

**FLAGELLOSCYPHA SECT. LACHNELLOSCYPHA
A LINK BETWEEN THE GENERA LACHNELLA AND FLAGELLOSCYPHA**

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A new species is described and a new combination is made in the genus *Flagelloscypha*: *F. montis-anagae* Agerer and *F. libertiana* (Cooke) Agerer; *Lachnella rosae* W. B. Cooke is recognized as a synonym of *F. libertiana*. — *Flagelloscypha montis-anagae* and *F. libertiana* possess on the fruit-body two different types of surface hairs. — The basidia of these species are bigger and have rather stout sterigmata, the spores are on the average longer than in many typical species of *Flagelloscypha*. Moreover the spores are often subfalcispora-like and the fruit-bodies are cupulate and broadly stipitate as in the species of *Lachnella*.¹ — Because of the similarities of these species and their rather isolated position within the genus *Flagelloscypha* a new section is proposed for this group: *Flagelloscypha* sect. *Lachnelloscypha*.

The genus *Lachnella* Fr. has been emended by Donk some years ago (1959). Slightly altered it can shortly be characterized as follows.—

Fruit-bodies cup-shaped with a broad stipe-like base, rarely slightly higher than wide; surface hairs, rounded apex included, finely asperulate with crystals, with rather thick (up to 2–3 μm) walls, from base to apex almost with same diameter; spores rather large, 10–20(–25) μm long, asymmetrically ovoid (in the type species) or subfalcispora-like, smooth and with large apiculus; basidia very large too, generally 40–80 μm long, occasionally longer than 100 μm ; sterigmata rather stout, curved, conical.

As an example Fig. 1 depicts *Lachnella tiliae*, a typical species of the genus.

The genus *Flagelloscypha* Donk has recently been emended by myself (1975). Briefly summarized the most important characteristics are.—

Fruit-bodies more or less cup-shaped, white; surface hairs with walls mostly thinner than 1 μm , rarely swelling in potassium hydroxide, encrusted with finely acicular or coarsely acicular or rhombical crystals, apically thin-walled, very narrow and mostly not encrusted; basidia on the average mostly shorter than 30 μm with rather thin sterigmata; spores asymmetrically subglobose, ovoid, ellipsoid or naviculate, mostly shorter than 13 μm , smooth, thin-walled, neither amyloid nor dextrinoid.

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¹ Subfalcispora-like means with the same type of spores as *Lachnella subfalcispora*.



Fig. 1. *Lachnella tiliae*. — a. Habit of fruit-bodies. — b. Section through fruit-body; survey. — c. Section through fruit-body; detail of edge. — d. Surface hair in KOH 10%. — e. Spores. (All figs. from holotype, K.)

Many species are described and illustrated by Agerer (1975).

Two species, formerly placed in the genus *Lachnella* (Cooke, 1961)—*L. libertiana* (Cooke) W. B. Cooke and *L. rosae* W. B. Cooke—and a further species, undoubtedly belong to the genus *Flagelloscypha*, even though all these deviate in the same features from the other species of the genus *Flagelloscypha*.

***Flagelloscypha libertiana* (Cooke)**

Agerer, *comb. nov.*—Figs. 2, 3

Cyphella libertiana Cooke in Grevillea 8: 81. 1880. — *Chaetocypha libertiana* (Cooke) O. K. in Rev. Gen. 2: 847. 1891. — *Lachnella libertiana* (Cooke) W. B. Cooke in Beih. Sydowia 4: 73. 1961. — Type: Belgium, near Malmédy, 'in ramis decorticatis Cornis masculae' (= *Cornus mas*) (holotype; K).

Lachnella rosae W. B. Cooke in Beih. Sydowia 4: 78. 1961. — Typus: U.S.A., Idaho, Lewis Co., near Mohler between Nez Perce and Craigmont, 29 Oct. 1949. *H. W. Smith & W. B. Cooke* (holotype; herb. W. B. Cooke 26106).

