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NOMENCLATURAL NOTES ON RUSSULA

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The nomenclatural status of the names of the *Russula*-species occurring in the Netherlands is investigated. Several names are found to be incorrect, illegitimate or invalid. The impact of the sanctioning system on nomenclatural stability is discussed, and its superiority is demonstrated. Four new combinations are made, viz. *Russula fragilis* var. *knauthii*, *R. laurocerasi* var. *fragans*, *R. pseudoaeruginea*, and *R. risigallina*. *Russula clariana* is validly described.

During the compilation of a checklist of *Russula*-species occurring in the Netherlands (van Vuure, 1985), it became evident that several names were incorrect, illegitimate or invalid under the present rules of the International Code of Botanical Nomenclature (Voss & al., 1983). Therefore we decided to investigate the nomenclatural status of the names of all *Russula*-species from our country, supplemented with a few extralimital species about which Singer & Machol (1983) made a preliminary nomenclatural publication. Although our attention was primarily directed to the consequences of the new wording of Art. 13.1 (d), the so-called sanctioning system, we came across several instances where frequently used names would have been incorrect even under the old Code.

In this paper the first author takes responsibility for the nomenclatural decisions, whereas the second author is responsible for the taxonomic part. The taxonomy is of course primarily based on the opus magnum by Romagnesi (1967); only in sect. *Viridantinae* (the group of species around *R. xerampelina*) we feel that the present taxonomy is still unsatisfactory. For that reason, Romagnesi's new species 'ad interim' in this group have not been validated, whereas in other cases we provide validations of new species and combinations.

During our nomenclatural activities we tried to follow the I.C.B.N. as closely as possible. However, considering the fact that not all problems with the new sanctioning system have been resolved till thusfar, we sometimes had to make a choice between different options. In these cases we followed the same course as earlier advocated by one of us (Gams & Kuyper, 1984). For that reason we did not accept the equivocal wording of Art. 7.17 which introduces in our opinion a major inconsistency in the Code. We fear that the wording of this Article, which allows for typification of sanctioned names by everything associated with the name in the sanctioning work, introduces more ambiguities than it possibly can resolve, and we urgently advocate its abolition as soon as possible. We typify sanctioned names therefore on the basis of the validating protologue solely. It implies that names which without sanction would have

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been superfluous are automatically typified by the type of the name which ought to have been adopted, in accordance with Art. 7.11.

Art. 72. Example 2 states not only that illegitimate homonyms, when transferred to another genus where there is no obstacle to its employment, must be treated as the name of a new taxon with priority from its date of publication, but also that only the 'legitimizing' author of this name must be cited. In our opinion this obscures important bibliographic information as already noted by Donk (1963d). Considering the rather large number of homonyms within the generic name *Agaricus* and the circumstance that a considerable number of those so-called new taxa came into being by a mere reference to the original illegitimate name, we prefer to introduce a device for retaining this bibliographic information, and we propose a horizontal arrow in this case. The citation *Pluteus cervinus* (Schaeff. →) Kumm. 1870 for instance means that Kummer created a new species with priority dating from 1870, but that his new species is based on, and must be typified with *Agaricus cervinus* Schaeff. 1774, an illegitimate homonym of *Agaricus cervinus* Hoffm. 1789: Fr. The mere citation as *P. cervinus* Kumm. would obscure this important aspect.

Several names treated in Arnolds & al. (1984) have not been accepted for the checklist, as they are supposed to represent incorrect identifications.

As the striving for a perfect nomenclature of the Agaricales often seems a quest for the impossible, and – as the saying goes – 'nomenclatural right is something crooked having been bent', we would not be surprised if some errors will be found in this paper. We welcome therefore any comments on nomenclatural and/or taxonomic conclusions arrived at in this paper.

The names discussed have been arranged alphabetically under the name that is supposed to be correct.

