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The Genus *Tomentella*: Indian Scenario

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ABSTRACT

A consolidated tabulated account of 56 taxa of genus *Tomentella* Pers. ex Pat. from India has been given, which is based on the contributions made on the genus till date. Information about the names of taxa published by different workers, present names of taxa as per MycoBank and Species Fungorum and first report from India has been given in the table. Along with a key to the valid species of *Tomentella* has also been provided.

Key words: *Basidiomycota*, *Agaricomycetes*, Himalaya, Wood rotting fungi

INTRODUCTION

Genus *Tomentella* Pers. ex Pat. belongs to Family *Thelephoraceae* Chevall. (Order-*Thelephorales*, Phylum-*Basidiomycota*) and is peculiar in having resupinate, loosely adnate, effused basidiocarps, hypochnoid to minutely granulose to arachnoid to mucedinioid to smooth to granulose to colliculose hymenial surface; monomitic or dimitic hyphal system, branched, septate, with or without clamps generative hyphae, aseptate, thick-walled skeletal hyphae; narrowly clavate to clavate to subclavate to subcylindrical, 4-sterigmate, with or without basal clamp in basidia; subglobose to globose, regular to irregular in outline to lobed, apiculate, subhyaline or yellowish brown or brown, thick-walled, echinulate, acyanophilous, inamyloid basidiospores.

As many as 56 taxa have so far been described from India by various workers (Thind and Rattan, 1971; Rattan, 1977; Natarajan and Chandrashekara, 1978; Dhingra, 1985; Dhingra and Rani, 1994; Bhosle *et al.*, 2005; Kaur *et al.*, 2010; Sharma, 2012; Kaur, 2012; Samita, 2014; Dhingra, 2014; Dhingra *et al.*, 2014) from different localities. Of these, 3 new taxa (*T. himalayana* S.S. Rattan, *T. indica* S.S. Rattan, *T. subcorticioides* S.S. Rattan) were published by Rattan (1977), one (*T. vesiculosa* Natarajan & Chandrash.) by Natarajan and Chandrashekara (1978), three (*T. kalatopii* Dhingra & Malka, *T. unicus* Dhingra & Malka and *T. cladii* Wakef. var. *grandii* Dhingra & Malka) by Dhingra and Rani (1994) and one (*T. garhwaliana* Samita, Sanyal & Dhingra) by Dhingra (2014) (**Table-1**). All names of the valid species are given as per MycoBank (2016) and Species Fungorum (2016).

