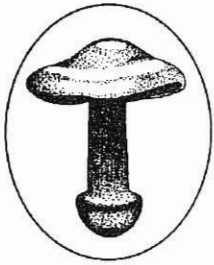
FOLIA CRYPTOGAMICA ESTONICA

Societas Investigatorum Rerum Naturae
Academiae Scientiarum Estoniae



Fasc. 30 Tartu 1992

FOLIA CRYPTOGAMICA ESTONICA

Editio Societatis Investigatorum Rerum Naturae Academiae Scientiarum Estoniae. Cons. ed.: H. Trass (lichenologia et ed. princ.), E. Kukk (algologia), K. Kalamees (mycologia), M. Leis (bryologia). Struve 2 EE2400 Tartu Respublica Estonia.

CONTENTS

FOLIA CRYPTOG. ESTON. Fasc. 30 p. 1 - 32 Tartu, 1992

Cover design by S. & U. Kõljalg

PARASITIC MICROFUNGI OF THE KAVILDA PRIMEVAL VALLEY

K. PÕLDMAA
Institute of Zoology and Botany
21 Vanemuise St., EE2400 Tartu, Estonia.

Material for the present paper was collected in the primeval valley of Kavilda from June 6 to October 7 1987. The aim of the research was to find out the species composition and the ecological and phenological features of the parasitic microfungi of the Kavilda primeval valley.

The valley is situated in the southern part of Estonia. The research area covered the distance from Tartu-Viljandi highway in the north up to Elva-Puhja highway in the south. At the bottom of the valley the Kavilda stream borders on a moist meadow on which there are brushwoods of willow and alder here and there. On the slopes of the valley there are mixed forests quite poor of species, bordered on rich dry meadows. The cultivated lands were left out.

The 160 species of parasitic microfungi lived on 110 species of host plants. Among them there were one fungus species and six host species (according to one or another fungus) which were found for the first time in Estonia. All these are marked with the asterisk before the species names.

Among the three vegetation types the dry meadow was the richest in species - 138 fungi on 89 host species. It was followed by the forest - 36 fungi on 20 host species and the moist meadow with its 34 fungal species on 32 host species. Most of the fungi (126 species) occurred only in one vegetation type, 34 in two and only four in all of them. The period of observation may be divided into four phenological aspects, of which the richest in fungi was the summer aspect (from the beginning of July up to the end of August) with its 115 species.

The 110 host species belonged to 38 families. The most injured plants were from the families *Gramineae* (48 fungus species on them), *Compositae* (23) and *Papilionaceae* (13). More than ten fungus species per one host species were discovered only on the plants of the family *Gramineae* as a result of keeping the plants in a moist chamber in laboratory. This work was carried out at the Saku Research Institute of Agriculture by Peeter Soobik, who also determined most of the fungi which grew on the graminaceous plants. On the rest of the host species the number was from one to four.

In the following list the genera and the species of fungi are represented in alphabetical and the higher taxa in systematical arrangement.

MASTIGOMYCOTINA

CHYTRIDIALES

Physoderma graminis A. Fisch - *Dactylis glomerata,* 30.06.- 05.08.

PERONOSPORALES

Albugo candida (Pers.) Kuntze - *Capsella bursa-pastoris*, 24.08.
Bremia lapsanae Syd. - *Lapsana communis*, 30.06.
Peronospora aestivalis (Syd.) Gäum. - *Medicago lupulina*, 30.06.-26.09.
P. alta Fuck. - *Plantago major*, 30.06.
P. conferta (Ung.) Ung. - *Cerastium holosteoides*, 06.06.
P. fulva (Syd.) Gäum. - *Lathyrus pratensis*, 06.06.
P. mayorii Gäum. - *Vicia cracca*, 05.08.
P. parasitica (Fr.) Fr. - *Capsella bursa-pastoris*, 24.08.
P. radii de Bary - *Tripleurospermum inodorum*, 12.07.-26.07.
P. ranunculi Gäum. - *Ranunculus auricomus*, 06.06.
P. sepium Gäum. - *Vicia sepium*, 30.06.
P. tanaceti Gäum. - *Tanacetum vulgare*, 12.07.
P. trifolii-arvensis (Syd.) Gäum. - *Trifolium arvense*, 05.08.
P. trifolii-repentis (Syd.) Gäum. - *Trifolium montanum*, 12.07.
P. trifoliorum de Bary - *Trifolium medium*, 26.07.-24.08.
Plasmopara chaerophylli (Casp.) Trott - *Anthriscus sylvestris*, 06.06.
P. podagrariae (Trog) Nannf. - *Aegopodium podagraria*, 06.06.- 26.07.
P. pusilla (de Bary) Schröt. - *Geranium palustre*, 25.07.- 06.08.
Pseudoperonospora humuli (Miyabe & Tak) Wils. - *Humulus lupulus*, 26.07.
Pythium graminearum Subram. - *Elytrigia repens*, 26.09.
P. ultimum Trow - *Alopecurus pratensis*, 12.06.; *Elytrigia repens*, 05.09.-12.09.; *Festuca rubra*, 11.07.

ASCOMYCOTINA

PROTOMYCETALES

Protomyces macrosporus Ung. - *Aegopodium podagraria*, 26.07.

ERYSIPHALES

Erysiphe aquilegiae [DC.] Mérat - *Actaea spicata*, 06.08.; *Caltha palustris*, 25.07.
E. cichoraceum [DC.] Mérat - *Centaurea jacea*, 07.10.; *Cirsium oleraceum*, 06.08.

E. depressa [Wallr.] Schlecht. - *Arctium tomentosum*, 25.08.
E. galeopsidis [DC.] Mérat - *Galeobdolon luteum*, 06.08.; *Galeopsis tetrahit*, 26.09.

E. graminis [DC.] Mérat - *Dactylis glomerata*, 05.08.; *Elytrigia repens*, 17.06.-05.09.; *Poa pratensis*, 25.07.
E. heraclei [DC.] St.-Amans - *Heracleum sibiricum*, 07.10.
E. ranunculi Grev. - *Ranunculus repens*, 07.10.
E. sordida Junell - *Plantago major*, 05.08.-07.10.

E. trifolii Grev. - *Trifolium medium*, 24.08.-12.09.

Microsphaera alphitoides Griffon & Maubl. - *Quercus robur*, 30.06.-07.10.

M. penicillata [(Wallr.) Fr.] Lév. - *Alnus incana*, 05.08.- 26.09.

M. vabruntiana Gerard - *Sambucus racemosa*, 26.07.-06.08.

Podosphaera tridactyla (Wallr.) de Bary - *Padus avium*, 25.07.-05.08.

Sphaerotheca alchemillae (Grev.) Junell - *Alchemilla vulgaris* coll., 05.08.-06.08.; *Filipendula ulmaria*, 06.06.- 25.08.; *Geum urbanum*, 26.07.-05.09.

S. erigerontis-canadensis (Lév.) Junell - *Lapsana communis*, 07.10.

CLAVICIPITALES

Epichloë typhina (Fr.) Tul. - *Dactylis glomerata*, 30.06.- 05.08.

SPHAERIALES

Phyllachora graminis (Fr.) Fuck. - *Dactylis glomerata*, 10.07.; *Elytrigia repens*, 25.07.-26.09.

DOTHIDEALES

Didymella autumalis Petr. - *Elytrigia repens*, 05.09.

D. exitialis (Mor.) Müller - *Agrostis stolonifera*, 30.06.; *Dactylis glomerata*, 12.06.-06.09.; *Elytrigia repens*, 25.07.- 05.09.; *Festuca pratensis*, 10.07.; *F. rubra*, 11.07.; *Koeleria glauca*, 12.07.

Leptosphaeria herpotrichoides de Not. - *Elytrigia repens*, 25.07.-26.09.

L. nodorum Müller - *Elytrigia repens*, 05.09.-12.09.; *Festuca arundinacea*, 05.08.

Pleospora herbarum (Fr.) Rab. - *Festuca pratensis*, 10.07.; *F. rubra*, 12.07.

P. vulgaris Niessl - *Agrostis stolonifera*, 30.06.; *Alopecurus pratensis*, 06.06.-12.06.; *Calamagrostis epigeios*, 06.06.-05.08.; *Dactylis glomerata*, 12.06.-05.08.; *Elytrigia repens*, 25.07.-26.09.; *Festuca arundinacea*, 05.08.; *F. pratensis*, 06.06.-11.07.; F. rubra, 11.07.-12.07.; *Koeleria glauca*, 12.07.; *Poa angustifolia* 30.06.; *P. pratensis*, 25.07.; *Phleum pratense*, 10.08.

PHACIDIALES

Lophodermium macrosporum (Hart.) Rehm - *Picea abies*, 07.10.

L. pinastri (Fr.) Chev. - *Pinus sylvestris*, 30.06.-07.10.

HELOTIALES

Botryotinia fuckeliana (de Bary) Whet. - *Elytrigia repens*, 17.06.-26.09.; *Festuca rubra*, 12.07.

Leptotrochila ranunculi (Fr.) Schüepp - *Ranunculus auricomus* coll., 06.06.

BASIDIOMYCOTINA

BRACHYBASIDIALES

Dicellomyces scirpi Raitv. - *Scirpus sylvaticus*, 12.06.

APHYLLOPHORALES

Thanatephorus cucumeris (Frank) Donk - *Festuca pratensis*, 06.06.; * *Scirpus sylvaticus*, 12.06.

