

Genus *Ramaria* in the eastern Himalaya: subgenus *Laeticolora*-II

R M SHARDA and K S THIND

Department of Botany, Panjab University, Chandigarh 160 014, India

Abstract. This paper records 10 more taxa of the genus *Ramaria* (Fr.) Bonorden subgenus *Laeticolora* Marr and Stuntz collected from different localities in the eastern Himalaya and adjoining hills. *Ramaria synaptopoda*, *Ramaria rasilispora* var. *scatesiana*, *Ramaria sandaracina* and *Ramaria suecica* are new records for the Himalaya while *Ramaria flaviceps* var. *cremea*, *Ramaria flavobrunnescens*, *Ramaria flavobrunnescens* var. *formosoides*, *Ramaria flavobrunnescens* var. *aurea*, *Ramaria obtusissima* and *Ramaria camelicolor* are being recorded for the first time from the eastern Himalaya. Type/authentic collections of the first 3 taxa have also been examined.

Keywords. *Ramaria*; subgenus *Laeticolora*; taxonomy; eastern Himalaya.

1. Introduction

Of the several clavarioid fungi collected by the authors from the eastern Himalaya and adjoining hills during the monsoon months (July–October) of 1978–1981, majority were found belonging to the genus *Ramaria*. In their earlier publication, Thind and Sharda (1985) described 11 taxa belonging to subgenus *Laeticolora*, the largest of the 4 subgenera recognised under the genus *Ramaria*. The present communication gives detailed account of 10 more taxa of this subgenus. Type/authentic specimens of some species were procured from two herbaria in USA for comparison with the eastern Himalayan collections. The material of the taxa has been deposited in the Herbarium, Department of Botany, Panjab University, Chandigarh (PAN) and at some noted foreign herbaria as indicated. The colour standards are according to Kornerup and Wanscher (1967) while abbreviations used for the herbaria follow Holmgren and Keuken (1974).

2. Subgenus: *Laeticolora* Marr and Stuntz, *Biblioth. Mycol.* 38: 50. 1973

2.1 *Ramaria synaptopoda* Marr and Stuntz, *Biblioth. Mycol.* 38: 120. 1973 (figures 1–4)

Fruit-bodies upto 8×4 cm, fleshy-fibrous, solitary, or gregarious; light yellow in colour with orange tinge in the upper part, unchanging on bruising; distinct trunk absent, instead the base consisting of 3–4 primary axes, each axis up to 2.0×1.5 cm, branching profuse, lax type, polychotomous below, dichotomous above, internodes of the basal branches up to 0.7 cm wide, slender, stout, internodes thinner and smaller in the subsequent branches, axils broad; tips minute, subacute, concolorous with the branches; flesh white; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 12 (– 15) μm wide, without clamps, thin to slightly thick-walled, acyanophilous; ampullaeform swellings prominently ornamented; gloeoplerous hyphae up to 4 μm wide, simple, rarely branched, ends

swollen at the septa, thin-walled, cyanophilous. Basidia up to $67 \times 8.5 \mu\text{m}$, clavate, guttulate, unclamped, 4-spored; sterigmata up to $6.5 \mu\text{m}$ long. Basidiospores $9.5\text{--}11.5$ (-12.5) \times $3.5\text{--}4.5 \mu\text{m}$, cylindric to cylindric-ellipsoid, uni- to multiguttulate; thin- to slightly thick-walled, coarsely verrucose, cyanophilous, apiculus up to $1 \mu\text{m}$ long.

Specimen examined: R M Sharda 22148 (PAN; SUCO), on soil under *Pinus kesiya* Royle forest, 30 km (on Shillong-Jowai road), Meghalaya, September 25, 1979.

This is the first report of the occurrence of *R. synaptopoda* in the Himalaya. It is marked by small size and yellow to yellowish orange colour of the fruit-bodies, fasciculate habit, hyphae without clamps and cylindric to cylindric-ellipsoid, coarsely verrucose basidiospores, measuring $9.5\text{--}11.5$ (-12.5) \times $3.5\text{--}4.5 \mu\text{m}$.