Fruit-bodies cup-shaped, with more or less distinct stipe, appressed to patently hairy, up to 0.4 mm high, densely crowded. Surface hairs of two types. First type 3–4 μm in diam., slightly thick-walled, with clamps at the base, apically slightly pointed or whip-like with sometimes ramified ends, with minutely acicular, rod- or needle-shaped, up to 4 μm long crystals; this type of hairs particularly present near the 'mouth' of the fruit-body—those quite at the edge of the 'mouth' not flagellate but with tips rounded and finely encrusted. Second type (3.5–)4–5(–6) μm in diam., with somewhat dextrinoid up to 1.5 μm thick walls, clamped at the base, in 10% KOH somewhat irregularly swelling, apically slightly pointed or blunt, with up to 4 μm long, rhombical or amorphous crystals, rarely naked; crystals soluble in HCl, but many granular or acicular structures on the hyphal walls persisting; this second type common on the outside of the fruit-body. Hyphae of trama somewhat agglutinated, (1.5–)2–3.5(–4.5) μm in diam., clamped. Basidia (35–)40–55(–65) \times (8–)9–11(–12) μm , suburniform, with 4 sterigmata, clamped at the base.

Spores asymmetrically ellipsoid to asymmetrically ovoid, slightly naviculate or slightly subfalcispora-like, (10–)10.5–12.5(–14) \times (5–)5.5–6.5(–7.5) μm , on the average 11.5–12.5 μm long, with sporefactor 1.9–2.1, neither amyloid nor dextrinoid.

SUBSTRATE.—Twigs of *Cornus mas* and *Rosa spauldingii*.

SPECIMENS EXAMINED.—Holotype and isotype of *Cyphella libertiana* and holotype of *Lachnella rosae*.

Flagelloscypha libertiana resembles *Lachnella rosae* very much. The fruit-bodies are alike, although those of *L. rosae* are somewhat larger. The spores as well as the basidia are similarly shaped and of almost the same size. The surface hairs virtually resemble each other, even though the finely encrusted surface hairs in the type of *F. libertiana* seem to lack whip-like ends. However, this specimen is very old and the ends of these surface hairs are difficult to study, but the ends of the younger surface hairs are not as compactly encrusted as their lower parts. Therefore it is well possible that originally whip-like ends were present in the type of *F. libertiana*.

In *F. libertiana* as well as in *L. rosae* young, finely encrusted surface hairs do not have flagella-like ends; instead they have a rounded, encrusted apex. In view of this all I consider *Lachnella rosae* (1961) a younger synonym of *Cyphella libertiana* (1880). Consequently *Flagelloscypha libertiana* is the correct name for this species. For comparison of *F. libertiana* with *F. montisanagae*, see the discussion under that species (p. 342).

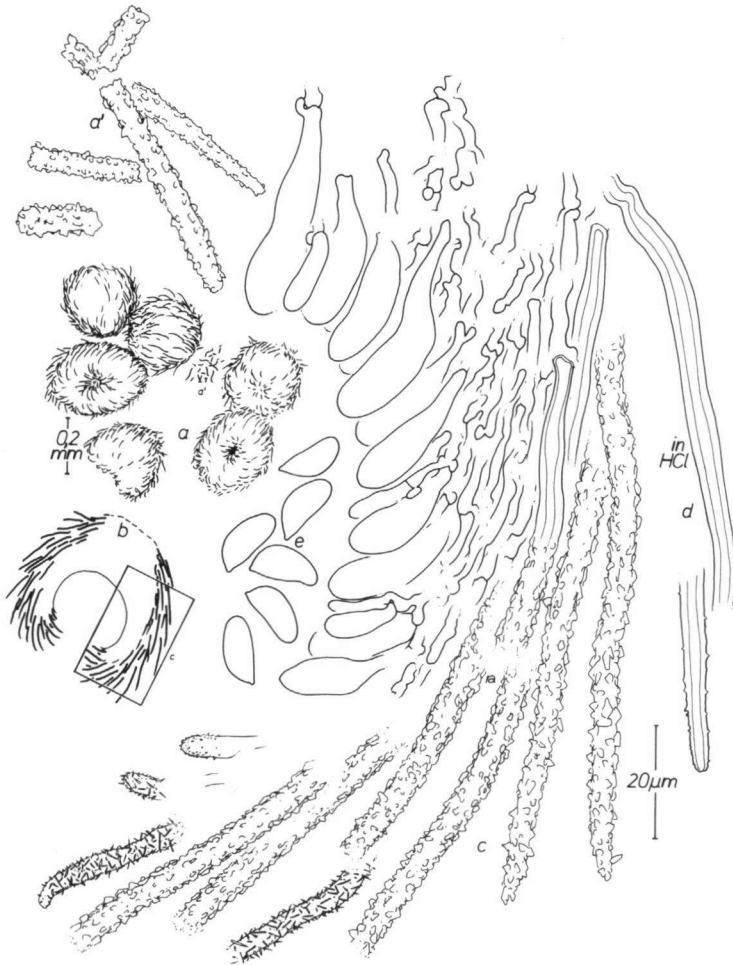


Fig. 2. *Flagelloscypha libertiana*. — a. Habit of fruit-bodies. — a'. Surface hairs of very young fruit-bodies just on the substrate. — b. Section through fruit-body; survey. — c. Section through fruit-body; detail of edge. — d. Surface hairs in HCl. — e. Spores. (All figs. from holotype, K.)