UREDINALES

Coleosporium campanulae Lév. II - *Campanula rapunculoides*, 12.07.-12.09.
C. sonchi (Str.) Lév. II- *Sonchus arvensis*, 26.09.; *S. oleraceus*, 24.08.
C. tussilaginis (Pers.) Lév. II - *Tussilago farfara*, 24.08.- 07.10.
Gymnosporangium cornutum Arth. I - *Sorbus aucuparia*, 12.06.- 05.08.
Melampsora populnea (Pers.) P. Karst. coll. III - *Populus tremula*, 05.09.-07.10.
M. salicina Lév. coll. II - *Salix caprea*, 10.07.-05.09.; *S. caprea* x ?, 25.08.; *S. myrsinifolia*, 05.09.-12.09.; *S. pentandra*, 06.09.-26.09.
M. amygdalinae Kleb. II, III - *Salix triandra*, 05.09.-06.09.
Phragmidium rubi-idaei [DC.] P. Karst. I - *Rubus idaeus*, 17.06.-30.06.
Puccinia aegopodii Röhl. III - *Aegopodium podagraria*, 26.07.
P. artemisiella Syd. II, III - *Artemisia vulgaris*, 12.09.
P. bardanae Corda III - *Arctium tomentosum*, 06.08.
P. calthicola Schröt. I - *Caltha palustris*, 12.06., III - 25.07.
P. caricina DC. coll. II, III - *Carex* sp., 25.07
P. chaerophylli Purt. I - *Anthriscus sylvestris*, 06.06.- 12.06.; III - 05.09.
P. chrysosplenii Grev. III - *Chrysosplenium alternifolium*, 30.06.
P. cirsii Lasch III - *Cirsium oleraceum*, 06.08.-25.08.
P. cnici Mart. III - *Cirsium vulgare*, 12.09.-26.09.
P. coronata Corda I - *Frangula alnus*, 06.06.; *Rhamnus cathartica*, 12.06.-10.07.; II, III - *Alopecurus pratensis*, 06.06.; *Calamagrostis epigeios*, 05.08.; *Elytrigia repens*, 12.09.- 07.10.; *Festuca arundinacea* ?, 25.08.; *F. pratensis*, 10.07.- 25.08.; III - *Dactylis glomerata*, 26.09.; *Phalaroides arundinacea*, 06.09.-07.10.
P. dactylidina Bub. II, III - *Dactylis glomerata*, 06.09.
P. glumarum (Schmidt) Erikss. & Henn. III - *Dactylis glomerata*, 05.09.
P. graminis Pers. I - *Berberis vulgaris*, 30.06.; III *Elytrigia repens*, 05.09.-07.10.
P. komarovii Tranz. II, III - *Impatiens parviflora*, 06.08.
P. magnusiana Körn. II, III - *Phragmites australis*, 07.10.
P. major (Diet.) Diet. III - *Crepis biennis*, 26.09.
P. opicii Bub. I - *Mycelis muralis*, 12.06.
P. poarum Niels. I - *Tussilago farfara*, 12.06.-10.07.; II, III - *Poa pratensis*, 25.07.
P. pulverulenta Grev. III - *Epilobium hirsutum*, 06.08.- 24.08.

P. punctiformis (Str.) Röhl. II - *Cirsium arvense*, 11.07.- 24.08.; III - 05.09.
P. ribesii-caricis Kleb. I - *Ribes nigrum*, 12.06.-11.07.; *R. spicatum*, 06.06.
P. urticae-caricis Kleb. I - *Urtica dioica*, 12.06.
P. verruca Thüm. III - *Centaurea scabiosa*, 11.07.-12.09.
Thekopsora areolata (Fr.) P. Magn. II - *Padus avium*, 12.06.- 26.09.
Triphragmium ulmariae (DC.) Link II - *Filipendula ulmaria* coll., 12.06.; III - 26.09.
Uromyces alopecuri Seym. II, III - *Alopecurus pratensis*, 06.06.
U. geranii (DC.) Lév. II - *Geranium pratense*, 06.06.-05.08.; III - 06.08.-05.09.
U. minor Schröt. I, III - *Trifolium montanum*, 17.06.; III - 10.07-06.08.
U. poae Rab. I - *Ranunculus auricomus* coll., 06.06.-12.06.
U. vicia-fabae (Pers.) Schröt. II, III - *Vicia cracca*, 12.09.

USTILAGINALES

Cintractia caricis (Pers.) Magn. - *Carex ericetorum*, 11.07.
Ustilago lychnidis-dioicae (DC.) Liro - *Melandrium album*, 26.07.
U. scabiosae (Sow.) Wint. - *Knautia arvensis*, 05.08.-25.08.

DEUTEROMYCOTINA

HYPHOMYCETES

Acremoniella atra (Corda) Sacc. - *Elytrigia repens*, 12.09.
Alternaria alternata (Kunze & Pers.) Wiltsh. - *Festuca rubra*, 12.07.
A. tenuissima (Kunze & Pers.) Wiltsh. - *Calamagrostis epigeios*, 17.06.; *Dactylis glomerata*, 30.06.; *Poa pratensis*, 25.07.
C. depressa (Berk. & Br.) Vassil. - *Angelica sylvestris*, 25.07.
C. ferruginea Fuck. (?) - *Artemisia vulgaris*, 12.09.-26.09.
C. microspora Sacc. (?) - *Tilia cordata*, 30.06.-05.08.
Cercosporella trollii (Jasz.) Bub. - *Trollius europaeus*, 12.06.
Cladosporium cladosporioides (Fres.) de Vries - *Agrostis stolonifera*, 06.06.; *Dactylis glomerata*, 10.07.; *Elytrigia repens*, 05.09.; *Festuca pratensis*, 11.07.; *Poa pratensis*, 25.07.
C. lignicola Corda - *Dactylis glomerata*, 25.07.; *Elytrigia repens*, 17.06.
C. macrocarpon Preuss - *Calamagrostis epigeios*, 05.08.; *Dactylis glomerata*, 05.08.; *Festuca arundinacea*, 05.08.; *Phleum pratense*, 10.08.
C. sphaerospermum Penz. - *Dactylis glomerata*, 30.06.-06.09.; *Elytrigia repens*, 25.07.-26.09.; *Festuca pratensis*, 06.06.; *F. rubra*, 11.07.; *Poa pratensis*, 25.07.; *Scirpus sylvaticus*, 12.06.
Cylindrocarpon magnusianum Wr. - *Calamagrostis epigeios*, 06.06.
Epicoccum purpurascens Ehrenb. et Schlecht. - *Agrostis stolonifera*, 30.06.; *Alopecurus pratensis*, 06.06.; *Calamagrostis epigeios*, 30.06.-05.08.; *Dactylis glomerata*, 06.06.-05.08.; *Elytrigia repens*, 25.07.-09.; *Festuca arundinacea* (?), 05.08.; *F. pratensis*, *F. rubra*, 12.07.; *Poa angustifolia*, 30.06.; *P. pratensis*, 25.07.;

Scirpus sylvaticus, 12.06.

Fusarium culmorum (W. G. Sm.) Sacc. - *Agrostis stolonifera*, 30.06.

F. semitectum Berk. & Rav. - *Agrostis stolonifera*, 30.06.; *Elytrigia repens*, 05.09.-26.09.

Fusicladium radiosum (Lib.) Lind. - * *Populus tremula*, 12.07.

Gonatobotrys glomerosum Bull. - *Elytrigia repens*, 05.09.

Heterosporium graminearum Rostr. - *Dactylis glomerata*, 06.09.; *Elytrigia repens*, 05.09.

Mastigosporium album Riess. - *Alopecurus pratensis*, 06.06.

M. calvum Ell. & Davis - *Dactylis glomerata*, 06.06.-05.08.

Ovularia decipiens Sacc. - * *Ranunculus repens*, 06.06.

O. monosporia (West.) Sacc. - *Rumex* sp., 26.07.

O. schroeteri (Kühn) Sacc. - *Alchemilla vulgaris*, 30.06.- 26.09.

Pullularia pullulans (de Bary) Arnaud - *Elytrigia repens*, 25.07.

Pyrenophora dictyoides Paul & Parberry - *Elytrigia repens*, 25.07.

P. lollii Dov. - *Elytrigia repens*, 25.07.

P. triticii-repentis (Died.) Drechs. - *Elytrigia repens*, 05.09.

Ramularia anchusae Massal. - *Anchusa officinalis*, 25.07.

R. aromatica (Sacc.) Höhn. - *Acorus calamus*, 06.08.

R. buniadis Vestergr. - *Bunias orientalis*, 05.08.-26.09.

R. calcea (Desm.) Ces. - *Glechoma hederacea*, 12.07.

R. campanula-persicifoliae Eliass. - *Campanula persicifolia*, 30.06.

R. cirsii Allesch. - *Cirsium arvense*, 11.07.

R. daniloi Bub. - *Lavatera thuringiaca*, 25.08.-05.08.

R. heraclei (Oud.) Sacc. - *Heracleum sibiricum*, 06.08.

R. knautiae (Massal.) Bub. - *Knautia arvensis*, 12.07.

R. montana (Schlecht.) Speg. - *Chamanerion angustifolium*, 26.07.

R. pastinacae (P. Karst.) Lindr. & Vest. - *Pastinaca sylvestris*, 24.08.

R. plantaginis Ell. & Mart. - *Plantago major*, 30.06.

R. pratensis Sacc. - * *Rumex thursiflorus*, 05.08.

R. taraxaci P. Karst. - *Taraxacum officinale* coll., 30.06.- 26.07.

Septocylindrium bellosence Massal. & Sacc.[1] - *Verbascum nigrum*, 25.08.-07.10.

Sphacelia typhina Sacc. - *Dactylis glomerata*, 30.06.-26.09.

COELOMYCETES

MELANCONIALES

Asteroma alni Allesch. - *Alnus incana*, 05.08.

---

[1] This species has been found in Estonia also earlier on the same host, but the data have not been publised.

Colletotrichum graminicola (Ces.) Wils. - *Calamagrostis epigeios*, 06.06.-05.08.; *Dactylis glomerata*, 10.07.; *Festuca rubra*, 12.07.