Table-I: List of taxa of Genus *Tomentella* from India

S. No	Earlier name of taxon	Present name of taxon as per mycobank and species fungorum	First report from India
1.	<i>T. epiphylla</i> (Schwein.) Litsch.	<i>T. punicea</i> (Alb. & Schwein.) J. Schröt.	Thind and Rattan (1971) from Himachal Pradesh
2.	<i>T. rubiginosa</i> (Bres.) Maire	<i>T. rubiginosa</i>	Thind and Rattan (1971) from Himachal Pradesh
3.	<i>T. microspora</i> (P. Karst.) Höhn. & Litsch	<i>T. microspora</i>	Thind and Rattan (1971) from Himachal Pradesh
4.	<i>T. pilosa</i> (Burt) Bourdot & Galzin	<i>T. pilosa</i>	Thind and Rattan (1971) from Himachal Pradesh
5.	<i>T. botryoides</i> (Schwein.) Bourdot & Galzin	<i>T. ferruginea</i> (Pers.) Pat.	Thind and Rattan (1971) from Himachal Pradesh
6.	<i>T. rutneri</i> Litsch.	<i>T. stuposa</i> (Link) Stalpers	Thind and Rattan (1971) from Himachal Pradesh
7.	<i>T. pannosa</i> (Berk. & M.A. Curtis) Bourdot & Galzin	<i>T. pannosa</i>	Thind and Rattan (1971) from Himachal Pradesh
8.	<i>T. fimbriata</i> M.P. Christ.	<i>T. badia</i> (Link) Stalpers	Rattan (1977) from Himachal Pradesh
9.	<i>T. calcicola</i> (Bourdot & Galzin) M.J. Larsen	<i>T. calcicola</i>	Rattan (1977) from Himachal Pradesh
10.	<i>T. crinalis</i> (Fr.) M.J. Larsen	<i>T. crinalis</i>	Rattan (1977) from Himachal Pradesh
11.	<i>T. ferruginea</i> (Pers.) Pat.	<i>T. ferruginea</i>	Rattan (1977) from Himachal Pradesh and Uttarakhand
12.	<i>T. umbrinospora</i> M.J. Larsen	<i>T. umbrinospora</i>	Rattan (1977) from Himachal Pradesh
13.	<i>T. lateritia</i> Pat.	<i>T. lateritia</i>	Rattan (1977) from Himachal Pradesh
14.	<i>T. cinerascens</i> (P. Karst.) Höhn. & Litsch.	<i>T. cinerascens</i>	Rattan (1977) from Himachal Pradesh
15.	<i>T. subcorticioides</i> S.S. Rattan	<i>T. subcorticioides</i>	Rattan (1977) from Himachal Pradesh and Uttarakhand
16.	<i>T. himalayana</i> S.S. Rattan	<i>T. himalayana</i>	Rattan (1977) from Himachal Pradesh
17.	<i>T. bryophila</i> (Pers.) M.J. Larsen	<i>T. bryophila</i>	Rattan (1977) from Himachal Pradesh
18.	<i>T. indica</i> S.S. Rattan	<i>T. indica</i>	Rattan (1977) from Himachal Pradesh and Uttarakhand
19.	<i>T. chlorina</i> (Masse) G. Cunn.	<i>Amaurodon viridis</i> (Alb. & Schwein.) J. Schröt.	Rattan (1977) from Himachal Pradesh
20.	<i>T. griseoumbrina</i> Litsch.	<i>T. griseoumbrina</i>	Rattan (1977) from Himachal Pradesh
21.	<i>T. punicea</i> (Alb. & Schwein.) J. Schröt.	<i>T. punicea</i>	Rattan (1977) from Himachal Pradesh
22.	<i>T. ochracea</i> (Sacc.) M.J. Larsen	<i>T. ellisii</i> (Sacc.) Jülich & Stalpers	Rattan (1977) from Himachal Pradesh
23.	<i>T. coerulea</i> (Bres.) Höhn. & Litsch.	<i>T. coerulea</i>	Rattan (1977) from Himachal Pradesh
24.	<i>T. vesiculosa</i> Natarajan & Chandrash.	<i>T. vesiculosa</i>	Natarajan and Chandrashekara (1978) from South India
25.	<i>T. scobinella</i> G. Cunn.	<i>T. scobinella</i>	Dhingra (1985) from the Eastern Himalaya and Dhingra and Rani (1994) from Himachal Pradesh
26.	<i>T. subalpina</i> M.J. Larsen	<i>T. subalpina</i>	Dhingra (1985) from the Eastern Himalaya
27.	<i>T. terrestris</i> (Berk. & Broome) M.J. Larsen	<i>T. terrestris</i>	Dhingra (1985) from the Eastern Himalaya
28.	<i>T. galzinii</i> Bourdot	<i>T. galzinii</i>	Dhingra and Rani (1994) from Himachal Pradesh
29.	<i>T. ramosissima</i> (Berk. & M.A. Curtis) Wakef.	<i>T. lapida</i> (Pers.) Stalpers	Dhingra and Rani (1994) from Himachal Pradesh
30.	<i>T. atramentaria</i> Rostr.	<i>T. atramentaria</i>	Dhingra and Rani (1994) from Himachal Pradesh

Contd.....

Table-I continued....