NOMENCLATURAL SYNOPSIS

adusta

The application of the epithet *adusta* is a nice example of the difficulties encountered under a Code of Nomenclature which establishes automatical typification of superfluous and new names. *Agaricus adustus* Pers. 1801 was a nomen novum for *A. nigricans* Bull. 1785 non *A. nigricans* O.F. Müll. 1782, and is therefore automatically typified by Bulliard's plate. The sanctioning of the name *A. adustus* Pers.: Fr. has no influence on this typification. However, Fries (1838) came to the conclusion that Persoon (1801) had included more than one species under this name. Fries also felt that both epithets *adusta* and *nigricans* were available within the generic name *Russula*. He then used the name *R. adusta* for a part of Persoon's taxon under explicit exclusion of Bulliard's type, and therefore created a new species that must be ascribed solely to him, *Russula adusta* Fr. 1838 (Art. 48.1). Having done so, Fries considered the epithet *nigricans* to be available for Bulliard's species, and he made the new name *R. nigricans* (Bull. →) Fr. 1838. Fries correctly considered the sanctioned epithet *adustus* not any longer possible for this Bulliardian species, as a new combination based on the

sanctioned basionym would become an illegitimate homonym of *R. adusta* Fr. 1838 (inverted use of Art. 64 and 55).

Summarizing the above arguments, we accept 2 species, *R. adusta* Fr. 1838 and *R. nigricans* (Bull. →) Fr. 1838 respectively, and our nomenclatural solution saves both names in their present taxonomic circumscription, and promotes nomenclatural stability.

atropurpurea

See under *krombholzii.*

aurata

See under *aurea.*

aurea

Singer & Machol (1983) pointed out that the name *Russula aurea* Pers. 1796 might threaten the name *Agaricus auratus* With. 1796, but they were unable to arrive at a definite conclusion as the exact chronology of both publications could not be determined. However, *A. auratus* With. 1796 is an illegitimate homonym of *A. auratus* O.F. Müll. 1782; the legitimacy of the name *R. aurata* dates therefore only from 1838 onwards when Fries made the new name *R. aurata* (With. →) Fr. None of these names being sanctioned, it is clear then that *R. aurea* Pers. 1796 becomes the correct name for the species called *R. aurata.*

chamaeleontina

See under *risigallina.*

delica

Singer & Machol (1983) suggested that the name *R. delica* is threatened because of the existence of *Agaricus exsuccus* (Pers.) Otto 1816, which is supposed to be a synonym of *R. delica* Fr. 1838.

However, as *A. exsuccus* (Pers.) Otto is based on *Lactarius piperatus* var. *exsuccus* Pers. 1799, and this taxon is typified by us with *Agaricus giganteus* Leyss. 1783: Fr. – nowadays called *Leucopaxillus giganteus* (Leyss.: Fr.) Sing. – which was included by Persoon as a synonym, the epithet *exsuccus* is clearly illegitimate on specific level, as it is a superfluous name for *A. giganteus*, although it is legitimate on varietal level. It is clear then that the above suggestion by Singer & Machol is incorrect.

insignis

In our opinion there cannot be much doubt that the application of the epithet *livescens* for a species of sect. *Ingratae* characterized by dermatocystidia with yellow incrustrations is incorrect. There is nothing in Batsch's (1786) description which could make such an identity plausible, as *A. livescens* was characterized by a grey pileus and stipe. *Russula insignis* Quél. 1888 on the other hand clearly refers to that species, as already noted by Moser (1967) who later droppped this name and adopted Romagnesi's nomenclature. We have seen collections of *R. insignis* from the vicinity of

Lougres (France) where Quélet collected his species, but as these collections are not annotated we prefer not to designate one of these as neotype.

krombholzii

It has been pointed out by Shaffer (1970) that *R. atropurpurea* (Kromb.) Britz. 1893 is an illegitimate homonym of *R. atropurpurea* Peck 1888, a species of sect. *Viridantinae*. However, his new name *R. krombholzii* Shaffer 1970 seems to have been overlooked by European mycologists, and for that reason we want to draw attention to this necessary name change once again.

lepida

See under *rosea*.

livescens

See under *insignis*.

lutea

There has been considerable taxonomic and nomenclatural confusion about the species of *Russula* stirps *Chamaeleontina*. According to Romagnesi (1967), there are two species involved, one with a sweetish smell, especially on drying, the other with a somewhat disagreeable smell reminding of vinegar.