Coryneum beyerinckii Oud. - *Padus avium*, 30.06.-06.08.

Cylindrosporella padi (Fr.) Arx - *Padius avium*, 30.06.-26.09.

Cylindrosporium heraclei (Lib.) Höhn. - * *Pastinaca sylvestris*, 24.08.

C. platanoidis (Allesch.) Died. - *Acer platanoides*, 12.07.

Gloeosporium tremulae (Lib.) Pass. - *Populus tremula*, 05.08.

Kabatiella kaulivora (Kirchn.) Karak. - * *Trifolium medium*, 26.07.

* *Marssonina salicicola* (Bres.) Magn. - *Salix caprea*, 05.09.

Sphaceloma necator (Ell. & Everh.) Jenk. & Schear - *Rubus idaeus*, 10.07.

SPHAEROPSIDALES

Ascochyta caulina (P. Karst.) van der Aa & van Kest. - *Chenopodium album*, 25.07.

Melasmia acerina Lév. - *Acer platanoides*, 12.07.-07.10.

M. salicina Lév. - *Salix aurita*, 06.08.-24.08.; *S. aurita* x *S. caprea*, 12.09.; *S. aurita* x *S. phylicipholia*, 06.08.; *S. caprea*, 25.07.-12.09.; *S. caprea* (x *S. phylicifolia* ?), 06.08.; *S. cinerea*, 25.08.; *S. myrsinifolia*, 06.08.; *S. myrsinifolia* (x *S. aurita*), 26.09.; *S. phylicifolia*, 25.08.-12.09.

Phoma graminella Sacc. - *Agrostis stolonifera*, 30.06.,; *Alopecurus pratensis*, 06.06.-12.06.; *Calamagrostis epigeios*, 05.08.; *Dactylis glomerata*, 12.06.-30.06.; *Elytrigia repens*, 17.06.-05.09.; *Festuca pratensis*, 10.07.; *F. rubra*, 12.07.; *Koeleria glauca*, 12.07.; *Phleum pratense*, 10.08.; *Poa angustifolia*, 30.06.

Ph. sp. - *Scirpus sylvaticus*, 12.06.

Phyllosticta dactylidicola Melnic - *Dactylis glomerata*, 30.06.-10.07.

Pyrenochaeta terrestris (Hansen) Gornez, Walker & Larsen - *Alopecurus pratensis*, 06.06.-12.06.; *Agrostis stolonifera*, 30.06.; *Calamagrostis epigeios*, 30.06.; *Dactylis glomerata*, 17.06.-10.07.; *Elytrigia repens*, 17.06.-26.09.; *Festuca pratensis*, 10.07.-11.07.

Selenophoma donacis (Pass.) Sprague & Johnson - *Calamagrostis epigeios*, 06.06.

Septoria chelidonii Desm. - *Chelidonium majus*, 12.06.-06.09. *Septoria cirsii* Niessl - *Cirsium vulgare*, 05.09.

Septoria lysimachiae Ell. &. Halst. - *Lysimachia vulgaris*, 26.07.

S. podagrariae Asch. - *Aegopodium podagraria*, 30.06.-06.09.

S. scabiosicola Desm. - *Knautia arvensis*, 10.07.

Stagonospora meliloti (Lasch) Petr. - *Melilotus albus*, 12.06.

MYCELIA STERILIA

Sclerotium rhizodes Auersw. - *Agrostis stolonifera*, 06.06.-30.06.; *Calamagrostis epigeios*, 06.06.-12.07.; *Festuca pratensis*, 06.06.

NEW SPECIES OF CORTINARIUS FOUND IN ESTONIA

G. SHTSHUKIN
7-1 Koskla St., EE0006 Tallinn, Estonia

CORTINARIUS Fr.

Subgenus DERMOCYBE (Fr.) Fr.

C. cinnabarinus Fr. - Distr. Järvamaa, Tammsaare, in mixed forests, VIII;
C. cinnamomeobadius Henry - Distr. Harjumaa, Tammneeme, in mixed forests, X;
C. squamulosus (Batsch) Henry ss. Henry, Moser 1978, 1983 - Distr. Harjumaa, Randvere, in moist coniferous forests, VIII.

Subgenus LEPROCYBE Moser

C. cotoneus Fr. - Distr. Harjumaa, Rannamõisa, in deciduous forests, VIII-X;
C. orellanus (Fr.) Fr. - Distr. Harjumaa, Soodla, in mixed forests, VIII.

Subgenus PHLEGMACIUM (Fr.) Fr.

C. allutus Fr. var. *xanthus* Moser - Distr. Harjumaa, Leppneeme, in oak forests, IX;
C. aurantiacus Moser - Distr. Valga, Koiva Reservation, in oak forests;
C. balteatoclaricolor Schäff. (=*C. durus* Orton) - Distr. Harjumaa, Kirikla, in spruce forests, VIII;
C. calochrous (Pers.: Fr.) Fr. var. *coniferarum* Moser - Distr. Läänemaa, island Vormsi, in coniferous forests, IX;
C. claricolor Fr. - Distr. Järvamaa, Aegviidu, in mixed forests;
C. elegantior (Fr.) Fr. var. *volvatus* Moser - Distr. Harjumaa, Kirikla, in spruce forests, VIII;
C. elegantior var. *quercilicus* Chev. et Henry - Distr. Harjumaa, Laitse, in deciduous forests, IX;
C. elegantulus (Moser) Moser - Distr. Läänemaa, island Vormsi, in coniferous forests, IX;
C. eufulmineus Henry - Distr. Valga, Koiva Reservation, in oak forests, IX;
C. fulminoides (Moser) Moser - Distr. Järvamaa, Aegviidu, in mixed forests, VIII;
C. glaucopus (Schäff.: Fr.) Fr. var. *olivaceus* Moser - Distr. Harjumaa, Saue, in deciduous forests, VIII;
C. guttatus Henry - Distr. Läänemaa, island Vormsi, in mixed forests, IX;

C. haasii (Moser) Moser - Distr. Läänemaa, island Vormsi, in coniferous forests, IX;

C. infractus (Pers.: Fr.) Fr. var. *olivellus* Moser - Distr. Harjumaa, Saue, in deciduous forests, VIII;

C. infractus var. *obscurocyaneus* Secr. - Distr. Harjumaa, Saue, in deciduous forests, VIII;

C. multiformis (Fr.) Fr. var. *coniferarum* Moser - Distr. Järvamaa, Aegviidu, in mixed forests, VIII;

C. napus Fr. - Distr. Läänemaa, island Vormsi, in coniferous forests, IX;

C. percomis Fr. - Distr. Harjumaa, Kirikla, in spruce forests, IX;

C. pseudocrassus Joss. ex Orton - Distr. Viljandi, Tuhalaane, in mixed forests, VII;

C. russeus Henry - Distr. Harjumaa, Kirikla, in spruce forests, IX;

C. splendens Henry - Distr. Harjumaa, Kirikla, in mixed forests, IX;

C. subbalteatus Kühner - Distr. Harjumaa, Lahemaa National Park, in pine forests, VII;

C. subcompar Bohus - Distr. Harjumaa, Kuusalu, in pine forests, VIII;

C. variecolor (Pers.: Fr.) Fr. var. *marginatus* Moser - Distr. Harjumaa, Randvere, in mixed forests, IX;

C. vitellinopes (Secr.) Schröt. - Distr. Harjumaa, Keila, in oak and mixed forests, VIII.

Subgenus SERICEOCYBE Orton

C. camphoratus (Fr.) Fr. - Distr. Harjumaa, Kuusalu, in coniferous forests, VIII-X;

C. diabolicus Fr. ss. Ricken, Marchand - Tallinn, in Botanic Garden, VIII;

C. malachius (Fr.: Fr.) Fr. - Distr. Harjumaa, Kakumäe, in paludified forests, VI;

C. rosargutus Chev. et Henry - Distr. Läänemaa, island Vormsi, in spruce forests, IX;

C. spilomeus (Fr.: Fr.) Fr. - Distr. Saaremaa, island Saaremaa, Tagalaht, in oak forests, VIII.

Subgenus MYXACIUM (Fr.) Laud.

C. delibutus Fr. f. *achromophyllus* Henry - Distr. Harjumaa, Turba, in spruce forests, IX;

C. illibatus Fr. - Distr. Harjumaa, Kernu, in spruce forests, IX.

Subgenus TELAMONIA (Fr.) Loudon

C. biformis Fr. - Distr. Harjumaa, Soodla, in mixed forests, VIII;

C. bovinus Fr. - Distr. Harjumaa, Kernu, in spruce forests, IX;

C. brunneus (Pers.: Fr.) Fr. ss. Moser non Marchand - Distr. Järvamaa, Kõrvemaa, in moist coniferous forests, VIII;

C. chaematochelis (Bull.: Fr.) Fr. - Distr. Harjumaa, Kernu, in mixed forests, X;

C. flexipes (Pers.: Fr.) Fr. ss. Kühner 1961 - Tallinn, in Botanic Garden, in coniferous forests, VIII;

C. hinnuleus Fr. var. *subtypique* Favre - Tallinn, in Botanic Garden, in birch forests, VIII;

C. jubarinus Fr. - Distr. Harjumaa, Keila-Joa, in pine forests, IX;

C. junghuhnii Fr. - Distr. Harjumaa, Kakumäe, in paludified forests, VI;

C. percavus Favre - Distr. Harjumaa, Saue, in deciduous forests, VIII;

C. rigidus (Scop.) Fr. - Tallinn, in Botanic Garden, in oak forests, IX;

C. sericeus Vel. var. *globovosporus* Chev. et Henry - Distr. Harjumaa, in deciduous forests, IX;

C. vilior P. Karst. - Distr. Harjumaa, Randvere, in coniferous forests, VIII.

FUNGI NEW FOR ESTONIA

G. SHTSHUKIN
7-1 Koskla St., EE0006 Tallinn, Estonia

PEZIZALES

Otidea concinna (Pers.) Sacc. - Distr. Harjumaa, Saue Reservation, in oak forests, IX.