S. No	Earlier name of taxon	Present name of taxon as per mycobank and species fungorum	First report from India
31.	<i>T. cladii</i> Wakef.	<i>T. cladii</i>	Dhingra and Rani (1994) from Himachal Pradesh
32.	<i>T. cladii</i> var. <i>grandii</i> Dhingra and Malika	<i>T. cladii</i> var. <i>grandii</i>	Dhingra and Rani (1994) from Himachal Pradesh
33.	<i>T. puberula</i> Bourdot & Galzin	<i>T. puberula</i>	Dhingra and Rani (1994) from Himachal Pradesh
34.	<i>T. bicolor</i> (G.F. Atk. & Burt) Bourdot & Galzin	<i>T. bicolor</i>	Dhingra and Rani (1994) from Himachal Pradesh
35.	<i>T. unicus</i> Dhingra & Malka	<i>T. unicus</i>	Dhingra and Rani (1994) from Himachal Pradesh
36.	<i>T. olivascens</i> (Berk. & M.A. Curtis) Bourdot & Galzin	<i>T. olivascens</i>	Dhingra and Rani (1994) from Himachal Pradesh
37.	<i>T. kalatopii</i> Dhingra & Malka	<i>T. kalatopii</i>	Dhingra and Rani (1994) from Himachal Pradesh
38.	<i>T. muricata</i> (Ellis & Everh.) Wakef.	<i>T. muricata</i>	Dhingra and Rani (1994) from Himachal Pradesh
39.	<i>T. viridis</i> (Rick) G. Cunn.	<i>T. viridis</i>	Bhosle <i>et al.</i> (2005) from western ghats (Maharashtra)
40.	<i>T. bresadolae</i> (Brinkmann) Bourd. & Galz.	<i>T. stuposa</i> (Link) Stalpers	Kaur, H. <i>et al.</i> (2010) from Himachal Pradesh
41.	<i>T. brevispina</i> (Bourdot & Galzin) M.J. Larsen	<i>T. brevispina</i>	Kaur, H. <i>et al.</i> (2010) from Himachal Pradesh and Uttarakhand
42.	<i>T. clavigera</i> Litsch.	<i>T. clavigera</i>	Kaur, H. <i>et al.</i> (2010) from Himachal Pradesh and Uttarakhand
43.	<i>T. subclavigera</i> Litsch.	<i>T. subclavigera</i>	Kaur, H. <i>et al.</i> (2010) from Himachal Pradesh
44.	<i>T. albomarginata</i> (Bourdot & Galzin) M.J. Larsen	<i>T. albomarginata</i>	Kaur, J. (2012) from Himachal Pradesh
45.	<i>T. pyrolae</i> (Ellis & Halst.) M.J. Larsen	<i>T. pyrolae</i>	Kaur, J. (2012) from Himachal Pradesh
46.	<i>T. griseoviolacea</i> Litsch.	<i>T. griseoviolacea</i>	Kaur, J. (2012) from Himachal Pradesh
47.	<i>T. radiosa</i> (P. Karst.) Rick	<i>T. radiosa</i>	Kaur, J. (2012) from Himachal Pradesh
48.	<i>T. testaceogilva</i> Bourdot & Galzin	<i>T. testaceogilva</i>	Kaur, J. (2012) from Himachal Pradesh
49.	<i>T. varicolor</i> Malençon	<i>T. varicolor</i>	Kaur, J. (2012) from Himachal Pradesh
50.	<i>T. asperula</i> (P. Karst.) Höhn. & Litsch.	<i>T. asperula</i>	Samita (2014) from Uttarakhand
51.	<i>T. cinereoumbrina</i> (Bres.) Stalpers	<i>T. cinereoumbrina</i>	Samita (2014) from Uttarakhand
52.	<i>T. fibrosa</i> (Berk. & M.A. Curtis) Køljalg	<i>T. fibrosa</i>	Samita (2014) from Uttarakhand
53.	<i>T. viridula</i> Bourdot & Galzin	<i>T. viridula</i>	Samita (2014) from Uttarakhand
54.	<i>T. garhwaliana</i> Samita, Sanyal & Dhingra	<i>T. garhwaliana</i>	Dhingra (2014) from Uttarakhand
55.	<i>T. atroarenicolor</i> Nikol.	<i>T. atroarenicolor</i>	Dhingra & Rani (1994) from Himachal Pradesh, Samita (2014) from Uttarakhand
56.	<i>T. sublilacina</i> (Ellis & Holw.) Wakef.	<i>T. sublilacina</i>	Dhingra <i>et al.</i> (2014) from Himachal Pradesh, Samita (2014) from Uttarakhand