A comparison of the eastern Himalayan collection with M-374 (Holotype; SUCO, on soil under western Hemlocks, Fryling Pan Creak, Trail, Mt. Rainier Nat. Park, Pierce county, WA, USA, September 29, 1966) of Marr indicates that the two resemble closely in external morphology and microscopic details. However, the basidiospores in the holotype are slightly smaller in size (average up to $9.9 \times 4.1 \mu\text{m}$) as given by Marr and Stuntz (1973). Collection No. 45909 (TENN; on duff under mixed conifers and hardwoods, Beaver Creak, Priest lake, Bonner Co, Idaho, USA, September 30, 1984) received from Professor Petersen also resembles closely with the east Himalayan collection. However, the basidiospores in Coll. No. 45909 are decidedly wider (up to $5.6 \mu\text{m}$) and possess mostly one prominent gutta in the middle.

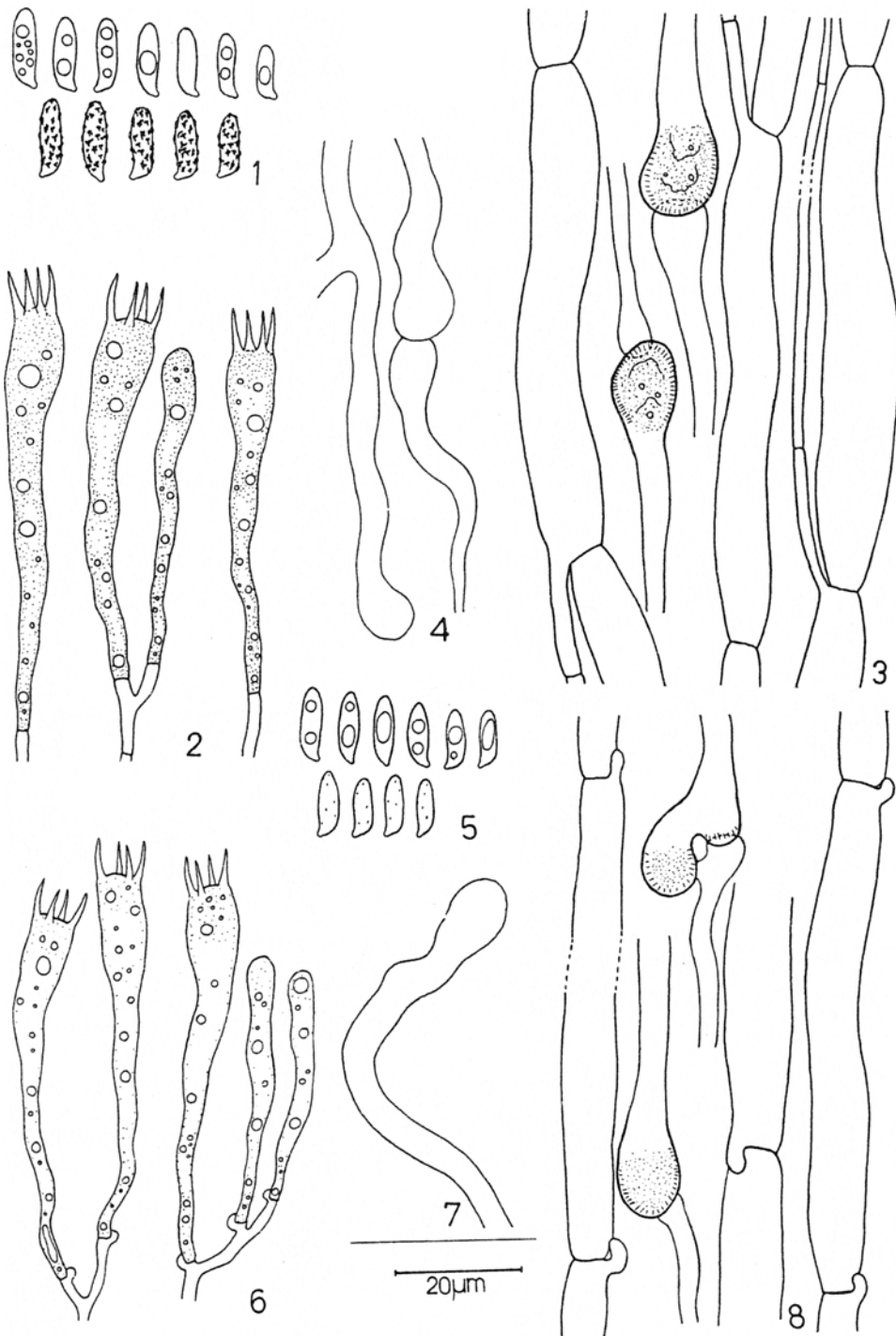
2.2 *Ramaria rasilispora* Marr and Stuntz, var. *scatesiana* Marr and Stuntz, *Biblioth. Mycol.* 38: 108. 1973 (figures 5–8)