CANTHARELLALES

Cantharellus cibarius Fr. var. *amethysteus* Quél. - Distr. Harjumaa, Laitse, in mixed forests, IX.

HYGROPHORALES

Pseudohygrocybe helobia (Arnolds) Kovalenko - Distr. Saaremaa, island Saaremaa, Tagamõisa, in deciduous forests, VIII;

Hygrophorus hyacinthinus Quél. - Tallinn, in Botanic Garden, in mixed forests, IX.

TRICHOLOMATALES

Laccaria purpureobadia Reid - Tallinn, in Botanic Garden, in oak forests, VIII;
Lepista graveolens (Peck) Dermek - Tallinn, in Botanic Garden, in deciduous forests;
Tricholoma album (Schäff.: Fr.) Kumm. ss. Bon - Tallinn, in Botanic Garden, in deciduous forests, IX;
T. resplendens Fr. - Tallinn, in Botanic Garden, in deciduous forests, VIII;
Melanoleuca pseudobrevipes Bon - Tallinn, in Botanic Garden, on decayed organic remnants, IX;
Mycena clavularis (Batsch: Fr.) Sacc. - Tallinn, in Botanic Garden, in deciduous forests, VII;
Hemimycena pseudolactea (Kühner) Sing. - Tallinn, in Botanic Garden, on decayed needles of *Pinus sibirica*, I, II.

AGARICALES

Psathyrella corrugis (Pers.: Fr.) Konrad et Maubl. - Tallinn, in Botanic Garden, in mixed forests, X;
Agrocybe temulenta (Fr.) Sing. ss. Watling - Tallinn, in Botanic Garden, on grasslands, V;
A. arenaria (Peck) Sing. - Distr. Saaremaa, island Saaremaa,Tagalaht, on sandy areas, VIII;
Conocybe dumetorum (Vel.) Svrček ss. Moser non Watling - Tallinn, in Botanic Garden, on grasslands, VIII;
Tubaria hiemalis Romag. ex Bon - Tallinn, in Botanic Garden, on dead stems of Umbelliferae, XI.

CORTINARIALES

Inocybe glabrodisca Orton - Tallinn, in Botanic Garden, in mixed forests, VII;
I. lanuginella (Schröt.) Konrad et Maubl. - Tallinn, in Botanic Garden, in deciduous forests, VIII.

RUSSULALES

Lactarius chrysorrheus Fr. - Distr. Harjumaa, Kernu, in mixed and oak forests, IX.

BEMERKENSWERTE RUSSULA-FUNDE IN ESTLAND

R. RAUSCHERT
Pädagogische Hochschule, Halle, Turmstr. 47
D-O-4020 Halle, Deutschland

Anläßlich des 10. Kongresses Europäischer Mykologen, der im August 1989 in Tallinn (Estland) unter Leitung von Prof. Erast Parmasto stattfand, wurde auf mehreren Exkursionen die Pilzflora in den ökologisch interessantesten unterschiedlichen Gebieten des Landes vorgestellt. Die Leitung der Exkursionen lag in den Händen von Prof. Erast Parmasto, Prof. Kuulo Kalamees und Dr. Ain Raitviir. In der Publikation von Kalamees & Vaasma (1989) wurde eine Charakterisierung der aufgesuchten Lokalitäten mit ausführlichen Beschreibungen der ökologischen Verhältnisse gegeben und eine Liste der zu erwartenden Arten vorgelegt, in welcher angegeben wird, an welchen Exkursionsorten die einzelnen Arten bereits gefunden wurden.

Auf den Exkursionen vom 16.-20. 8. 1989 von Viljandi aus, am 22. 8. 1989 zum Lahemaa Nationalpark und vom 25.-29. 8. 1989 von Pärnu aus wurden die folgenden, in der Liste nicht enthaltenen Arten ermittelt:

Russula alnetorum Romagn. - Mäeküla (Nigula Naturschutzgebiet), 18. 8. 1989, leg. et det. Rauschert;

R. amoenolens Romagn. - Muuksi (Lahemaa Nationalpark), 22. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. aurantiaca (J. Schff.) Romagn. - Rannametsa, 19. 8. 1989, leg. Rauschert und Exkursionsteilnehmer, det. Rauschert;

R. betularum Hora - Mäeküla (Nigula Naturschutzgebiet), 18. 8. und 26. 8. 1989, leg. Rauschert und Exkursionsteilnehmer,det. Rauschert; Surju, 27. 8. 1989, leg. Rauschert und Exkursionsteilnehmer, det. Rauschert;

R. cfr. *borealis* Kauffm. ss. Sing. - Käsmu (Lahemaa Nationalpark), 22. 8. 1989, leg. Schulz und Frank, det. Rauschert;

R. cessans Pearson - Rannametsa, 19. 8. 1989, leg. et det. Rauschert; Valgerand, 25. 8. 1989, leg. Arnolds, Rauschert, det. Rauschert; Lemme, 27. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. cicatricata Romagn. - Surju, 27. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. clariana Heim ex Kuyper & Vuure - Kalli, 28. 8. 1989, leg. Arnolds, det. Einhellinger;

R. firmula J. Schff. ss. Romagn. - Käsmu (Lahemaa Nationalpark), 22. 8. 1989, leg. Schulz, Frank, det. Rauschert;

R. cfr. *graveolens* Romell in Britz. - Käsmu (Lahemaa Nationalpark), 22. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. laurocerasi Melz. - Heimtali, 17. 8. 1989, leg. et det. Rauschert;

R. luteotacta Rea - Mihkli, 28. 8. 1989, leg. Bendiksen, det. Rauschert;

R. olivaceoviolascens Gill. - Mäeküla (Nigula Naturschutzgebiet), 18. 8. 1989,

leg. et det. Rauschert;

R. olivascens (Pers.) Bres. - Käsmu (Lahemaa Nationalpark), 22. 8. 1989, leg. Rauschert, det. Einhellinger;

R. pectinatoides Peck - Loodi, 17. 8. 1989, leg. et det. Rauschert;

R. pelargonia Niolle - Mäeküla (Nigula Naturschutzgebiet), 18. 8. 1989, leg. et det. Rauschert; Kalli, 28. 8. 1989, leg. Kovalenko, Rauschert, det. Rauschert; Mihkli, 28. 8.. 1989, leg. et det. Rauschert;

R. pulchella Borsz. - Tartu, 16. 8. 1989, leg. Rauschert und Exkursionsteilnehmer, det. Rauschert; Nähe Nigula-See, 18. 8. und 26. 8. 1989, leg. Rauschert und Exkursionsteilnehmer, det. Rauschert;

R. puellaris Fr. - Heimtali, 17. 8. 1989, leg. et det. Rauschert;

R. risigallina (Batsch) Kuyper & Vuure (= *R. chamaeleontina* Fr.) - Mihkli, 28. 8. 1989, leg. Exkursionsteilnehmer und Rauschert, det. Rauschert; Kalli, 28. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. urens March. - Kalli, 28. 8. 1989, leg. Kovalenko, det. Rauschert;

In der "Preliminary list" (Kalamees & Vaasma, 1989) enthaltene, aber an anderen Lokalitäten gefundene Arten:

R. gracillima J. Schff. - Nähe Nigula-See, 26. 8. 1989, leg. Rauschert und Exkursionsteilnehmer, det. Rauschert; Käsmu (Lahemaa Nationalpark), 22. 8. 1989, leg. Schulz, Frank, det. Rauschert;

R. nauseosa (Pers.) Fr. ss. Bres., Moser - Rannametsa, 19. 8. 1989, leg. Exkursionsteilnehmer, det. Rauschert;

R. sanguinaria (Schum.) S. Rauschert (= *R. sanguinea* Fr.) - Kalli, 28. 8. 1989, leg. Kreisel, det. Rauschert;

R. versicolor J. Schff. - Mäeküla (Nigula Naturschutzgebiet), 26. 8. 1989, leg. et det. Rauschert.

An der Aufsammlung der *Russula*-Belege beteiligten sich vor allem folgende Exkursionsteilnehmer: E. Arnolds (Niederlande), C. Bas (Niederlande), E. und K. Bendiksen (Norwegen), P. Blank (Schweiz), A. Bresinsky (Deutschland), V. Demoulin (Belgien), I. Dunger (Deutschland), H. M. Frank (Deutschland), F. Gröger (Deutschland), G. Gulden (Norwegen), K. Høiland (Norwegen), A. E. Jansen (Niederlande), W. Jülich (Niederlande), A. E. Kovalenko (Rußland), H. Kreisel (Deutschland), R. Rauschert (Deutschland), U. Richter (Deutschland), A. Runge (Deutschland), T. Schulz (Deutschland), U. Täglich (Deutschland), E. und H. Wollweber (Deutschland), G. Zschieschang (Deutschland). Leider können in vielen Fällen die Einzelfunde dem jeweiligen Finder nicht mehr zugeordnet werden. Die Bestimmungsergebnisse der selteneren Arten wurden Herrn A. Einhellinger, München, zur Revision vorgelegt. Ihm sei an dieser Stelle herzlich dafür gedankt.

Von einigen nicht überall häufigen *Russula*-Arten (*R. alnetorum*, *R.* cfr. *borealis*, *R. cessans*, *R. clariana*, *R. luteotacta*, *R. pelargonia*,) werden Kurzbeschreibungen und Skizzen mikroskopischer Details angefügt. Von einigen anderen auf diesen

Exkursionen gefundenen Arten (*R. aurantiaca, R. firmula, olivascens, R. urens*) sind Kurzbeschreibungen und Skizzen mikroskopischer Details in "Russulales News" (Rauschert 1991) veröffentlicht.