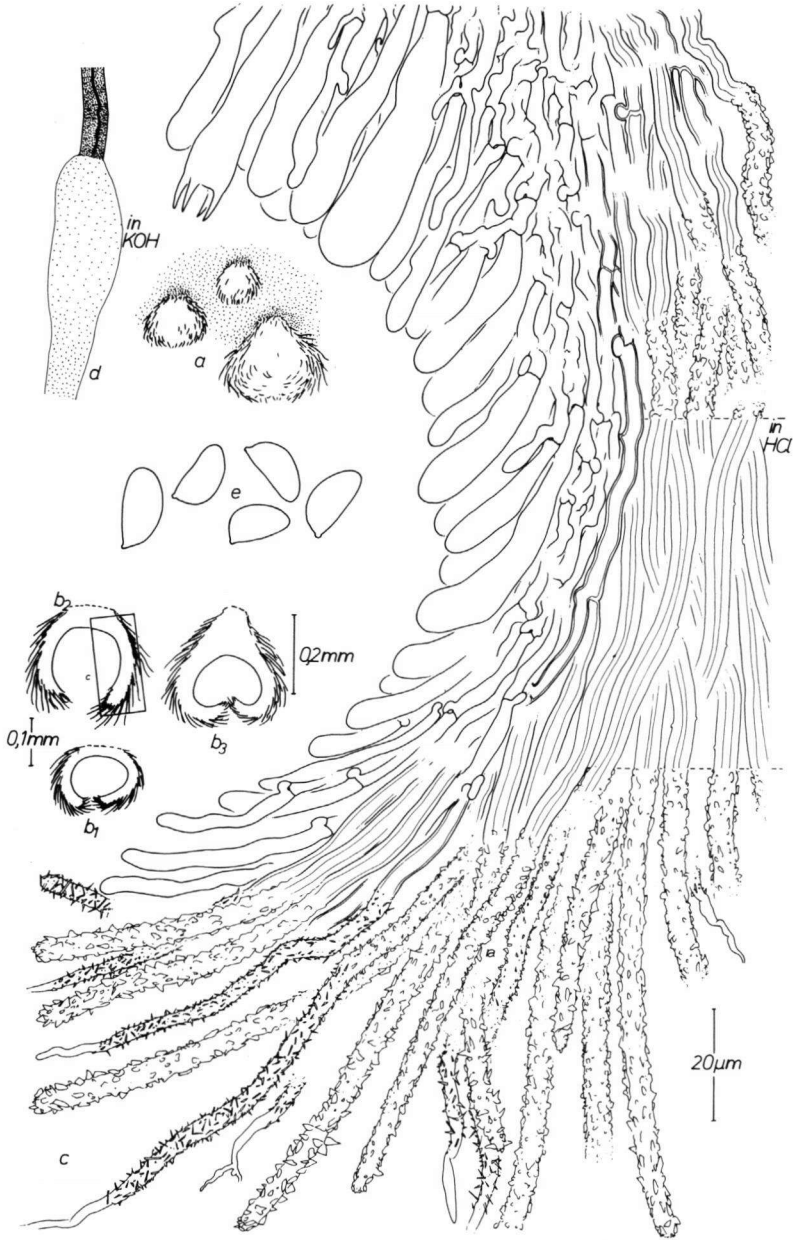


Fig. 3. *Lachnella rosae*. — a. Habit of fruit-bodies. — b₁, b₂, b₃. Sections through fruit-bodies of different age; survey. — c. Section through a fruit-body; detail of edge. — d. Surface hair in KOH 10%. — e. Spores. (All figs. from holotype, herb. W. B. Cooke 26106.)

Flagelloscypha montis-anagae Agerer, *spec. nov.*²

MISAPPLIED NAME.—*Lachnella rosae* sensu Agerer in *Nova Hedwigia* 30: 314. 1978.

Differt ab omnibus speciebus generis pilis crystallis angustis et longe acicularibus, flagellis ramosis in margine cupulae.

