) Pennell, Brittonia 2: 182. 1936; N.P. Singh et al., Fl. Bihar: 356. 2001. *Gratiola ciliata* Colsm., Prodr. Descr. Gratiol. 14. 1793. *G. serrata* Roxb., Fl. Ind. (Carey & Willich ed.) 1: 139. 1820. *Bonnaya brachiata* Link & Otto, Icon. Pl. Select. 2: 25. t. 11. 1821; Hook.f., Fl. Brit. India 4: 284. 1884. *Vandellia brachiata* (Link & Otto) Haines, Bot. Bihar Orissa 632. 1922 (Repr. ed., 2: 663. 1961).

*Fl. & Fr.*: August - February.

*Distrib.*: Giridih, Hazaribagh, Palamau, Ranchi, Singhbhum.

**Bonnaya tenuifolia** (Colsm.) Spreng., Syst. Veg. 1: 42. 1824. *Lindernia tenuifolia* (Colsm.) Alston, Handb. Fl. Ceylon suppl. 6: 214. 1931; N.P. Singh et al., Fl. Bihar: 359. 2001. *Gratiola tenuifolia* Colsm., Prodr. Descr. Gratiol. 8. 1793. *Bonnaya tenuifolia* (Colsm.) Spreng., Syst. Veg. 1: 42. 1824; Hook.f., Fl. Brit. India 4: 286. 1884. *Vandellia tenuifolia* (Colsm.) Haines, Bot. Bihar Orissa 634. 1922 (Repr. ed., 2: 665. 1961). *Fl. & Fr.*: July - October.

*Distrib.*: Koderma.

#### **CRATEROSTIGMA** Hochst.

About 25 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 3 species in India (<https://efloraindia.bsi.gov.in/>); 2 species in Jharkhand.

*Key to the species*

1a. Pedicel much longer than calyx, 1–1.8 cm long; capsule ellipsoid acuminate .....

..... **C. nummulariifolium**

1b. Pedicel absent or short, 3 – 6 mm long; capsule ellipsoid acute...

..... **C. sessiliflorum**

**Craterostigma nummulariifolium** (D. Don) Eb. Fisch., Schäferh. & Kai Müll., Willdenowia 43: 222. 2013. *Lindernia nummulariifolia* (D. Don) Wettst., Engler & Prantl, Nat. Pflanzenfam. 4. 3b: 79. 1891, "*nummularifolia*"; N.P. Singh et al., Fl. Bihar: 358. 2001. *Vandellia nummulariifolia* D. Don, Prodr. Fl. Nepal. 88. 1825, "*nummularifolia*"; Hook.f., Fl. Brit. India 4: 282. 1884.

*Fl. & Fr.*: August – November.

*Distrib.*: Giridih, Hazaribagh, Palamau.

**Craterostigma sessiliflorum** (Benth.) Y.S. Liang & J.C. Wang. *Lindernia sessiliflora* (Benth.) Wettst., Engler & Prantl, Nat. Pflanzenfam. 4. 3b: 80. 1891; N.P. Singh et al., Fl. Bihar: 359. 2001. *Vandellia sessiliflora* Benth., Scroph. Ind. 37. 1835; Hook.f., Fl. Brit. India 4: 282.

1884; Haines, Bot. Bihar Orissa 632. 1922 (Repr. ed., 2: 663. 1961).

*Fl. & Fr.*: July - November.

*Distrib.*: Hazaribagh, Ranchi.

#### **MAZUS** Lour.

About 40 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 5 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Mazus pumilus** (Burm.f.) Steenis, Nova Guinea (n.s.) 9: 31. 1958; N.P. Singh et al., Fl. Bihar: 359. 2001. *Lobelia pumila* Burm.f., Fl. Ind. 186. t. 60. f. 3. 1768. *Lindernia japonica* Thunb. in J.A. Murray, Syst. Veg. ed. 14: 567. 1784. *Mazus japonicus* (Thunb.) Kuntze, Revis. Gen. Pl. 2: 462. 1891. *M. rugosus* Lour., Fl. Cochinch. 2: 385. 1790; Hook.f., Fl. Brit. India 4: 259. 1884; Haines, Bot. Bihar Orissa 621. 1922 (Repr. ed., 2: 651. 1961).