RUSSULA ALNETORUM Romagn. (=*R. pumila* Rouzeau & Massart) (Abb. 1)

Mäeküla (Nigula Naturschutzgebiet/SW-Estland), am Rande von Nigula Hochmoor bei *Alnus* (?), *Fraxinus, Betula*, 18. 8. 1989, leg. et det. Rauschert.

Exsikkat-Beschreibung:

Hut: Rand dunkelpurpurn, Mitte schwarz, glänzend.

Lamellen: relativ breit, ockerfarben, weiß bestäubt.

Stiel: matt, längsgefurcht, unter der Lupe grau und ockerbraun im Wechsel längsgestreift, unten etwas keulig, frisch gilbend und grauend.

Sporen: oval, sehr dicht punktiert; kleine und große Warzen von mittlerer Länge gemischt, bisweilen wenige zu +/- gekrümmten Graten zusammentretend; bei starkem Licht auch feinste strichförmige Vernetzungen erkennbar, vor allem bei den größeren Sporen, aber nicht bei allen; (8,3 -) 8,8 - 10,3 x (7,0 -) 7,3 - 7,8 µm; Mittelwert: 9,4 x 7,4 µm; Q: 1,27; Vol 259 μm^3.

Pileozystiden: relativ häufig, keulig, relativ breit, unseptiert oder meist mehr fach septiert, zylindrisch, in SV zum Teil kaum gefärbt, zum Teil schwach bis mittelgrau gefärbt durch darin enthaltene Granula, bis 220 x (5,5 -) 7,O - 9,9 µm.

Lacticiferen: in SV rot gefärbt, lang, sehr stark hin- und herwindend.

Epicutishaare: mehrfach septiert, x 1,7 - 3,8 (-5,1) µm.

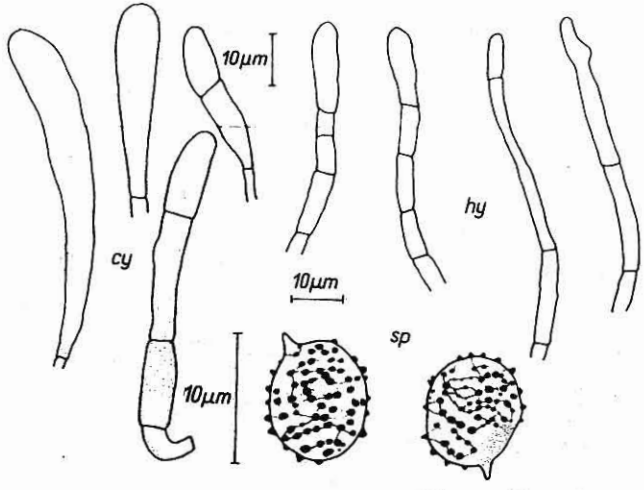


Abb. 1 RUSSULA ALNETORUM: sp - Sporen; cy - Pileozystiden; hy - Epicutishaare

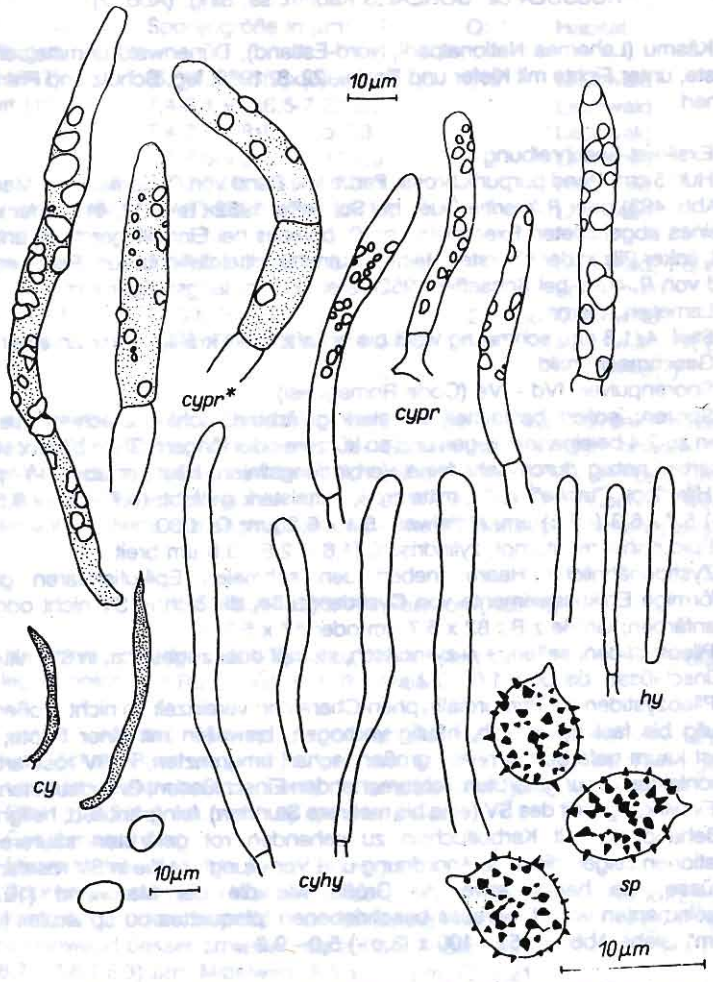


Abb. 2 RUSSULA cfr. BOREALIS: sp - Sporen; cy - Pileozystiden; hy - Epicutishaare; cyhy -zystidenähnliche Epicutishaare; cypr - Pileozystiden mit Primordialhyphen-Charakter; cypr* = cypr nach sehr langer Einwirkungszeit von SV

RUSSULA cfr. BOREALIS Kauffm. ss. Sing. (Abb. 2)

Käsmu (Lahemaa Nationalpark/Nord-Estland), Dünenwald unmittelbar hinter der Küste, unter Fichte mit Kiefer und Esche, 22. 8. 1989, leg. Schulz und Frank, det. Rauschert.

Exsikkat-Beschreibung:

Hut: 5 cm; Rand purpurlichrosa, Farbe wie Rand von *R. borealis* bei Marchand 1977 (Abb. 493) oder *R.lateritia* Quél. bei Schaeffer 1952 (Tafel 12, 41a) oder wie der Rand eines abgebildeten Exemplars von *R. borealis* bei Einhellinger 1985 und 1987 (Tafel 4, linker Pilz in der obersten Reihe); Hutmitte mittelolivlichbraun, Farbe etwa wie auf Bild von *R. laeta* bei Schaeffer 1952(Tafel XI, 36b, langstieliger Pilz).

Lamellen: creme.

Stiel: 4/1,8 cm, schmutzig weiß bis ockerlich bis kräftig ocker an einer Stelle.

Geschmack: mild.

Sporenpulver: IVd - IVe (Code Romagnesi).

Sporen: isoliert bestachelt mit stark gefärbten, hohlen Stacheln, die oft in Gruppen zu 2-4 beieinander liegen und so kürzere oder längere Grate bilden; seltener auch partiell netzig durch sehr feine Verbindungslinien, häufiger aber +/- parallel gratig; Hilarfleck ("tache") rund, mittelgroß, mittelstark gefärbt; (6,7 -) 7,3 - 8,5 (-9,4) x (5,3 -) 5,7 - 6,3 (- 6,5) µm; Mittelwert: 8,1 x 6,2 µm; Q: 1,30.

Epicutishaare: stumpf, zylindrisch, (1,6 -) 2,8 - 3,9 µm breit.

Zystidenähnliche Haare: neben den schmalen Epikutishaaren gibt es keulenförmige Epikutiselemente von Cystidengröße, die sich in SV nicht oder sehr wenig anfärben; Größe z.B.: 82 x 5,7 µm oder 57 x 5,3 µm.

Pileozystiden: selten, +/- zylindrisch, stumpf oder zugespitzt, in SV mittelgrau, ohne Einschlüsse, bis 50 x 1,6 - 3,2 µm.

Pileozystiden mit Primordialhyphen-Charakter: vereinzelt (in nicht großer Zahl), langkeulig bis fast zylindrisch, häufig verbogen, bisweilen mit einer Septe; in SV zunächst kaum gefärbt, mit relativ großen, scharf umgrenzten, in SV rosafarbenen, in Ammoniaklösung ungefärbten, lichtbrechenden Einschlüssen; Grundsubstanz nach langer Einwirkungszeit des SV (eine bis mehrere Stunden) feingranuliert, hellgrau; die nach Behandlung mit Karbolfuchsin zu sehenden rot gefärbten säurerestisten Inkrustationen zeigen dieselbe Anordnung und Verteilung wie die in SV rosafarbenen Einschlüsse; sie haben etwa die Größe wie die bei Marchand (1977) in Epikutiselementen von *R. borealis* beschriebenen "plaquettes ou sphérules jusqu'à 2,5-3 µm" (siehe Abb. 2); 52 - 100 x (3,o -) 5,0 - 9,2 µm.

In der folgenden Zusammenstellung werden Literaturangaben über Sporenmaße und Standortsangaben verschiedener *R. borealis*-Funde verglichen:

Autor:	Sporengröße in µm:	Q:	Habitat:
Einhellinger (1985,1987):	(6,5)7,5-8,5(9)x(6)6,5-6,7-7,5	1,15	Laubwald
Schmitt (1987):	7,4-8,4-9,2x6,5-7,23-8,2		Laubwald
	7,4-7,9-8,8x6,6-7,o-7,3		Laubwald
	6,1-7,8-9,0x5,7-6,37-7,0		Laubwald
	7,6-8,35-9,1x6,4-6,7-7,0		Laubwald
Romagnesi (1967):	7,7-8,35-9,0x6,5-6,85-7,2		Laubwald
Bon (1988),Einhellinger(1987):	8,0-9,0-(10)x6,0-7,0-(8,0)		Laubwald, Föhren und Sphagnum
Marchand (1977):	7,25-8,75x5,25-7,0	1,25-1,38	Mischwald
Rauschert:	7,3-8,1(9,4)x(5,3)5,7-6,2-6,5	1,30	Nadelwald mit Esche und Birke(?)