Fruit-bodies up to $11 \times 4.5 \text{ cm}$, fleshy-fibrous, solitary, or sometimes in groups of 2–3, cream coloured, or pale yellow to light yellow, unchanging on bruising; trunk up to $3.0 \times 1.5 \text{ cm}$, smooth, dull white or pale yellow; branching profuse, polychotomous, internodes of unequal length, intertwined, up to 0.5 cm wide in the lower branches, becoming thinner in the subsequent branches, axils lunate; tips obtuse, clustered, concolorous; flesh whitish concolorous; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to $12.0 \mu\text{m}$ wide, clamped, wall slightly thickened, acyanophilous; ampullaeform swellings ornamented; gloeoplerous hyphae up to $4.0 \mu\text{m}$ wide, simple, long, ends swollen at the septa, thin-walled, cyanophilous. Basidia up to $60.0 \times 8.5 \mu\text{m}$, clavate, guttulate, clamped, 4-spored; sterigmata up to $6 \mu\text{m}$ long; Basidiospores up to $8.5\text{--}11.0 \times 3.0\text{--}3.8 \mu\text{m}$, cylindric-ellipsoid, uni- to biguttulate; thin-walled, almost smooth to very finely warted, cyanophilous; apiculus up to $0.8 \mu\text{m}$ long.

Specimen examined: R M Sharda 22498 (PAN), on soil under hardwoods, 3 km (on Jamiri-Buragaon road), West Kameng, Arunachal Pradesh, September 13, 1981.

All the 3 North-American collections of this variety sent by Marr (No. M-2344, Holotype, SUCO; on soil, E Hayden, Idaho, USA, June 7, 1970) and Professor Petersen (No. 45856, TENN; on duff, Puget Sound Mycological Society Exhibit,



Figures 1–8. *R. synaptopoda*. 1. Basidiospores. 2. Basidia. 3. Context hyphae and ornamented ampullaeform swellings. 4. Gloeoplerous hyphae. *R. rasilispora* var. *scatesiana*. 5. Basidiospores. 6. Basidia. 7. Gloeoplerous hypha. 8. Context hyphae and ornamented ampullaeform swellings.

USA, October 13, 1984; and No. 45861, TENN; on duff under hemlock and cedar forests, Tahoma Creak, Mt. Rainier Natl Park, Washington, USA, October 15, 1984) closely resemble the only eastern Himalayan collection but for minor differences in habitat and colour of dry fruit-bodies. The east Himalayan collection was found growing under an angiospermous forest whereas the North-American collections are reported from coniferous forests. Our material has been overheated while drying and has become brittle and dark-brown while the American collections apparently are creamy brown. Our fresh field data, however, resembles with that given by Marr and Stuntz (1973) for this variety. Distinguishing features of this variety are its light yellow to cream coloured fruit-bodies, clamped hyphae and cylindrical-ellipsoid, almost smooth to very finely warted basidiospores.