Cupulae patinatae, late stipitatae, hirsutae, albae, ad 200 μm altae, solitariae usque ad gregariae. Pili externi duobus formis: forma una maximam partem in margine cupulae sita, 2.5–3.5 μm crassa, subcrassitunicata, crystallis angustis et longe acicularibus, ad 5 μm longis, flagellis ad 20 μm longis, ramosis, — forma alia non in margine cupulae sed extrinseca sita, 3.5–4.5(–5) μm crassa, ad 2 μm crassitunicata, in 10% KOH irregulariter turgescens; basi tenuitunicata, apicaliter rotundata, subcrassitunicata vel tenuitunicata; crystallis grosse acicularibus vel grosse rhomboideis, ad 4 μm longis. Hyphae tramae subagglutinatae, fibuligerae, 2–3.5(–5) μm crassae. Basidia 28–36 \times 8–9 μm suburniformia, 4-sterigmatica, fibuligera. Sporae asymmetrici-ellipticae vel naviculares vel *Lachnellae* subfalcisporae similes, hyalinae, leves, 8–9.5 \times 4.5–5.5(–6.5) μm , c. 8.9 μm longae, proportio sporarum c. 1.8; nec amyloideae nec dextrinoideae. Ramulis insidens. Typus: Canary Islands, Tenerife, 'Lorbeerwald zwischen Las Mercedes und El Bailadero, ca. 3 km vor El Bailadero, 700–750 m NN', Agerer & Blanz, 13 March 1975 (holotypus; in herb. Agerer 5848).

ADDITIONAL SPECIMENS EXAMINED.—Italy, Trentino, Valvestino, 'an der Straße zwischen Turano und Magasa', R. Agerer & C. Agerer-Kirchhoff, 16 July 1976 (herb. Agerer 7284, 7285, 7286).

A detailed description with illustrations was given earlier (Agerer, 1978) under the name *Lachnella rosae*. Therefore, here only a Latin diagnosis is given.

Flagelloscypha montis-anagae differs from *F. libertiana* in the presence of repeatedly ramified, minutely acicularly encrusted surface hairs quite on the rim of the fruit-body—only a few of these hairs occurring on the outside—whereas this type of surface hairs can only be found on the outside of the cup in *F. libertiana*. In the latter species the minutely acicularly encrusted surface hairs on the rim are blunt, not ramified and furnished with crystals up to the very apex.

The spores of *F. montis-anagae* are smaller (averaging 8–10 μm opposed to c. 12 μm in *F. libertiana*). Likewise also the basidia are smaller, viz. 28–36 \times 8–9 μm (*F. montis-anagae*) against (35–)40–55(–65) \times (8–)9–11 μm (*F. libertiana*). Earlier, Agerer (1978: 314) has given the variability in spore size of the whole species, and not only the variability of the cited type specimen.

FLAGELLOSCYPHA SPEC.

Fruit-bodies shallowly cup-shaped, with rather broad stipe-like base, single or in small groups, white, patently hairy, up to 0.2 mm high. Surface hairs of only one type, (3–)3.5–4.5(–5.5) μm in diam., with up to 2.5 μm thick walls, dextrinoid, swelling in KOH 10% (but seldom irregularly), clamped at the base, with coarsely-acicular, rhombical or amorphous crystals; apices sometimes naked, somewhat thick-walled and slightly pointed. Hyphae of the trama (2–)2.5–3.5(–4.5) μm in diam., agglutinate, clamped. Basidia 27–35(–40) \times 8–10.5 μm , suburniform, 4-spored, clamped at the base, sometimes transversally septate, with rather stout, horn-like sterigmata.

² ETYMOLOGY.—The type was found in the Anaga Mountains of Tenerife.

Spores asymmetrically ellipsoid, asymmetrically ovoid, slightly naviculate to subfalcispora-like, $9\text{--}12.5 \times 4\text{--}6 \mu\text{m}$, on the average $10\text{--}10.5 \mu\text{m}$ long, with sporefactor *c.* 2.1, neither amyloid nor dextrinoid.

SPECIMEN EXAMINED.—Belgium, near Malmedy, ‘ad Cornus maris in ramulos emortuos’, Libert (S).

This specimen, also collected by Libert near Malmedy in Belgium, is very similar to *F. libertiana*. It grew ‘ad Cornus maris in ramulos emortuos’ and has therefore the same finding data as the type of *F. libertiana*, as the name *Cornus mascula* is a synonym of *C. mas*.