The first species has been known as *R. chamaeleontina* Fr., but is correctly called *R. risigallina* (see under *risigallina*). The second species has been known under the names *R. vitellina* (Pers.→) Fr. and *R. lutea* (Huds: Fr.) S.F. Gray. *Agaricus vitellinus* Pers., however, is not only an illegitimate homonym of (another) *A. vitellinus* Pers.: Fr., but also a superfluous name for *A. risigallinus*, which was included as a synonym. It cannot be applied therefore to this second species. And although the description of *Agaricus luteus* Huds. 1778: Fr. is rather short and some critical characters are lacking, there is nothing in the protologue that contradicts the application of this name for the second species.

nigricans

See under *adusta*.

nitida

Singer & Machol (1983) suggested that even the sanctioned name *Russula nitida* (Pers.: Fr.) Fr. might be threatened under the new sanctioning system. However, their reasoning clearly reveals several misunderstandings about the sanctioning system. They suggested that even sanctioned names could be illegitimate because of superfluity. However, the wording of Art. 63 makes explicit that sanctioned names can never be illegitimate. The epithet *risigallinus* does not play any role in this respect.

Singer & Machol suggested also that the protologue of *A. nitidus* Pers. 1801, which serves as the basis for typification, indicates that it is a renaming of *A. purpureus* Schaeff., implying that *A. purpureus* Schaeff. must be the final type of *A. nitidus* Pers. However, this assertion is likewise untrue, as Persoon (1801) did not consider the

Schaefferian species conspecific; he only wondered whether *A. purpureus* Schaeff. could possibly belong to the same species. But this statement of taxonomic doubt does not have any bearing on the status of the name *A. nitidus* nor on its typification.

risigallina

As *Russula chamaeleontina* Fr. 1838 is a superfluous name for *R. ochracea* (Pers. →) Fr. 1815, non *R. ochracea* Fr. 1838, a new name is necessary.

It has been noted in the discussion of the epithet *lutea*, that there exists abundant confusion in the taxonomy of this group (cf. Singer & Machol, 1983), especially with regard to a closely related species *R. lutea* (Huds.: Fr.) S. F. Gray, and although old diagnoses are often difficult to interpret, we feel confident that *Agaricus risigallinus* (Batsch, 1786) refers to the same species. Therefore the following new combination is proposed: **Russula risigallina** (Batsch) Kuyp. & Vuure, *comb. nov.* — *Agaricus risigallinus* Batsch, Elench. Fung. Contin 1: 67. 1786 (basionym).

rosea

Under the new rules of nomenclature the name *R. rosea* (Schaeff. →) Quél. 1886 has become an illegitimate homonym of *R. rosea* Pers. 1796. Following a suggestion by Singer & Machol (1983) the former species is correctly named *R. velutipes* Velen.

Russula rosea Pers. on the other hand is, according to type studies by Singer (1962) identical with the species *R. lepida* Fr. 1836, necessitating therefore another name change in the genus *Russula*. This name change has already been accepted by Imler (1982), who failed to mention, however, that it is synonymous with *R. lepida.*

velutipes

See under *rosea.*

vitellina

See under *lutea.*

VALIDATIONS

The following new combinations, till thusfar all invalid under Art. 33.2 which requires the citation of the basionym with a full and direct reference to its author, place of valid publication with page or plate reference and date on or after 1 Jan. 1953, are also necessary:

Russula fragilis var. **knauthii** (Sing.) Kuyp. & Vuure, *comb. & stat. nov.* — *Russula emetica* f. *knauthii* Sing. in Hedwigia 66: 216. 1926 (basionym).

Russula laurocerasi var. **fragrans** (Romagn.) Kuyp. & Vuure, *comb. & stat. nov.* — *Russula fragrans* Romagn. in Bull. mens. Soc. linn. Lyon 23: 112. 1954 (basionym).

Russula pseudoaeruginea (Romagn.) Kuyp. & Vuure, *comb. & stat. nov.* — *Russula aeruginea* var. *pseudoaeruginea* Romagn. in Bull. mens. Soc. linn. Lyon 21: 111. 1952 (basionym).