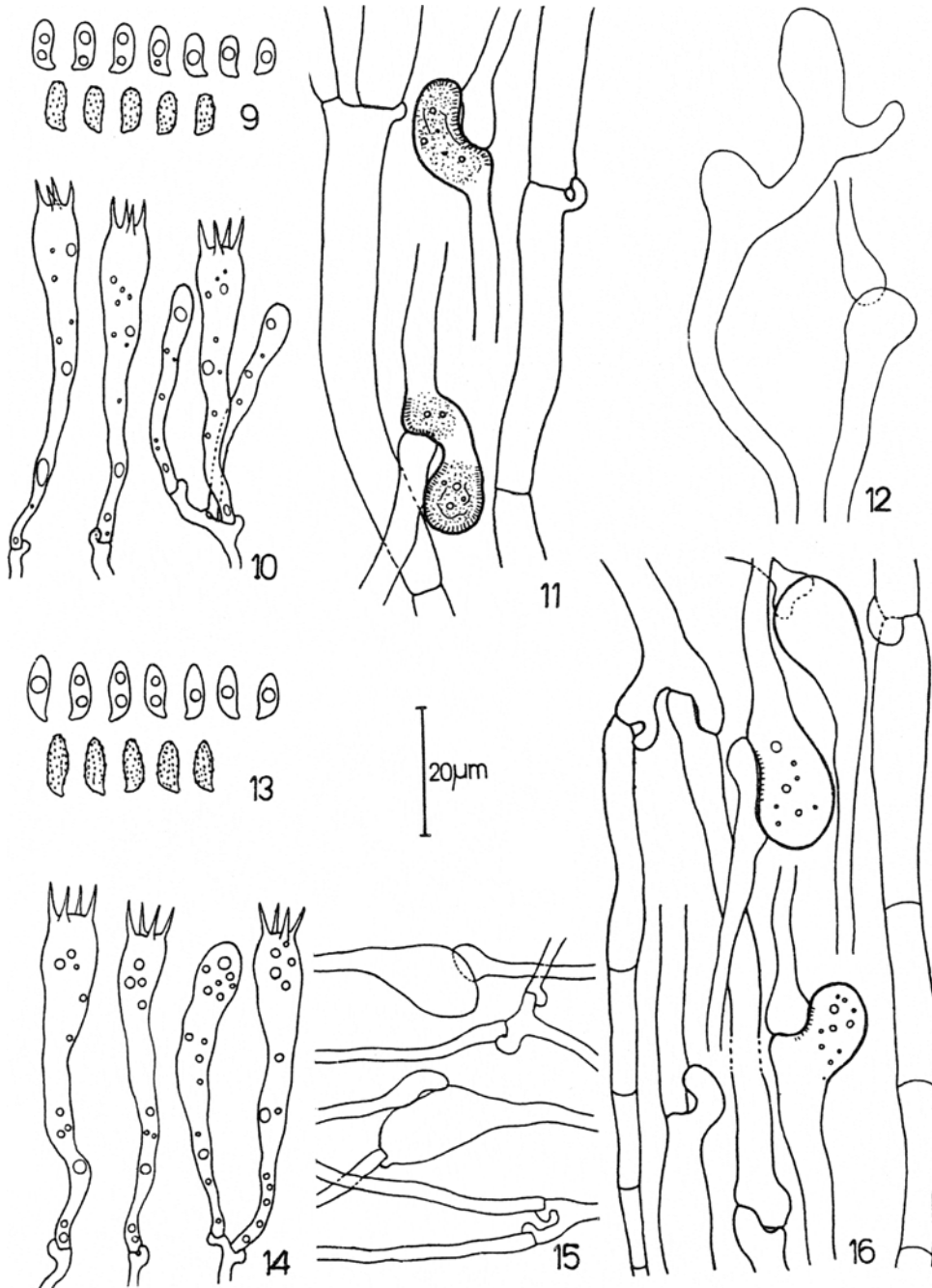
2.3 *Ramaria sandaracina* Marr and Stuntz, *Biblioth. Mycol.* 38: 114. 1973 (figures 9–12)

Fruit-bodies up to 12 × 6 cm, fleshy, solitary, or gregarious, light orange to orange in colour, unchanging on bruising; trunk up to 2 × 1 cm, somewhat stubby, smooth, white to orange white; branching profuse, polychotomous, compact type, internodes of the basal branches up to 0.6 cm wide, slender, faintly rugulose, in the subsequent branches thinner, shorter and more compact, smooth, axils narrow; tips subacute to obtuse, minute, concolorous to light yellow; flesh white; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 11 μm wide, clamps present almost at all the septa, wall thin, acyanophilous; ampullaeform swellings conspicuously ornamented; gloeoplerous hyphae up to 4 μm wide, sparsely branched, ends swollen near the septa or not, thin-walled, cyanophilous. Basidia up to 54 × 8 μm, clavate, guttulate, clamped, 4-spored; sterigmata up to 5.5 μm long. Basidiospores 7.5–9.0 (–9.5) × 3–3.8 (–4.2) μm, short-ellipsoid, or pip-shaped, uni- to biguttulate; thin-walled, verruculose, cyanophilous; apiculus up to 0.7 μm long.

Specimens examined: R M Sharda 22107 (PAN, SUCO), on soil under predominantly *P. kesiya* forest, Elephant falls, Shillong, Meghalaya, September 18, 1979; R M Sharda 22108 (PAN, SUCO), on soil under *P. kesiya* forest, Elephant falls, Shillong, Meghalaya, September 18, 1979; R M Sharda 22485 (PAN), on soil under mixed forest, 3 km (on Jamiri-Buragaon road), West Kameng, Arunachal Pradesh, September 13, 1981.