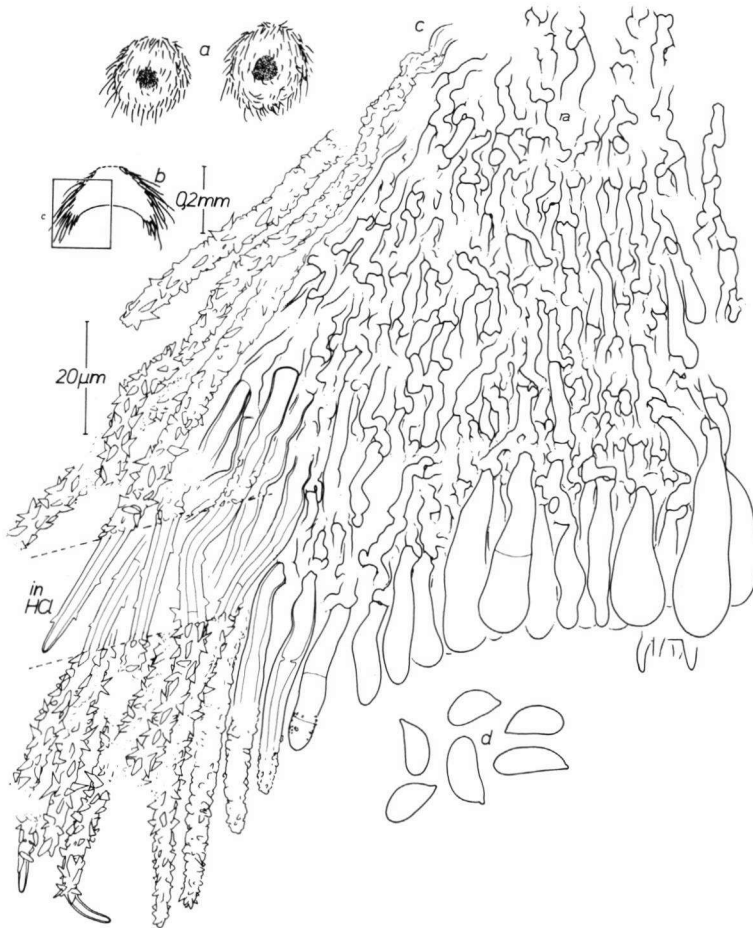


Fig. 4. *Flagelloscypha* spec. — a. Habit of fruit-bodies. — b. Section through fruit-body; survey. — c. Section through fruit-body; detail of edge. — d. Spores. (All figs. from S.)

Flagelloscypha libertiana and this specimen are so different, that they are most probably two distinct species. *Flagelloscypha* spec. exhibits only the coarsely-aciculary to amorphously encrusted type of surface hairs with thick walls, sometimes however possessing naked ends. One could think that this collection represents a young specimen of *F. libertiana*, but already the young fruit-bodies of *F. montis-anagae* and *F. libertiana* have two types of surface hairs. Even though the fruit-bodies of *Flagelloscypha* spec. are small, they are nearly as large as those of *F. libertiana* that at this stage exhibit two types of surface hair, whereas *Flagelloscypha* spec. only exhibits one type.

At first sight it is somewhat astonishing that Libert collected two different but closely related taxa on the same substrate on the same locality, but this is scarcely surprising, if general experience in field-mycology is taken into consideration. Frequently related species grow on the same substrate at the same place (e.g. *F. faginea* and *F. minutissima* on leaves of *Fagus sylvatica*).

CHARACTERISTICS COMMON TO FLAGELLOSCYPHA SPEC.,
F. MONTIS-ANAGAE AND F. LIBERTIANA

The basidia of these species are mostly longer than those of typical species of the genus *Flagelloscypha*, and the sterigmata appear rather stout when compared with those of the other species.

The spores of the species discussed are relatively long. At least some spores are subfalcispora-like contrary to those of typical species of *Flagelloscypha*. (Subfalcispora-like means that in outline the spores have a ventral depression near the middle, combined with a relatively great length.)

The fruit-bodies of the three aberrant species are cup-shaped and have a more or less distinct, broad, stipe-like base. Only two of the species of the genus *Flagelloscypha* thus far known have such a base, viz. *F. donkii* and *F. dextrinoidea*. However, these two species possess different spores, smaller basidia and other surface hairs (Agerer, 1975).