Unser als *R.* cfr. *borealis* bezeichneter Fund weicht bezüglich seines Standortes und des Längen-Breitenverhältnisses der Sporen (Q) von den Angaben einiger anderer Autoren ab und erinnert bezüglich seiner Sporengröße und des Standortes an *R. lateritia*. Die letztgenannte Art soll aber helleres Sporenpulver, wesentlich schmalere inkrustierte Huthauthyphen und keine SV-positiven Elemente besitzen.

RUSSULA CESSANS Pearson (Abb. 3)

Valgerand bei Pärnu (SW-Estland), Dünenwald, unter *Pinus* mit *Betula*, 25. 8. 1989, leg. Arnolds und Rauschert, det. Rauschert.

Hut: 4 - 4,5 cm; 1) purpurlich-olivlich-bräunlich-grau, Mitte ockerfarben mit olivlichen Flecken, Rand ungerieft; 2) purpurn, Mitte dunkelpurpurn, Rand gerieft.

Lamellen: relativ breit und weit, dotterfarben, mit goldgelbem Schein.

Stiel: 1) 8,5/1,6 cm, weiß; 2) 4/1,2 cm, weiß.

Geschmack: mild.

Sporenpulver: IVd -IVe (Code Romagnesi).

Sporen: mit stumpfen Warzen, diese zum Teil isoliert, zum Teil kurzgratig, oft auch langgratig oder bisweilen unvollständig netzig; Vernetzungen auf der Sporeninnenwand besser zu sehen als auf der Außenseite; (7.6 -) 8,1 - 9,4 (-10,4) x (6,2-) 6,7 - 7,6 (-8,3) µm; Mittelwert: 8,5 x 7,O µm; Q: 1,21.

Pileozystiden: meist keulig mit 1 (-2) Septen, gut angefärbt in SV, z.B. 45 x 4,7 - 6,7 µm; andere mehrfach septiert, nur sehr zart hellgrau in SV; bisweilen aber einzelne Zellen , z.B. die Spitzenzellen, mittelstark angefärbt in SV, z.B. 12O x 3,7 - 5,5 µm.

Epicutishaare: mit stumpfen Enden, x 2,6 - 4,1 µm.

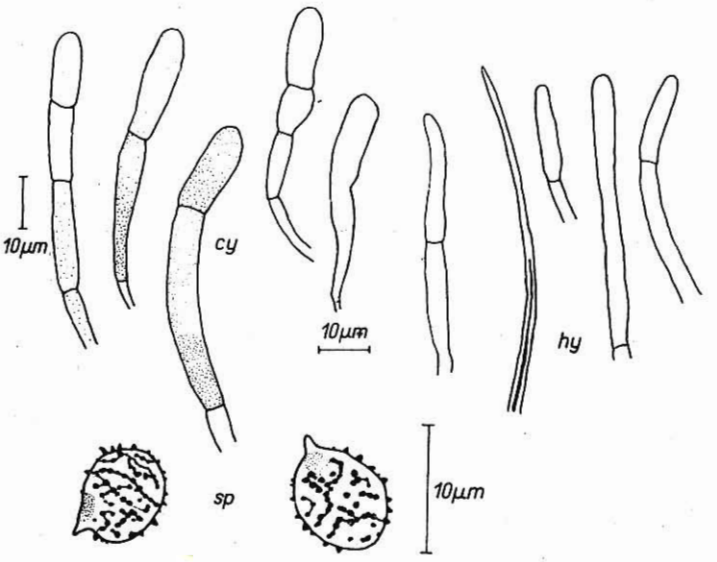


Abb. 3 RUSSULA CESSANS: sp - Sporen; cy - Pileozystiden; hy - Epicutishaare

RUSSULA CLARIANA Heim (Abb. 4)

Kalli (West-Estland), Mähwiesen zwischen parkartig stehenden Einzelbäumen und Baumgruppen über kalkhaltigem Boden; humide, mäßig feuchte Lage; bei *Quercus* und *Corylus*, 28. 8. 1989, leg. Arnolds, det. Einhellinger.

Hut: 5 cm, hellgraulich-grün, Mitte tief olivgrün mit bräunlichem Ton.
Lamellen: cremeweißlich mit deutlichem creme Reflex.
Stiel: 3,8/O,8 cm, weiß, zylindrisch.
Geschmack: scharf in den Lamellen.

Sporen: oval; einige Stacheln isoliert, die meisten zu kurzen Graten verbunden; Grate oft parallel verlaufend, durch verzweigte Grate bisweilen partiell netzig; manche Sporen nur isoliert bestachelt; Stacheln relativ lang und derb: 0,8 - 0,9 (- 1,7) µm; Hilarfleck ("tache") mittelgroß, relativ dunkel; (7,6 -) 8,2 - 8,9 x (6,2 -) 6,6 - 7,6 µm; Mittelwert: 8,35 x 7,0 µm; Q: 1,20.

Pileozystiden: große, kräftige unseptierte Keulen oder mit 1, selten mit 2 Septen, in SV hell- bis mittelgrau; zwischen dem sich in SV graufärbendem granuliertem Inhalt befinden sich Vakuolen, die sich in SV intensiv carminrot (etwa wie die Lacticiferen) färben, so daß die Pileozystiden graurot-gefleckt erscheinen; nach einiger Zeit lösen sich die rotgefärbten Vakuolen auf; (27 -) 40 - 82 x (6,4 -) 7,0 - 8,5

(- 11,4) µm.

Unter den Pileozystiden befinden sich in SV rotgefärbte Lacticiferen.

Epicutishaare: lang, stumpf, ungeteilt, zylindrisch, in der Tiefe oft verzweigt, 35 x 3,1; x (2,5 -) 3,1 - 4,8 µm.

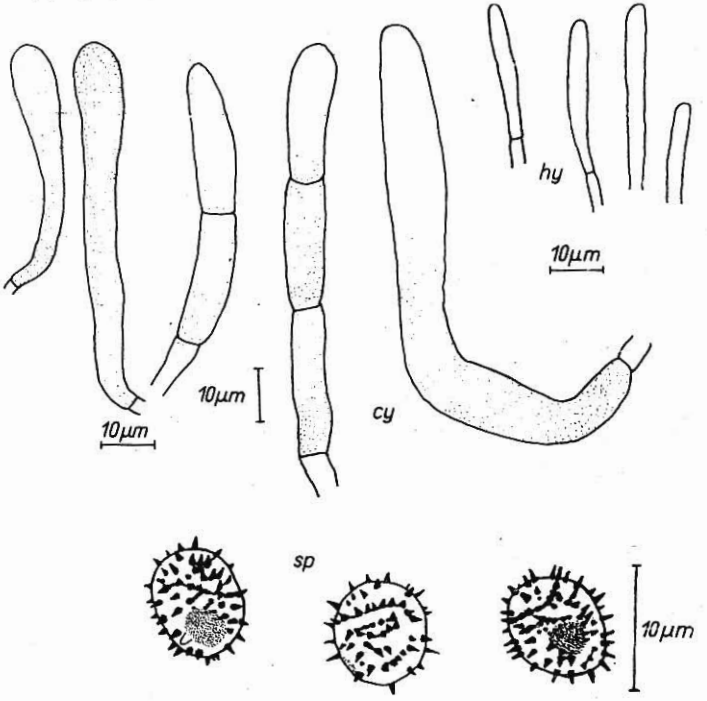


Abb. 4 RUSSULA CLARIANA: sp - Sporen; cy - Pileozystiden; hy - Epicutishaare

RUSSULA LUTEOTACTA Rea

Mihkli (West-Estland), Laubwald mit alten *Quercus, Corylus, Betula*, 28. 8 1989, leg. Bendiksen, det. Rauschert.

Hut: 3 cm, zinnoberrot (*lepida*- bis *betularum*-rosa), creme-oker gefleckt, im Exsikkat hell-zinnoberrot mit cremefarbener Entfärbung besonders am Rand.

Lamellen: zunächst hellcreme mit dunkelcreme Reflex, chromgelb fleckend, im Exsikkat cremefarben mit daraufsitzendem hellerem Sporenpulver.

Stiel: 3/0,9 - 4/0,8 cm, oben mit chromgelben Fleken, unten bräunend, im Exsikkat ockerfarben mit dotterbräunlichen Flecken.

Geschmack: scharf.

Sporenpulver: Ib (Code Romagnesi).

Sporen: isoliert dichtwarzig bis gratig; Verbindungsstriche bisweilen wenig verzweigt, seltener dünne Verbindungsstriche zwischen einigen Warzen; Hilarfleck ("tache") +/- groß, dunkel gefärbt in Melzer-Reagenz; (6,4 -) 6,8 - 8,3 (- 8,6) x (5,2 -) 5,4 - 6,8 (-7,3) µm; Mittelwert: 7,55 x 6,0 µm; Q: 1,26;

Pileozystiden: in großer Zahl, zylindrisch, sehr lang, oft stark verbogen, bisweilen septiert; über- und durcheinanderliegend, dadurch wirr erscheinend; bisweilen am Ende sehr schwach keulig, bisweilen tordiert (Seitenwände wirken dadurch wellig); in SV kräftig gefärbt (blauschwarz); 210 x (2,9 -) 4,4 -7,6 µm.

Epicutishaare: ebenfalls tordiert, x 4,5 µm.