*Fl. & Fr.*: July - December.

*Distrib.*: Giridih, Hazaribagh, Palamau, Singhbhum.

#### **MICROCARPAEA** R.Br.

About 2 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 1 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Microcarpaea minima** (J. Koenig ex Retz.) Merr., Philipp. J. Sci. 7: 100. 1912; N.P. Singh et al., Fl. Bihar: 360. 2001. *Paederota minima* J. Koenig ex Retz., Observ. Bot. 5: 10. 1788. *Microcarpaea muscosa* R. Br., Prodr. Fl. Nov. Holland.: 436. 1810; Hook.f., Fl. Brit. India 4: 287. 1884; Haines, Bot. Bihar Orissa 635. 1922 (Repr. ed., 2: 666. 1961).

*Fl. & Fr.*: October - December.

*Distrib.*: Hazaribagh.

#### **MIMULUS** L.

About 7 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 2 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Mimulus strictus** Benth., Scroph. Ind. 28. 1835; N.P. Singh et al., Fl. Bihar: 360. 2001. *M. gracilis* auct. non R. Br., Prodr. Fl. Nov. Holland.: 439. 1810; Hook.f., Fl. Brit. India 4: 259. 1884; Haines, Bot. Bihar Orissa 623. 1922 (Repr. ed., 2: 653. 1961).

*Fl. & Fr.*: April - January.

*Distrib.*: Palamau, Ranchi, Singhbhum.

#### SCOPARIA L.

About 11 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 1 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Scoparia dulcis** L., Sp. Pl. 116. 1753; Hook.f., Fl. Brit. India 4: 289. 1884; Haines, Bot. Bihar Orissa 637. 1922 (Repr. ed., 2: 668. 1961); N.P. Singh et al., Fl. Bihar: 361. 2001.

*Fl. & Fr.*: July - December.

*Distrib.*: Throughout the state.

#### SOPUBIA Buch.-Ham. ex D. Don

About 40 species from Indo-Malesia, tropical & South Africa (Mabberley, 2017); 3 species in India (Santapau & Henry, 1973); 2 species in Jharkhand.

*Key to the species*

1a. Calyx lobes ovate-lanceolate; filaments with all fertile anthers ..... **S. stricta**

1b. Calyx lobes triangular; filaments not with all fertile anthers ..... **S. trifida**

**Sopubia stricta** (Benth.) G. Don, Gen. Hist. 4: 559. 1837-1838; Hook.f., Fl. Brit. India 4: 302. 1884; Haines, Bot. Bihar Orissa 638. 1922 (Repr. ed., 2: 669. 1961); N.P. Singh et al., Fl. Bihar: 361. 2001.

*Fl. & Fr.*: October - December

*Distrib.*: Palamau.

**Sopubia trifida** Buch.-Ham. ex D. Don, Prodr. Fl. Nepal. 88. 1825; Hook.f., Fl. Brit. India 4: 302. 1884; Haines, Bot. Bihar Orissa 639. 1922 (Repr. ed., 2: 669. 1961); N.P. Singh et al., Fl. Bihar: 361. 2001.

*Fl. & Fr.*: October - November

*Distrib.*: Chota Nagpur.

**PARASOPUBIA** H.-P. Hofm. & Eb. Fisch. About 4 species are found globally (Mabberley, 2017; <https://powo.science.kew.org/>); 2 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Parasopubia delphiniifolia** (L.) H.-P. Hofm. & Eb. Fisch., Bot. Jahrb. Syst. 125: 357. 2004. *Sopubia delphiniifolia* (L.) G. Don, Gen. Hist. 4: 560. 1837-1838, "*delphinifolia*"; Hook.f., Fl. Brit. India 4: 302. 1884; Haines, Bot. Bihar Orissa 638. 1922 (Repr. ed., 2: 669. 1961); N.P. Singh et al., Fl. Bihar: 361. 2001. *Gerardia delphiniifolia* L., Cent. Pl. 2: 21. 1756.

*Fl. & Fr.*: August - December

*Distrib.*: Hazaribagh, Palamau, Ranchi, Singhbhum.