The surface hairs of the species described above are very characteristic. In all three there are coarsely-aciculary to rhombically or amorphously encrusted surface hairs with a diameter diminishing only slightly towards the apex. Their apices are more or less blunt and mostly encrusted also. If surface hairs of a second type are present, these have finely-acicular, rod- or needle-like encrustations and are more or less tapering toward the apices, which are naked and ramified in *F. montis-anagae* and *F. libertiana*. In some of the other species of *Flagelloscypha* a few ramified tips of surface hairs occasionally occur, but those species differ considerably in other features. The above described species have relatively thick-walled surface hairs swelling irregularly in a solution of KOH, as in all species of *Lachnella* Fr. emend. Donk and in a few of the other species of *Flagelloscypha* with thick-walled surface hairs.

The coarsely-aciculary and rhombically encrusted surface hairs of *F. montis-anagae* and *F. libertiana* as well as the flagella-like apices of the second type of hairs give reason to put these species into the genus *Flagelloscypha*. On the other hand some characteristics deviate from those of typical species of *Flagelloscypha*.

The relatively big spores of which at least some are subfalcispora-like, the relatively long

basidia with their stout sterigmata and the cupulate fruit-bodies with their broad stipe-like base place these species in an extreme position within the genus *Flagelloscypha*. The occurrence of two types of surface hairs on the same fruit-body accentuates this position. *Flagelloscypha* spec. resembles *F. montis-anagae* and *F. libertiana* in many characters. Therefore it seems best to place it together with these two species into one group, even though it does not show two types of surface hairs. For this group of three species a new section is proposed within the genus *Flagelloscypha*.

Flagelloscypha Donk sect. **Lachnelloscypha** Agerer, *sect. nov.*

Cupulae patinatae, late stipitatae, patentibus pilis, interdum duobus formis pilis vestitae: forma una semper praesens, crystallis maioribus, acicularibus vel rhomboideis obsita, vel amorphe incrustata, apicibus rotundatis vel subcuspidatis, nonnullis flagellis, crassitunicatis, in 10% KOH irregulariter turgescens; forma alia tantum praesens in compluribus speciebus, flagellis instructis; crystallis minoribus, acicularibus vel longe acicularibus. Basidia plerumque longiora quam 30 μm , plus minusve suburniformia, sterigmatibus robustis. Sporae semper quiddam Lachnellae subfalcisporae.

Typus sectionis: *Flagelloscypha montis-anagae* Agerer.

The type-section *Flagelloscypha* Donk sect. *Flagelloscypha* is characterized as the whole genus was characterized by Agerer (1975).

THE POSITION OF FLAGELLOSCYPHA SECT. LACHNELLOSCYPHA
IN REGARD TO THE GENUS LACHNELLA FR. EMEND. DONK

The species of the genus *Lachnella* as emended by Donk possess apically rounded, finely-acicularly encrusted surface hairs having almost the same diameter from the base to the apex. Though the apices of the surface hairs in *F. montis-anagae* and *F. libertiana* are blunt also and have almost the same diameter from the base to the apex, these species stand nearer to the typical species of *Flagelloscypha* because of the coarsely-acicular and rhombical encrustations. Moreover *F. montis-anagae* and *F. libertiana* feature a further type of surface hair which is flagella-like.

Because of the sometimes subfalcispora-like, rather long spores, the relatively long basidia and the broad stipe-like base of the fruit-bodies, sect. *Lachnelloscypha* is a link between the genera *Flagelloscypha* and *Lachnella*. The gap, however, between *Lachnella* emend. Donk (1959) and *Flagelloscypha* emend. Agerer (1975) remains sufficiently wide to justify the maintenance of their separation.

Zusammenfassung

In der Gattung *Flagelloscypha* wird eine neue Art beschrieben und eine Neukombination vorgenommen: *F. montis-anagae* Agerer und *F. libertiana* (Cooke) Agerer; *Lachnella rosae* W. B. Cooke wird als Synonym von *F. libertiana* erkannt. — *Flagelloscypha montis-anagae* und *F. libertiana* besitzen am Fruchtkörper zweierlei Randhaartypen. — Die Basidien dieser Arten sind größer und bilden ziemlich kräftige Sterigmen und die Sporen werden durchschnittlich länger als bei typischen Arten der Gattung *Flagelloscypha*; überdies

sind die Sporen oft subfalcispora-ähnlich und die Fruchtkörper schüsselförmig und breit gestielt wie bei den Arten der Gattung *Lachnella*. — Wegen der Ähnlichkeit dieser Arten und der relativ isolierten Stellung innerhalb der Gattung *Flagelloscypha*, wird für diese Gruppe eine eigene Sektion vorgeschlagen: *Flagelloscypha* sect. *Lachnelloscypha*.

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