North-American collections sent by Marr (M-237, SUCO; on soil under western hemlocks and firs, Longmire, Mt. Rainier Nat. Park, Pierce country, WA, October 10, 1965) and Petersen (No. 45876, TENN; on duff under mixed conifer forest, Vicinity of Humptulip, Jefferson Co, USA, October 6, 1984 and No. 45902, TENN; on soil amongst mosses, Higley's Swamp, Prairie Creak Rd, Clallan Co., USA, October 5, 1984) resemble the eastern Himalayan collections almost in all the macroscopic and microscopic details. However, the dried fruit-bodies in the collections received are creamy white while ours are brittle and dark brown (apparently due to overheating). Petersen's collections are in good shape and fully mature while that sent by Marr is only a fragment. The species is identified by its orange coloured basidiocarps (when fresh), clamped hyphae and short-ellipsoid, or pip-shaped, verruculose, small basidiospores, measuring 7.5–9.0 (–9.5) × 3–3.8 (–4.2) μm.



Figures 9–16. *R. sandaracina*. 9. Basidiospores. 10. Basidia. 11. Context hyphae and ornamented ampullaeform swellings. 12. Gloeoplerous hyphae. *Ramaria suecica*. 13. Basidiospores. 14. Basidia. 15. Hyphae of the rhizomorphs; note much inflated, smooth ampullaeform swellings. 16. Context hyphae; note secondary septa and smooth ampullaeform swellings.

2.4 *Ramaria suecica* (Fr.) Donk. *Meded. Bot. Mus. Herb. Rijks-Univ. Utrecht* 9: 105. 1933 (figures 13–16)

Fruit-bodies up to 11 × 4 cm, fleshy-coriaceous, toughish, solitary, occasionally in subcaespitose groups of 2–3, sometimes gregarious, arising from basal white tomentum, mostly with delicate, thread-like rhizomorphs, pale ochraceous brown in the lower part and greyish orange to light pink in the upper half, unchanging on bruising; trunk indistinct to distinct, up to 3.5 × 0.5 cm, usually buried in the leaf-litter, white; branching profuse, polychotomous, upright, rather compact, internodes of the lower branches up to 0.4 cm across, smooth, axils of lower branches with orange brown scurfy areas, shorter and thinner in the upper branches, axils U-shaped; tips acute, long, pointed, usually single, or sometimes in pairs, lighter concolorous with the upper branches; flesh concolorous with the fruit-body surface; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 9.5 μm wide, clamped almost at all the septa, sparsely branched, in some of the hyphae secondary septa observed, wall thin to slightly thickened, acyanophilous; ampullaeform swellings smooth; hyphae of the rhizomorphs up to 3.0 μm wide, clamped, branched, ampullaeform swellings smooth; gloeoplerous hyphae not observed. Basidia up to 56 × 8.5 μm, clavate, guttulate, clamped, 4-spored; sterigmata up to 6 μm long. Basidiospores 7–9 (–10) × 2.8–3.8 μm, narrowly ellipsoid, uni- to biguttulate; thin-walled, verrucose, warts minute but distinct, cyanophilous; apiculus up to 0.7 μm long.

Specimen examined: R M Sharda 22400 (PAN), on humicolous soil or leaf-litter under angiospermous forest, 5 km (on Bomdila–Munna road), West Kameng, Arunachal Pradesh, August 26, 1981.

Khurana (1977) reported one collection of this species from Pahalgam in Jammu and Kashmir to which the Arunachal Pradesh collection resembles closely; the only difference being that the former does not possess secondary septa in context-hyphae. The distinctive features of the species are the greyish orange to light pink colour, presence of thread-like rhizomorphs, presence of secondary septa in some hyphae and narrowly ellipsoid, verrucose basidiospores measuring 7–9 (–10) × 2.8–3.8 μm.

2.5 *Ramaria flaviceps* Corner, *Thind and Anand, var. cremea* Corner, *Thind and Anand, Trans. Br. Mycol. Soc.* 39: 476. 1956.

Fruit-bodies up to 8.5 × 4 cm, fleshy, solitary, or gregarious, white to creamish below and light brown above, unchanging on bruising; trunk indistinct or almost absent; branching profuse, dichotomous, unequal, in alternating planes, rather compact, internodes of the lower branches up to 0.8 cm across, longer in the upper branches, up to 0.5 cm wide, axils narrow; tips minute, blunt, in pairs, concolorous; flesh whitish or paler concolorous; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 9.5 (–14) μm wide, without clamps, wall thin to slightly thickened, acyanophilous; ampullaeform swellings ornamented; gloeoplerous hyphae up to 3.5 μm wide, simple, ends swollen at the septa, thin-walled, cyanophilous. Basidia up to 62 × 8 μm, clavate, guttulate, unclamped, 4 (–2, –3) spored; sterigmata up to 5.5 μm long. Basidiospores 8.5–11 (–12.5) × 4.5–5 (–6) μm,

broad-ellipsoid, uni- to multiguttulate; wall slightly thickened, coarsely verrucose, cyanophilous; apiculus up to $0.8 \mu\text{m}$ long.