#### STEMODIA L., nom. cons.

About 45 species are found globally (Mabberley, 2008, 2017; <https://powo.science.kew.org/>); 3 species in India (<https://efloraindia.bsi.gov.in/>); 1 species in Jharkhand.

**Stemodia viscosa** Roxb., Pl. Corom. 2: 33. t. 163. 1802 & Fl. Ind. 3: 94. 1832; Hook.f., Fl. Brit. India 4: 265. 1884; Haines, Bot. Bihar Orissa 625. 1922 (Repr. ed., 2: 655. 1961); N.P. Singh et al., Fl. Bihar: 362. 2001.

*Fl. & Fr.*: November - April.

*Distrib.*: Hazaribagh.

#### STRIGA Lour.

About 33 species distributed in Old World tropics to S. Africa (Mabberley, 2008, 2017); 7 species in India (Santapau & Henry, 1973); 3 species in Jharkhand.

*Key to the species*

1a. Calyx 4–5-ribbed..... **S. gesnerioides**

1b. Calyx 10–15-ribbed..... **2**

2a. Calyx 10 – ribbed, the secondary ones terminating in the sinus; corolla yellow..... **S. asiatica**

2b. Calyx 15 – ribbed, the secondary ones continued up the sides of adjacent calyx-

teeth and beyond the sinus; corolla white

..... **S. angustifolia**

**Striga gesnerioides** (Willd.) Vatke, Oesterr. Bot. 25: 11. 1875; N.P. Singh et al., Fl. Bihar: 362. 2001. *Buchnera gesnerioides* Willd., Sp. Pl. 3: 338. 1800. *B. orobanchoides* R.Br., Oesterr. Bot. Z. 2: 388. 1832. *Striga orobanchoides* (R. Br. ex Endl.) Benth. in Hook., Comp. Bot. Mag. 1: 361. t. 19. 1836; Hook. f., Fl. Brit. India 4: 299. 1884.

*Fl. & Fr.*: September - November.

*Distrib.*: Chota Nagpur.

**Striga asiatica** (L.) Kuntze, Revis. Gen. Pl. 2: 466. 1891; N.P. Singh et al., Fl. Bihar: 362. 2001. *Buchnera asiatica* L., Sp. Pl. 630. 1753. *Striga lutea* Lour., Fl. Cochinch. 1: 22. 1790; Hook.f., Fl. Brit. India 4: 299. 1884; Haines, Bot. Bihar Orissa 641. 1922 (Repr. ed., 2: 671. 1961).

*Fl. & Fr.*: August - December.

*Distrib.*: Hazaribagh, Palamau, Ranchi.

**Striga angustifolia** (D.Don) C.J. Saldanha, Bull. Bot. Surv. India 5: 70. 1963; N.P. Singh et al., Fl. Bihar: 362. 2001. *Buchnera angustifolia* D. Don, Prodr. Fl. Nepal. 91. 1825. *B. euphrasioides* Benth., Scroph. Ind. 41. 1835, *non* Vahl, 1794. *Striga euphrasioides* Benth. in Hook., Comp. Bot. Mag. 1. 364. 1836, *excl. basionym Buchnera euphrasioides* Vahl; Hook.f., Fl. Brit. India 4: 299. 1884; Haines, Bot. Bihar Orissa 640. 1922 (Repr. ed., 2: 671. 1961).

*Fl. & Fr.*: July - November.

*Distrib.*: Giridih, Hazaribagh, Lohardaga, Palamau.

#### **TORENIA L.**

About 40 species distributed in tropical Old World (Mabberley, 2008, 2017); 12 species in India (Santapau & Henry, 1973); 3 species in Jharkhand.