Kann leicht mit *R. persicina* Krbh. ss. Melz. & Zv. verwechselt werden, die durch folgende Trennmerkmale unterschieden ist: Sporenpulver IIb - IIc (- IId) (Code Romagnesi); Fleisch weniger stark gilbend; Hutfarbe *lepida*-rot, etwas mit blutrot untermischt, am Rande seltener aufgehellt als *R. luteotacta*; Pileozystiden keulenförmig, in SV nur schwach gefärbt, darunter noch dünne, zylindrische, ebenfalls nur schwach gefärbte Zystiden, Zahl pro Fläche geringer als bei *R. luteotacta.*

RUSSULA PELARGONIA Niolle (Abb. 5)

1) Mäeküla (Nigula Naturschutzgebiet / SW-Estland), Wald mit *Picea, Populus tremula, Fraxinus, Betula*, auf saurem, nährstoffarmem Boden, 18. 8. 1989, leg. et det. Rauschert; 2) Kalli (West-Estland), Mähwiesen zwischen parkartig stehenden Einzelbäumen und Baumgruppen über kalkhaltigem Boden; humide, mäßig feuchte Lage, ohne ruderalen Einfluß; an vielen Stellen, bei folgenden Einzelbäumen oder Baumgruppen: 1. *Betula*, 2. *Betula* und *Quercus*, 3. *Betula, Quercus, Corylus, Picea*, 4. *Populus tremula, Alnus*, 6. *Populus tremula, Quercus, Corylus*, 28. 8. 1989, leg. Kovalenko, Rauschert, det. Rauschert; 3) Mihkli (West-Estland), 210-jähriger unterwuchsreicher, humider *Quercus*-Wald mit *Fraxinus excelsior, Betula pendula, Populus tremula*, unter *Corylus*, 28. 8 1989, leg. et det. Rauschert.

Hut: 2,8 - 6,3 cm, mittelfest, purpurbraun oder bräunlichpurpurn mit olivlichem Schein oder kräftig purpurlila; Rand purpurgrau bis braungrau bis hellgrau bis silbriggrau, später gerieft; Mitte olivbräunlich bis braun bis oliv bis olivpurpurbraun bis oliv-ocker oder grauocker und purpurlich bis helllila, auch dunkelviolett mit schwärzlichem Schein; alle Hüte klebrig, viele glänzend.

Lamellen: weiß bis schmutzig-weiß bis creme.

Stiel: 4/0,9 cm, meist zylindrisch, seltener unten etwas aufgeblasen, anfangs weiß, später grauend, bisweilen nach Berührung leicht bräunend.

Geruch: stark fruchtig.

Geschmack: scharf bis sehr scharf.

Sporenpulver: hellcreme bis fast weiß.

Sporen: meist kurz- bis langgratig und daneben isolierte Warzen enthaltend, manche Kollektionen fast isoliert bestachelt bis warzig; Stacheln an vielen Sporen relativ lang; 7,3 - 8,5 (- 9,3) x (6,0 -) 6,2 - 7,2 (- 7,8) µm; Mittelwert: 8,2 x 6,8 µm; Q:

1,20.

Pileozystiden: in mittelgroßer Zahl, septiert, mit ungleichlangen Zellen (mit 1 bis 6 Septen), oft verbogen, keulige Endzelle meist etwas kräftiger gefärbt; (68 -) 100 -170 (-200) x 4,7 - 6,5 µm; daneben keulige, unseptierte Pileozystiden, 42 - 69 x (5,7 -) 6,4 - 7,9 µm;

Epikutishaare: x 2,8 - 3,6 µm.

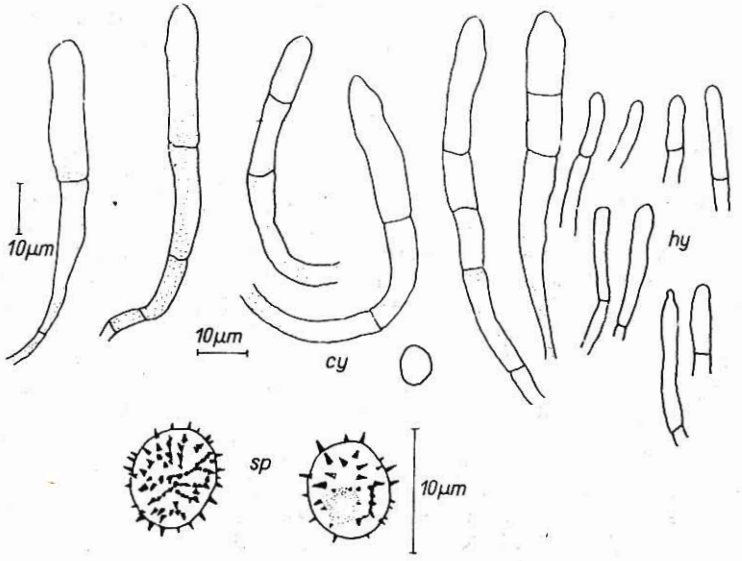


Abb. 5 RUSSULA PELARGONIA: sp - Sporen; cy - Pileocystiden; hy - Epicutishaare

ZUSAMMENFASSUNG

In der Veröffentlichung werden die *Russula*-Funde von 3 Exkursionen anläßlich des 10. Kongresses Europäischer Mykologen (X. CEM) (16. - 20. 8. 1989 von Viljandi aus; 22. 8. 1989 zum Lahemaa Nationalpark; 25. - 29. 8.1989 von Pärnu aus) zusammengestellt. In der hier publizierten Liste sind nur die Namen der Arten enthalten, die in der Publikation von Kalamees & Vaasma (1989) fehlen. Einige *Russula*-Arten (*R. alnetorum, R.* cfr. *borealis, R. cessans, R. clariana, R. luteotacta, R. pelargonia*) werden kurz beschrieben und Zeichnungen mikroskopischer Details vorgestellt.

SUMMARY

In this publication the *Russula* finds of 3 excursions on the occasion of the 10. Congress of European Mycologists (X. CEM) (16. - 20. 8. 1989 starting from Viljandi; 22. 8. 1989 Lahemaa National Park; 25. - 29. 8. 1989 starting from Pärnu) are summarized. The list published here includes only the names of found species that are not contained in the publication by Kalamees & Vaasma (1989). Some *Russula* species (*R. alnetorum*, *R.* cfr. *borealis, R. cessans, R. clariana, R. luteotacta, R. pelargonia*) are described in short and drawings of their microscopical details are produced.

LITERATUR

BON, M. & WEHOLT, O., 1987. Contribution to the Norwegian *Russula* Flora II. - Agarica 8 (16): 37-47. BON, M., 1988. Clé monographique des russules d'Europe. - Docum. mycol. 18 (70-71): 1-120. BRESINSKY, A., 1985. Die Arten der Gattung *Russula* in der Bundesrepublik Deutschland und deren Bestimmung nach Romagnesi. - Hoppea 43: 287-342. DERBSCH, H. & SCHMITT, J.A., 1987. Atlas der Pilze des Saarlandes, Teil 2: 641. EINHELLINGER, A., 1982. Das Murnauer Moor und seine Pilze. - Hoppea 41: 347-398. EINHELLINGER, A., 1985. Die Gattung *Russula* in Bayern. - Hoppea 43: 1-286. EINHELLINGER, A., 1987. Die Gattung *Russula* in Bayern. - Bibl. Mycol. 112. Berlin-Stuttgart. EINHELLINGER, A., 1990. Zum Studium von Täublingen unentbehrliche Schlüssel und Tabellen aus der *Russula*-Monographie Romagnesis. FRANK, H. M. & WÄHNER, H., 1988. Bestimmung von Täublingen mit einem Computer auf der Basis eines synoptischen Schlüssels. - Gleditschia 16 (1): 99-111. JAHN, H., 1976. *Russula pumila* Rouzeau & Massart, ein Täubling unter *Alnus glutinosa* in Norddeutschland und Westfalen gefunden. - Westfälische Pilzbriefe 10/11 (1/2): 15-21. KALAMEES, K. & VAASMA, M., 1989. The preliminary list of fungi registered in the localities of scientific excursions. - In: Tenth Congress of European Mycologists, Tallinn, Estonian SSR, August 1989. Tallinn. KRIEGLSTEINER, G., 1986. Über neue, seltene, kritische Makromyceten in der Bundesrepublik Deutschland (Mitteleuropa) VII. - Beitr. Kenntn. Pilze Mitteleuropas II: 150. MARCHAND,A., 1977. Champignons du nord et du midi. Tome 5. Les Russules. MICHAEL, E., HENNIG, B. & KREISEL, H., 1983. Handbuch für Pilzfreunde. Bd. V. Milchlinge und Täublinge. 2. Aufl. Jena. RAUSCHERT, R., 1991. *Russula*-Vorkommen in Estland. - Russulales News (Eeklo Belgien) 1 (2): 51-61. ROMAGNESI, H., 1967. Les Russules d'Europe et d'Afrique du Nord. Bordas. SCHAEFFER, J., 1952. *Russula*-Monographie. Bad Heilbrunn. SCHAEFFER, J., 1952. Die Russulae, 20 Farbtafeln. - In: Die Pilze Mitteleuropas. Band III. van VUURE, M., 1983. *Russula cessans*. Coolia 26 (3): 49-52.