Specimen examined: R M Sharda 22258 (PAN), on soil under broad-leaved forest, Uetselpong, Thimphu, Bhutan, September 21, 1980.

This variety was described by Corner *et al* (1956) from Mussoorie (UP). Khurana (1977) added one more collection of this variety from Bakrota (Dalhousie) in the western Himalaya. The Bhutan collection closely resembles the description given by earlier workers for this taxon. It appears to be restricted in its distribution to Himalaya as it has not been reported from any other part so far.

Var. *flaviceps* Corner, Thind and Anand differs from var. *cremea* in having white fruit-bodies with yellow branch tips and smaller basidiospores, measuring up to $7.0\text{--}10.5 \times 4.2\text{--}5.2 \mu\text{m}$.

2.6 *Ramaria flavobrunnescens* (Atk.) Corner, var. *flavobrunnescens* (Atk.) Corner, *Ann. Bot. Mem.* 1: 581. 1950.

Fruit-bodies up to $9.5 \times 5 \text{ cm}$, fleshy, solitary, or gregarious, pale yellow to light yellow, sometimes ochraceous, colour turning brownish on bruising; trunk indistinct to distinct, up to $1.5 \times 0.8 \text{ cm}$, smooth, dull white to creamish; branching profuse, polychotomous below, dichotomous above, lax type, internodes in the basal branches up to 0.5 cm across, smooth, slender, up to 0.2 cm wide in the upper branches, axils U-shaped or narrow; tips subacute to obtuse, deep yellow, turning brown due to withering or on bruising; flesh white; taste indistinctive, smell pleasant.

Hyphal system monomitic; hyphae up to $14 \mu\text{m}$ wide, clamped, thin-walled, acyanophilous; ampullaeform swellings prominently ornamented; gloeoplerous hyphae up to $3.5 \mu\text{m}$ wide, simple, thin-walled, cyanophilous. Basidia up to $63 \times 9.8 \mu\text{m}$, clavate, guttulate, clamped, 4-spored; sterigmata up to $6 \mu\text{m}$ long. Basidiospores $7.5\text{--}10.5 (-11.2) \times 3.5\text{--}4.2 \mu\text{m}$, cylindrical to cylindrical-ellipsoid, uni- to multiguttulate; thin-walled, verruculose, warts fine, cyanophilous; apiculus up to $0.8 \mu\text{m}$ long.

Specimens examined: R M Sharda 22433 (PAN), on soil under mixed forest, 10 km (on Rupa-Shergaon road), West Kameng, Arunachal Pradesh, September 4, 1981; R M Sharda 22445 (PAN), on soil under mixed forest, Shergaon, West Kameng, Arunachal Pradesh, September 6, 1981.

As reported by Thind and Dev (1956) and Khurana (1977), this species is of common occurrence in the western Himalaya. Both the eastern Himalayan collections closely match the description of this species as given by Corner (1950; 1970) and Indian workers.

2.7 *Ramaria flavobrunnescens* (Atk.) Corner, var. *formosoides* Corner, *Beih. Nova Hedwigia* 33: 274. 1970.

Fruit-bodies up to $19 \times 11 \text{ cm}$, fleshy, solitary, or gregarious, pale yellow to cream coloured, with orange tinge all over, unchanging on bruising; trunk indistinct, usually as small, stubby base buried in soil, white; branching starts just at the ground level, profuse, polychotomous, lax type, internodes in the lower branches up to

1.0 cm wide, thick, stout, smooth, up to 0.4 cm wide in the upper branches, faintly rugose, axils broad; tips subacute to obtuse, in pairs or clustered, concolorous with the upper branches; flesh white to lighter concolorous; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 12.5 μm wide, clamped, thin-to slightly thick-walled, acyanophilous; ampullaeform swellings ornamented; gloeoplerous hyphae up to 5 μm wide, common, simple, or branched, ends swollen at the septa; thin-walled, cyanophilous. Basidia up to 58 \times 9.5 μm , clavate, guttulate, clamped, 4-spored; sterigmata up to 6 μm long. Basidiospores 10.5–14 (–15) \times 3.5–4.5 μm , subcylindric, uni-to multiguttulate; wall thin, verruculose, warts minute, cyanophilous; apiculus up to 1 μm long.