A key to the species of *Tomentella* reported from India by various investigators and recognized as valid in MycoBank (2016) and Species Fungorum (2016) is given below:

KEY TO THE SPECIES

1. Hyphal system dimittic 2
1. Hyphal system monomittic 7
2. Hymenophoral trama present.....*T. fibrosa*
2. Hymenophoral trama absent 3
3. Hymenophore toothed..... 4
3. Hymenophore not toothed 5
4. Basidiospores regular in outline, 5.5-6 (-7) in diameter *T. calcicola**
4. Basidiospores irregular in outline, 8-9 µm in diameter *T. crinalis*
5. Hymenophore arachnoid to mucedinoid, basidiospores up to 10 µm *T. ferruginea*
5. Hymenophore smooth to finely granulose, basidiospores up to 8 µm 6
6. Hymenial surface rusty brown to yellowish brown, granulose *T. umbrinospora**
6. Hymenial surface yellowish brown to ochraceous, smooth.....*T. ferruginella**
7. Hyphae with or without clamps..... 8
7. All hyphae with clamps..... 11
8. Subicular hyphae with or without clamps, subhymenial hyphae with clamps.....*T. radiosa*
8. Hyphae with scattered clamps or simple septate 9
9. Hyphae with scattered clamps.....*T. cinereoumbrina*
9. Hyphae simple septate 10
10. Hyphal cordons absent *T. badia*
10. Hyphal cordons present *T. garhwaliana*
11. Cystidia or clavate vesicle like structures present..... 12
11. Cystidia or clavate vesicle like structures absent..... 20
12. Clavate vesicle like structures present.....*T. vesiculosa*
12. Cystidia present 13
13. Hyphal cordons absent 14
13. Hyphal cordons present 19
14. Cystidia subfusiform, usually acuminate or capitulate, abruptly expanded at the apex..... 15
14. Cystidia hyphoid, fusiform or obclavate..... 16
15. Cystidia capitulate, abruptly expanded at the apex.....*T. viridula*
15. Cystidia subfusiform, usually acuminate.....*T. galzinii*
16. Cystidia hyphoid with expanded apex.... *T. subclavigera*
16. Cystidia hyphoid without expanded apex, fusiform or obclavate..... 17
17. Cystidia fusiform or obclavate 18