Russula clariana Heim, till now invalid under Art. 36.1 which requires a Latin diagnosis on or after 1 Jan. 1935, is formally validated, based on an abundant collection from the Netherlands:

Russula clariana Heim ex Kuyp. & Vuure, *spec. nov.*

Pileus plano-convexus vel depressus, margine initio glabro tum breviter tuberculato, sordide lilacino-purpureus vel sordide ochraceo-olivaceus, impolitus. Lamellae latae, pallide cremeae, sordide brunneolae maculatae, intervenosae vel furcatae. Stipes albidus, sordide ochraceo-brunnescens, glaber vel subarachnoideus. Caro alba, tarde griseobrunnescens. Odor peculiaris, pisciodorus fructiodorusque. Sapor acerrimus. Sporae in cumulo cremeae (Romagnesi 2a), 8.0–10.0 × 6.5–8.0 µm, cristatae-subreticulatae, ornamentis ad 1.5 µm altis. Cystidia appendiculata, 8–11 µm lata. Cutis cum cystidiis abundantibus articulatis. Sub Populo canadensi. Holotypus: 'Netherlands, prov. Limburg, Julianakanaal south of Elsloo, 10.X.1970, *C. Bas 5447*' (L; isotypus in herb. Romagnesi).

Pileus 60–130 mm, at first irregularly convex or conico-convex with obtuse inflexed margin, soon plano-convex with slightly depressed centre to shallowly saucer-shaped, margin at first smooth but in older stages with short coarsely tuberculate ridges, colour ranging from sordid lilaceous-purplish to sordid pale ochraceous olive, remarkably dull (unpolished) and minutely granular, whitish pruinose when young, pileipellis half-peeling. Lamellae moderately crowded to subdistant, emarginate, fairly broad (to 12 mm), pale cream with sordid brownish spotting, with entire but somewhat irregular, concolorous edge, intervenose, often forked near stipe. Stipe 55–120 × 15–45 mm, usually somewhat clavate, spongy inside, later hollow, white but slowly turning sordid ochraceous then greyish, somewhat arachnoid under lens when young, later glabrous, longitudinally rugulose. Context white, slowly turning grey-brown. Smell strong, fishy and fruity, reminding of empty sardine-cans. Taste very acrid. Spore print cream (Romagnesi 2a). Guiac slowly dark olive grey; $FeSO_4$ slightly greyish pinkish; formol on stipe slowly pink.

Spores 8.0–10.0 × 6.5–8.0 µm, ornamentation consisting of thick crests, to 1.5 µm high, only indistinctly reticulate, strongly amyloid. Cystidia appendiculate, not changing colour in sulfovanilline 8–11 µm broad. Hyphae of pileipellis cylindraceous or weakly moniliform, not or hardly branched. Dermatocystidia abundant, septate, 6–10 µm broad.

Habitat & distribution: Under *Populus canadensis* and other *Populus* species. Widespread in Europe, but rare.

Collection examined: Netherlands, prov. Limburg, Julianakanaal south of Elsloo. 10 Oct. 1970, *C. Bas 5447* (L; holotype).

EPILOGUE

Shortly after the Sydney Congress at which the modification of Art. 13 was enacted, Singer & Machol (1983) pointed out that the new wording of this article would led to a considerable destabilization of agaric nomenclature. They cited 6 cases of *Russula*-nomenclature where they expected the necessity of nomenclatural change, and offered the suggestion that a return to the 1821-starting point might be the better solution for nomenclatural stability, at least within the Agaricales. However, we do not concur with all of their nomenclatural conclusions and strongly disagree with their plea for the old system of starting points. In our opinion the new sanctioning system is more