Specimens examined: R M Sharda 22256 (PAN), on soil under angiospermous forest, Uetselpong, Thimphu, Bhutan, September 21, 1980; R M Sharda 22309 (PAN), under deciduous woods, Bunakha, Bhutan, July 23, 1981.

This taxon was first reported by Thind and Anand (1956) under the name *R. obtusissima* 'rough spored form' (PAN 35) from Mussoorie (UP). Corner (1970) described a new variety *formosoides* of *R. flavobrunnescens* and treated PAN 35 under this variety. Subsequently, Khurana (1977) added more collections of this variety from western Himalaya. Both the eastern Himalayan collections from Bhutan closely resemble the description of this variety as given by Corner (1970) and earlier Indian workers.

2.8 *Ramaria flavobrunnescens* (Atk.) Corner, var. *aurea* Coker, *Clav. US Can.* 124. 1923.

Fruit-bodies up to 9 \times 4.5 cm, fleshy-fibrous, solitary, gregarious, orange white to deep orange, unchanging on bruising; trunk indistinct to distinct, when distinct up to 4 \times 2.3 cm, somewhat stubby, white; branching profuse, compact type, polychotomous, internodes longer in the lower branches and thinner and shorter in the upper branches, smooth, axils narrow; tips minute, acute to subacute, clustered, yellow to yellowish orange; flesh lighter concolorous; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 12 μm wide, clamped, sparsely branched, wall thin-to slightly thickened, acyanophilous; ampullaeform swellings ornamented; gloeoplerous hyphae up to 3.5 μm wide, common, simple or branched, ends swollen near the septa, thin-walled, cyanophilous. Basidia up to 55 \times 8.5 μm , clavate, guttulate, clamped, 4-spored; sterigmata up to 5.5 μm long. Basidiospores 8.5–10 (–11) \times 3.5–4.0 μm , ellipsoid, uni-to multiguttulate; thin-walled, verruculose, warts minute, cyanophilous; apiculus up to 0.8 μm long.

Specimens examined: R M Sharda 22297 (PAN), on soil under angiospermous forest, Chimakothi, Bhutan, July 28, 1981; R M Sharda 22324 (PAN), on soil under *P. kesiya* forest, Motithang, Thimphu, Bhutan, August 4, 1981; R M Sharda 22436 (PAN), under mixed forest, 6 km (on Jigaon–Shergaon road), West Kameng, Arunachal Pradesh, September 5, 1981; R M Sharda 22446 (PAN), under deciduous woods, Sheragaon, West Kameng, Arunachal Pradesh, September 6, 1981; R M Sharda 22460 (PAN), under mixed forest, 4 km (on Sheragaon–Kalaktang road), West Kameng, Arunachal Pradesh, September 7, 1981.

This taxon was first reported by Thind and Dev (1957) under the name *R. flavobrunnescens* 'bright orange form' on the basis of a collection (PAN 68) from Mussoorie (UP). Later on, Corner (1970) referred it to var. *aurea*. Khurana (1977) added one more collection (PAN 4905) from Nainital (UP). All the eastern Himalayan collections closely match the western Himalayan collections.

Three varieties of *R. flavobrunnescens* are separated on the basis of fruit-body colour and basidiospore size. Var. *aurea* is distinguished from the other two varieties by orange colour of its branches with yellow to concolorous tips. Var. *flavobrunnescens* and var. *formosoides* possess almost similar coloured fruit-bodies, but are separated on the basis of basidiospore size. Var. *formosoides* has larger basidiospores ($10.5\text{--}14(-15) \times 3.5\text{--}4.5 \mu\text{m}$) than those of var. *flavobrunnescens* ($7.5\text{--}10.5(-11.2) \times 3.5\text{--}4.2 \mu\text{m}$).

2.9 *Ramaria obtusissima* (Peck) Corner, *Ann. Bot. Mem.* 1: 609. 1950.