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

1a. Stem prostrate or decumbent, not ciliate on the angle, rooting at the nodes; leaves apex obtuse..... **T. crustacea**

1b. Stem erect or suberect, ciliate on the angles, no rooting at nodes; leaves apex acute.....2

1a. Sepals cordate at base; style 0.4-0.7 cm long; capsules ovoid-oblong, acute; seeds light yellow ..... **T. indica**

1b. Sepals never cordate at base; style 0.8-1.0 cm long; capsules oblong-ovate, obtuse; seeds pale orange

..... **T. violacea**

**Torenia crustacea** (L.) Cham. & Schltdl. Linnaea 2: 570. 1827. *Lindernia crustacea* (L.) F.Muell., Syst. Census Austral. Pl. 97. 1882; N.P. Singh et al., Fl. Bihar: 357. 2001. *Capraria crustacea* L., Mant. Pl. 1:87. 1767. *Vandellia crustacea* (L.) Benth., Scroph. Ind. 35. 1835; Hook.f., Fl. Brit. India 4: 279. 1884; Haines, Bot. Bihar Orissa 631. 1922 (Repr. ed., 2:661. 1961). *Lindernia crustacea* var. *verticillata* (Haines) K.K. Khanna, *comb. nov.* *Vandellia crustacea* (L.) Benth. var. *verticillata* Haines, Bot. Bihar Orissa 631. 1922 (Repr. ed., 2: 662. 1961); N.P. Singh et al., Fl. Bihar: 357. 2001.

*Fl. & Fr.*: July - December.

*Distrib.*: Palamau, Ranchi.

**Torenia indica** C.J.Saldanha, Bull. Bot. Surv. India 8: 127. 1967; N.P. Singh et al., Fl. Bihar: 363. 2001. *T. cordifolia* auct. *non* Roxb., 1802: Hook.f., Fl. Brit. India 4: 276. 1884, *p.p.*; Haines, Bot. Bihar Orissa 629. 1922 (Repr. ed., 2: 660. 1961).

*Fl. & Fr.*: August - December.

*Distrib.*-. Hazaribagh, Palamau.

**Torenia violacea** (Azaolo ex Blanco) Pennell, J. Arnold Arbor. 24: 255. 1943; N.P. Singh et al., Fl. Bihar: 364. 2001. *Mimulus violaceus* Azaolo ex Blanco, Fl. Filip. ed. 2: 357. 1845. *Torenia peduncularis* Benth. ex Hook.f., Fl. Brit. India 4: 276. 1884; Haines, Bot. Bihar Orissa 629. 1922 (Repr. ed., 2: 659. 1961).

*Fl. & Fr.*: August – November.

*Distrib.*: Singhbhum.

#### **VERBASCUM L.**

About 360 species in North temperate Eurasia (Mabberley, 2008, 2017); 6



species in India (Santapau & Henry, 1973); 1 species in Jharkhand.

**Verbascum chinense** (L.) Santapau, Fl. Purandhar 90. 1957; N.P. Singh et al., Fl. Bihar: 364. 2001. *Scrophularia chinensis* L., Mant. Pl. 2:250. 1771. *Celsia coromandeliana* Vahl, Symb. Bot. 3: 79. 1794; Hook.f., Fl. Brit. India 4: 251. 1883; Haines, Bot. Bihar Orissa 619. 1922 (Repr. ed., 2: 649. 1961).

*Fl. & Fr.*: September - May.

*Distrib.*: Chota Nagpur.

#### **VERONICA L.**

About 450 species, mostly in N. temperate zone, few in south temperate and tropical mountains (Mabberley, 2008, 2017); c. 32 species in India (Santapau & Henry, 1973); 1 species in Jharkhand.

**Veronica anagallis-aquatica** L., Sp. Pl. 12. 1753; Hook.f., Fl. Brit. India 4: 293. 1884 (as '*anagallis*'); N.P. Singh et al., Fl. Bihar: 364. 2001.

*Fl. & Fr.*: October - April.

*Distrib.*: Giridih, Hazaribagh, Palamau, Ranchi, Singhbhum.

Cultivated species of Scrophulariaceae recorded during present study:

**Antirrhinum majus** L.

**Linaria bipartita** Willd.

**Mimulus orbicularis** Wallich ex Benth.

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**Russelia coccinea** Wettst. in Engler & Prantl

**Russelia equisetiformis** Schlechtend. & Cham

**Russelia rotundifolia** Cav.

**Torenia fournieri** Linden ex Fourn.

#### **Conclusion:**

A total of 59 taxa of family Scrophulariaceae are documented. Furthermore, distributions at global and national level of associated genera have been provided. This data will be ready references to assess the Scrophulariaceae diversity in the state of Jharkhand and the study will facilitate strategies for management of wild plants and habitat conservation aspects in terms of plant diversity and resource management.

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