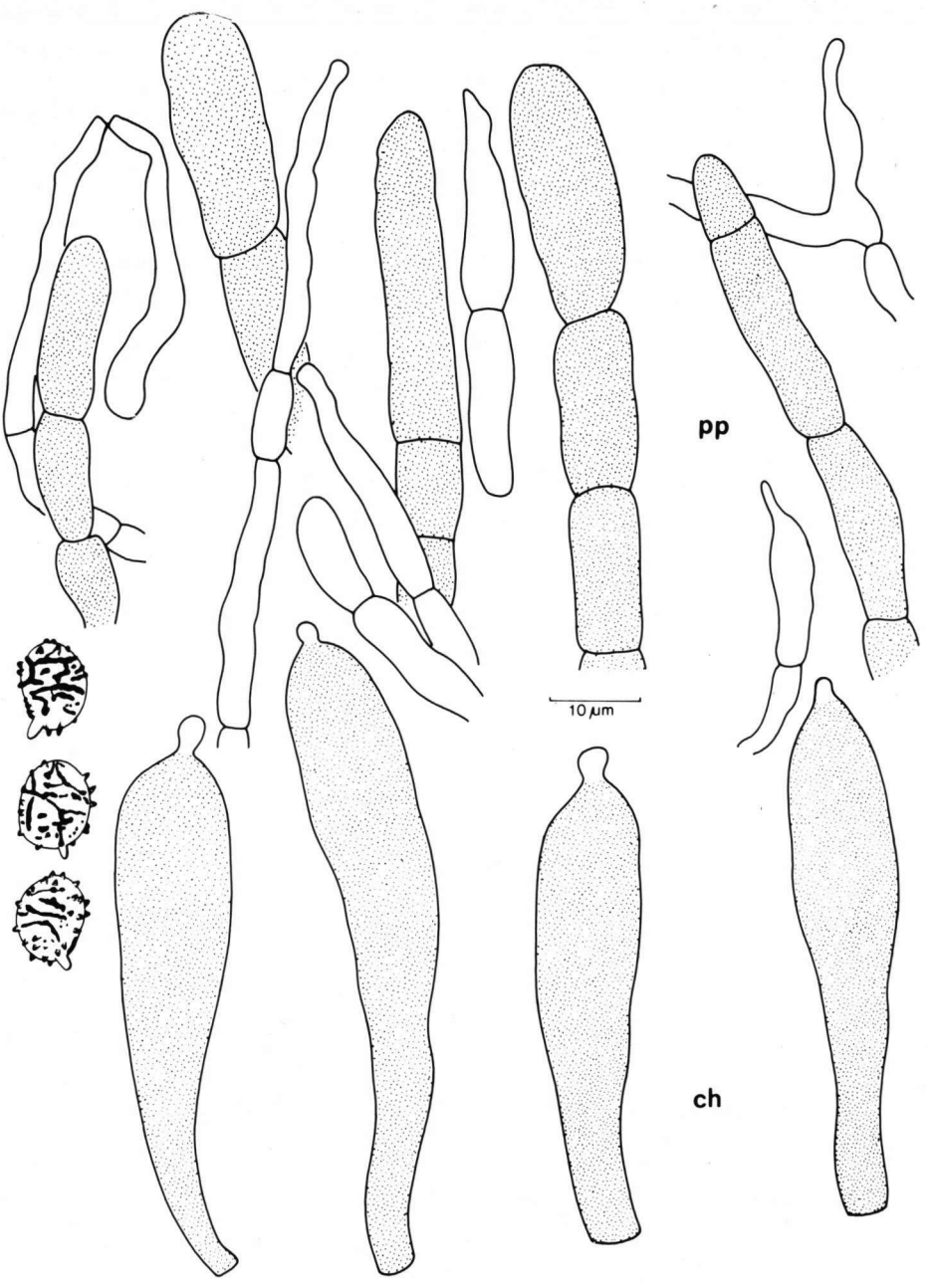

Fig. 1. *Russula clariana*. — Spores, elements of pileipellis (PP), and cheilocystidia (CH). (All Figs. from type.)

exact and simple, and although it temporarily diverts from the ideal of a 'stable method of naming' (Preamble 1), it will make our task of bringing 'the nomenclature of the past into order' (Preamble 4) considerably easier and more logical.

Summarizing our attempts in adapting the *Russula*-nomenclature to the requirements of the ICBN, we conclude that 7 species names (of 95 species) are changed, amounting to 7.4%. In comparison with figures about the impact of the sanctioning system on names of gasteromycetes and polypores, where they are 3% and 1.9% respectively (see Demoulin & al., 1981), this number is distinctly higher.