Fruit-bodies up to 12×7 cm, fleshy-fibrous, solitary, gregarious, pale cream to creamish tan to light yellow, colour unchanging on bruising; trunk up to 3×2 cm, buried in soil, somewhat stubby, cone shaped, white to yellowish white; branching profuse, polychotomous, divergent, internodes of the basal branches thick, stout, up to 1.0 cm across, in the upper branches slightly thinner, rugulose, axils wide open; tips blunt, clustered or in pairs, slightly swollen, concolorous with the upper branches; flesh white; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to $13.5 \mu\text{m}$ wide, clamped, wall thin to slightly thickened, acyanophilous; ampullaeform swellings prominently ornamented; gloeoplerous hyphae common, up to $4.5(-6) \mu\text{m}$ wide, simple or branched, ends swollen near the septa or not, thin-walled, cyanophilous. Basidia up to $67 \times 11 \mu\text{m}$, long-clavate, guttulate, clamped, 4-spored; sterigmata up to $7 \mu\text{m}$ long. Basidiospores up to $9.5\text{--}11.5(-12.5) \times 3.5\text{--}4.0(-4.5) \mu\text{m}$, cylindrical to cylindric-ellipsoid, uni-to biguttulate; wall thin, verruculose, warts indistinct, cyanophilous; apiculus up to $1 \mu\text{m}$ long.

Specimens examined: R M Sharda 22008 (PAN), on soil under *P. kesiya* forest, 5-miles (on way to Elephant falls), Shillong, Meghalaya, July 5, 1978; R M Sharda 22011 (PAN), Elephant falls, Shillong, Meghalaya, July 5, 1978; R M Sharda 22111 (PAN), under a pine forest, Elephant falls, Shillong, Meghalaya, September 18, 1979.

In the Himalaya, this species was first recorded by Thind and Dev (1957) from Mussoorie (UP). Subsequently, Khurana (1977) made additional collections of this fungus from Nainital hills. All the western Himalayan collections were found under angiospermous forests while the eastern Himalayan collections were found under predominantly pine forests. In all other details, the western and east Himalayan collections resemble closely. The species is characterized by tan white to creamish colour of the fruit-bodies, somewhat thick, stout branches and swollen tips, non-bruising property, clamped hyphae and cylindric to cylindric-ellipsoid, faintly verruculose basidiospores.

R. magnipes Marr and Stuntz, is closely allied to this species. The former, however, differs in possessing longer spores (up to $13.3\text{--}15.4 \times 3.8\text{--}4.2 \mu\text{m}$), more intense colour and massive fruit-body size.

2.10 *Ramaria camelicolor* Corner, Thind and Anand, *Trans. Br. Mycol. Soc.* **39**: 480. 1956.

Fruit-bodies up to 12 × 6.5 cm, slender, fleshy-fibrous, solitary, or gregarious, buff coloured to ochraceous brown, unchanging on bruising; trunk up to 5 × 1.7 cm, smooth, white at the lower most part, pallid brown upward; branching polychotomous below and dichotomous above, profuse, internodes of the basal branches up to 0.7 cm wide, slender, thinner and shorter in the subsequent branches, axils U-shaped or broad; tips obtuse, in pairs or clustered, concolorous with the branches; flesh white to dull white; taste and smell not distinctive.

Hyphal system monomitic; hyphae up to 10.5 µm wide, clamped, wall thin to slightly thickened, acyanophilous; ampullaeform swellings ornamented; gloeoplerous hyphae up to 3 µm wide, fairly common, simple, ends swollen at the septa, thin-walled, cyanophilous. Basidia up to 76 × 10.5 µm, long-clavate, guttulate, clamped, 4-spored; sterigmata up to 7 µm long. Basidiospores 8.5–12.5 (–13) × 4.5–5.5 (–6) µm, broad-ellipsoid, uni- to multiguttulate; wall slightly thickened, coarsely verrucose, cyanophilous; apiculus prominent, up to 1.2 µm long.

Specimen examined: R M Sharda 22442 (PAN), on soil under predominantly angiospermous forest, Shergaon, West Kameng, Arunachal Pradesh, September 6, 1981.

This species seems to be restricted in its distribution to Himalaya only as it has not been collected from any other part of the world so far. Corner *et al* (1956) described it from Mussoorie (UP) and Khurana (1977) added 3 more collections from different localities in western Himalaya.

The only eastern Himalayan collection from Shergaon (Arunachal Pradesh) matches well with the description of this species as given by its authors. Main features of this taxon are its slender form, buff to ochraceous brown colour, presence of distinct trunk, clamped hyphae and coarsely verrucose, broad-ellipsoid basidiospores.

Acknowledgements

Grateful thanks are due to Professor Ronald H Petersen, Department of Botany, The University of Tennessee, Knoxville, USA and Dr C D Marr, Department of Biology, State University College, Oneonta, New York, USA for sending the type/allied collections and valuable comments. Financial assistance provided by the Department of Science and Technology, New Delhi to carry out this study, is gratefully acknowledged.

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