17. Cystidia hyphoid without expanded apex
..... *T. atroarenicolor*
18. Cystidia fusiform *T. pyrolae*
18. Cystidia obclavate *T. clavigera*
19. Cystidia arising from basal hyphae, hyphal cordons up to 50 µm wide *T. pilosa*
19. Cystidia arising from subhymenium, hyphal cordons up to 70 µm wide *T. muricata*
20. Basidiospores regular in outline 21
20. Basidiospores irregular to lobed 28
21. Basidiospores aculeolate or echinulate, spines up to 1.5 µm long 22
21. Basidiospores aculeate, spines up to 3 µm long 26
22. Hyphal walls swell up in 10% KOH solution *T. stuposa*
22. Hyphal walls do not swell up in 10% KOH solution 23
23. Basidiospores 4.5-5.5 µm *T. subalpina*
23. Basidiospores more than 5.5 µm 24
24. Basidiospores 10-13 µm, bluish green in 10% KOH *T. lapida*
24. Basidiospores 7-9 (-10.5) µm, not bluish green in 10% KOH 25
25. Basidiospores distinctly elongate along one axis, hyphae bluish green in KOH *T. cladii*
25. Basidiospores not elongate along one axis, hyphae not green in KOH *T. asperula*
26. Fruitbody up to 800 µm thick in section
..... *T. cladii* var. *grandii*
26. Fruitbody up to 350 µm thick in section 27
27. Hymenial surface brownish orange to grayish brown, basidiospores subglobose *T. kalatopii*
27. Hymenial surface light brown to dark brown, basidiospores globose to subglobose *T. atramentaria*
28. Basidiospores irregular in outline 29
28. Basidiospores irregular to lobed 41
29. Hymenial surface smooth to farinaceous, yellow ochre to yellow brown, basidiospores irregular
..... *T. bryophila**
29. Not with above combination of characters 30
30. Basidiospores up to 7 µm in diameter 31
30. Basidiospores more than 8 µm 34
31. Hymenial surface with some shades of pink or purple ... 32
31. Hymenial surface with shades of orange brown to grayish brown to dark brown 33
32. Hymenial surface pinkish brown *T. cinerescens**
32. Hymenial surface purplish *T. microspora**
33. Basidia 18-25 µm in length *T. griseoumbrina**
33. Basidia 35-40 µm in length *T. elisii**
34. Hyphal cordons present 35
34. Hyphal cordons absent 36
35. Basidia 37-79 µm, narrowly clavate to subcylindrical
..... *T. varicolor*
35. Basidia 40-56 µm, clavate *T. testaceogilva*
36. Color of basidiocarp changing on putting drop of 3% KOH solution 37
36. Color of basidiocarp not changing on putting drop of 3% KOH solution 39
37. Basidiospores up to 7 µm in diameter *T. coerulea**
37. Basidiospores 7.5-10 µm in diameter 38
38. Basal hyphae up to 5.7 µm wide, basidia 50-70 µm, clavate to cylindrical *T. subcorticioides*
38. Basal hyphae up to 6.8 µm wide, basidia 45-60 µm, clavate to cylindrical to utriform *T. indica*
39. Basidiocarps hypochnoid to archnoid
..... *T. griseoviolacea*
39. Basidiocarps mucedinioid 30
40. Basal hyphae up to 13 µm wide, basidiospores up to 11 µm across *T. brevispina*
40. Basal hyphae up to 8 µm wide, basidiospores up to 14 µm across *T. terrestris*
41. Hymenial surface smooth to tuberculate, orange to brownish orange *T. albomarginata*
41. Hymenial surface smooth to granular, yellowish brown to grayish brown to olive brown to bluish black to brownish black 42
42. Hymenial surface bluish black to brownish black, subhymenial hyphae minutely spinulose *T. botryoides*
42. Hymenial surface yellowish brown to grayish brown to olive brown, subhymenial hyphae not spinulose 43
43. Basidia with granular material which turns green to dark green in KOH *T. rubiginosa*
43. Basidia not as above 44
44. Basidia 45-60-80 × 6-9-(12) µm *T. pannosa*
44. Basidia not as above 45
45. Hyphae less than 5 µm wide 46
45. Hyphae more than 5 µm wide 47
46. Hymenial surface light brown, subiculum light brown to dark brown *T. puberula*
46. Hymenial surface light orange to orange to brown,

- subiculum paler concolorous *T. bicolor*
47. Hyphal cordons absent 48
47. Hyphal cordons present 51
48. Basidiospores warted *T. unicus*
48. Basidiospores echinulate 49
49. Basidiospores with granular material red in water mount
.....*T. lateritia*
49. Basidiospores without granular material, pale brown to
medium brown to dark brown in water mount 50
50. Basidiospores medium brown to dark brown, hyphae
with ampullate septa *T. sublilacina*
50. Basidiospores light brown, hyphae without ampullate
septae *T. scobinella*
51. Hyphal cordons up to 90 µm, basidiospores 7.5-10 µm
.....*T. himalayana**
51. Hyphal cordons up to 40 µm, basidiospores 5-9 µm.... 52
52. Hymenial surface brown to soot brown, basidia 30-35
µm*T. punicea*
52. Hymenial surface olive brown, basidia 35-55 µm
..... *T. olivascens*

* Described by other investigators.

CONCLUSION

With the merging of *Tomentella chlorina* with *Amaurodon viridis*, *T. epiphylla* with *T. punicea*, *T. ruttneri* with *T. stuposa*, *T. fimbriata* with *T. badia*, *T. ochracea* with *T. ellisii*, *T. ramossisma* with *T. lapida* and *T. bresadolae* with *T. stuposa* the total number of species of genus *Tomentella* sensu stricto from India is now 53.

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