However, even when accepting Singer & Machol's assertion that the situation in *Russula* is fairly typical for the larger genera of Agaricales, we would warn against any preliminary generalisation about the impact of the new Code on nomenclatural stability. We would like to stress that the above estimate is most probably too high. Several of the name changes were even necessary under the old Code, and this would reduce the number of changes to only 4, that is 4.2%.

On the other hand it should be noted that this survey is not based on a complete perusal of the pre-1821 literature. But it should be borne in mind that the interpretation of old names, of which in most cases no type does exist and only a description without microscopical and microchemical characters is available, is often very difficult and almost never completely unequivocal. We cannot do more than conclude that the present interpretation does not contradict with the original description. Although this might provide sufficient justification for the retention of certain names, and should serve as a guide-line for neotypification, it is hardly acceptable as an argument for the introduction of new names.

We feel therefore confident that responsible taxonomists and nomenclaturalists would restrict themselves to those cases only where the present name is illegitimate or invalid or when the present interpretation is seriously at odds with the protologue. It is our firm conviction that only this voluntary self-restraint can lead to a stable nomenclature which is the final purpose of the ICBN.

However, it has become evident that under the new wording of Article 13.1 (d) several names are illegitimate because of homonymy (Art. 64) or superfluity (Art. 63). That the mycological community has been rather reluctant – even under the old Code – in accepting the consequences of this situation, seems a heritage bequeathed by Donk (1963a–d), who has always struggled against the concept of illegitimacy and, even when his proposals in this respect were not accepted, deliberately refused to adhere to the Code. Notwithstanding the merit of his proposals in this respect, we feel that the time has come to adhere to the Code without making exceptions for mycology instead of going our own course. Although this will necessitate several name changes and therefore seems temporarily to promote instability, we firmly belief that only by this procedure a correct and stable nomenclature of the agarics could be achieved.

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REFERENCES

ARNOLDS, E. & al. (1984). Standaardlijst van Nederlandse macrofungi. In Coolia 26 (Suppl.): 1–362.

BATSCH, A. J. G. C. (1786). Elenchi Fungorum continuatio prima. Halae, Magdeburgicae.

DEMOULIN, V., D. L. HAWKSWORTH, R. P. KORF & Z. POUZAR (1981). A solution of the starting point problem in the nomenclature of fungi. In Taxon 30: 52–63.

DONK, M. A. (1963a). The riddle of the sphinx. In Taxon 12: 309–314.

—— (1963b). A conspectus of the nomenclatural status of names. In Taxon 12: 314–319.

—— (1963c). On superfluous names. In Taxon 12: 319–329.

—— (1963d). On the status of later homonyms. In Taxon 12: 329–332.

FRIES, E. M. (1838). Epicrisis systematis mycologici. Upsaliae.

GAMS, W. & TH. W. KUYPER (1984). Problems involved in the sanction of fungal names. In Mycotaxon 20: 619–631.

IMLER, L. (1982). Icones mycologicae pl. 1–18. Meise.

MOSER, M. (1967). Die Röhrlinge und Blätterpilze. In Gams, H., Kl. Kryptog.-Fl. 3. Aufl. Stuttgart.

PERSOON, C. H. (1801). Synopsis methodica fungorum. Göttingen.

ROMAGNESI, H. (1967). Les Russules. Paris.

SHAFFER, R. L. (1970). Notes on the section *Crassitunicatae* and other species of *Russula*. In Lloydia 33: 49–96.

SINGER, R. (1962). Type studies on Basidiomycetes X. In Persoonia 2: 1–62.

SINGER, R. & R. E. MACHOL (1983). The Sydney rules and nomenclature of *Russula* species. In Mycotaxon 18: 191–200.

VOSS, E. G. & al. (1983). International Code of Botanical Nomenclature. In Regn. veget. 111: 1–472.

VUURE, M. VAN (1985). Checklist van *Russula* in Nederland. Rijksherbarium, Leiden.