CONTRIBUTION TO THE CORTINARIUS FLORA OF ESTONIA, INCLUDING SIX NEW SPECIES FOR THE COUNTRY FOUND DURING THE CEM 10 (CONGRESS OF EUROPEAN MYCOLOGISTS) 1989

E. BENDIKSEN
Norwegian Institute for Nature Research (NINA),
P.O.Box 1037 Blindern, N-0315 Oslo, Norway

K. BENDIKSEN
Botanical Garden and Museum, Trondheimsvn. 23 B,
N-0562 Oslo, Norway

Cortinarius is the mycorrhizal genus with the highest number of species in the coniferous forests of Fennoscandia (Norway, Sweden and Finland). The vegetation types of Estonia are partly the same as Fennoscandia (pine and spruce forest types and southern deciduous forest types), partly south-eastern continental types which lack or are very rare in Fennoscandia (existing mainly on Öland and Gotland). The latter types have a fairly species-poor fungus flora. Consequently, the *Cortinarius* flora of Estonia shows high similarity with the Fennoscandian lowland *Cortinarius* flora, also demonstrated by the list of species presented by Urbonas et al. (1986). Some additional Estonian species are reported by Nezdojminogo (1983).

The authors, who study the genus *Cortinarius* in Fennoscandia, took part in the main congress with the whole-day excursion to Lahemaa National Park on the northern coast of Estonia, and the post-congress tour centered at Pärnu, with several excursions in the southern part of the country. Of the *Cortinarius* species we found or were given from other congress participants six do not seem to have been earlier recorded from Estonia (cf. Urbonas et al. 1986, Nezdojminogo 1983). We will here comment these species. Colour chart symbols in species descriptions: Cailleux (1981), Kornerup & Wanscher (1978).

Subgenus DERMOCYBE

CORTINARIUS OLIVACEOFUSCUS Kühn.

For description, see Høiland (1984), Brandrud et al. (1990). This is a geographically interesting species. It is systematically isolated in this part of the world, having its closest relatives in the southern hemisphere. In the Nordic countries the species is southern and only found on a few localities in the southern parts of Norway, Sweden and Finland. (Distribution maps, see Høiland 1984, Brandrud 1986). The species is found under several deciduous tree species and also under conifers. Consequently, it seems to have a wide amplitude with respect to mycorrhizal partners (and possibly also to nutritional factors), but with strong demands for a favorable climate. The species has ecologically more in common with subgenus *Phlegmacium* than its closer relatives in *Dermocybe*.

Estonian findings: 1. Muuksi (Lahemaa National Park), 2. Mihkli, rich mature forest dominated by *Quercus* and *Corylus*, about 140 fruit bodies close together.

The species has not been previously recorded from Estonia. For climatical reasons the species may be more common in Estonia than in Fennoscandia.

Subgenus LEPROCYBE

CORTINARIUS LIMONIUS (Fr.: Fr.) Fr.

For description, see Høiland (1980).

This species is fairly easy to know by its strong yellow-orange colours and cylindrical stem. It is common in Fennoscandia and a characteristic species for oligotrophic spruce forest in the boreal zones, but is also reported from pine forsts. Typically it grows in deep moss and often in bilberry spruce forest dominated by *Sphagnum girgensohnii*. The species is slightly poisonous.

C. limonius has not been previously been reported from Estonia. Nezdojminogo (1983) reported it from both the "Leningrad" area and Carelia and also from the Asian part of the former Soviet Union. The find locality in Estonia was oligotrophic, *Vaccinium*-dominated coniferous forest at Lahemaa National Park.

Subgenus PHLEGMACIUM

CORTINARIUS FLAVOVIRENS Henry

For description, see Moser (1960) and Brandrud et al. (1990). The species is separated from closely related species a.o. by its characteristic smell of meal. It has a southern distribution and is more common in Middle and Southern Europe than in Fennoscandia where it has only been found in a few sites in the southern parts under different deciduous trees.

One big fruit body (leg. Gilbertson) was found at Mihkli in forest of *Quercus* and *Corylus*. Nezdojminogo 1983 reported the species from Estonia, only in her *Cortinarius* flora of the former Soviet Union.

CORTINARIUS RUFOOLIVACEUS Fr.

The species belongs to section *Fulvi, Orichalcei* group. It is reported from Estonia by Urbonas et al. (1986) who also reported the related red coloured species *C. odorifer* and *C. orichalceus*. *C. rufoolivaceus* has pale flesh and no smell. *C. odorifer* is distiguished by its yellow to yellow green flesh and its characteristic smell of anise. *C. orichalceus* lacks the violet cap margin of *C. rufoolivaceus*. *C. rufoolivaceus* grows in deciduous forest in contrast to the two others which are coniferous forest species. It is known only from some very few sites in South Fennoscandia. Further it is known from Denmark and it is more common in Central Europe.

At the congress *C. rufoolivaceus* was found at Mihkli (two fruit bodies) in forest of *Quercus* and *Corylus*. It has also been found at Kalli (Congress locality) (Kalamees & Vaasma 1989).

CORTINARIUS sp. Brandrud ined.

The species belongs to section *Cliduchi*, and is closely related to *C. caligatus*. It has ochraceous cap and pale stem with characteristic brown belts of veil. The gilis have a more or less distinct lilac blue colour, especially the edge. In this way it also resembles *C. varius*. It is a deciduous forest species and is earlier only known from very few continental sites in Southern Norway and Sweden.

At the congress the species was found at Nedremaa parkland meadow a reserve of herb-rich hay meadow between Kalli and Koonga. Two fruit bodies were growing in a thicket of *Alnus* and *Quercus*.

Subgenus MYXACIUM

CORTINARIUS MUCOSUS (Bull.: Fr.) Kickx

For description, see Bendiksen et al. (1993). The species seems to be strongly associated with *Pinus*, and it grows in the most xeric pine forests as well as in moister mixed forests of *Pinus* and *Picea*. It has a wide distribution in Fennoscandia, and is also common in large parts of the former Soviet Union, according to Nezdojminogo (pers. comm.). The species was found to be common in the pine forests of Lahemaa National Park.

C. mucosus is characteristic with its more or less vivid orange brown to ochraceous cap, white stem, and stout habit. In Nordic material the stem is only some very few times observed with a faint tinge of violet (Bendiksen et al. 1993). In pine forest on inland sand dunes at Rannametsa, Riga Bay, we made, however, a find of several very deviating fruitbodies of *C. mucosus* with strongly violet stems. The collection reminded strongly of *C. septentrionalis* or a pale *C. collinitus*. The typical narrow spores with a Q-value of about 2.0, however, revealed that the species was *C. mucosus*. The ecology was also very typical. A similar collection was found at Oulu, North Finland in 1989. We here present a description of the Estonian collection:

Cap 3.0-5.0 cm, as young convex with recurved margin, later broadly convex and plane, glutinous, golden yellow, towards centre brown with a reddish component (Cailleux: S 49), innermost parts also with a distinct olivaceous tinge reminding of *C. favrei* (tinge of S 92).

Gills 3-5 mm broad, moderately crowded, even, emarginate, greyish beige (Methuen: 5E4), edge somewhat paler.

Stem 35-37/8-10 mm, cylindrical or faintly broader towards apex, apex pale, elsewhere violet (Methuen: 16 A2-B2), turning faintly brownish in base, no smell.

Spores: 12.5-13.7/6.0-6.7 µm (means = 13.4x6.4), L/W (Q mean) = 2.09.

Ecology: In sand in xeric pine forest (*Vaccinium vitis-idaea, Deschampsia*

flexuosa, Dicranum polysetum, Pleurozium schreberi, Cladonia rangiferina); no other tree species near the locality.

More finds are necessary to determine whether the deviating, violet-stemmed type has any systematical significance. The violet vacuolar pigments, typical of many *Cortinarius* species are, however, strongly variable for many species (cf. Melot 1982, 1986). Variation from distinct violet to pure white occurs for most of the other species in section *Colliniti*, in Fennoscandia (Bendiksen et al. 1993). It is therefore reason to believe that the find from Estonia only represents an extreme type within a continuous variation.

CORTINARIUS STILLATITIUS Fr. (= *C. integerrimus* Kühn.)

For description see Ryman & Holmåsen (1984) and Kühner (1959). The species may superficially resemble *C. collinitus* but belongs to section *Defibulati*, which differs from section *Colliniti* by a.o. that the *Defibulati* species have sulcate cap margin, distinct smell of honey (especially in stem base), and most distinctive: by their lack of clamps in all parts of their fruit bodies.

The species seemed common in the Lahemaa area, and it was also observed at the fungus exhibition at the National Museum of Tallinn under the name "*C. collinitus*" and mixed with the real *C. collinitus*. *C. stillatitius* has not been previously reported from Balticum, but it is probably just as common in the coniferous forests of Estonia as in Fennoscandia. The lack of reports from the literature seems to be due to misidentification. Below, the characters of the two species are compared. Absence or presence of clamps and smell of honey are definite separating characters.

	C. stillatitius	*C. collinitus*
Cap margin	faintly sulcate	smooth
Cap colour	ochraceous brown	more vivid red brown
Gills	strongly fimbriate	faintly fimbriate
Stem	persistently violet	violet, lower part turning brown with age
Stem veil	not so strongly cracking	cracking in zones with age
Flesh, stem base	strong smell of honey	no smell
Clamps	absent	present
Spores	12-15/7-8.5 µm	13-16/7.5-9.5 µm
Cystidia	large baloon-shaped	small basidium-like

Subgenus TELAMONIA

CORTINARIUS LUCORUM (Fr.) Lange

Description of collection from Nigula Nature Reserve (E. Bendiksen, 26 Aug. 1989):

Cap 4,5-8.5 cm, convex with incurved margin, later broadly convex to plane and downpressed around centre; white veil partly as a fibrose cover, partly a film, super fluous as young, later with remnants concentrated to a marginal zone, but not reaching the uttermost margin which is left smooth; strongly hygrophanous, as very moist one-coloured grey-brown(Cailleux: R 50 (-49)), more often bicoloured and dried from centre, beige brown (Cailleux: P 60, M 69; Methuen: 5B4), often rusty spotty and marmorated close to the veil zone.

Gills 8-11 mm broad, fairly distant, even emarginate, pale brownish grey (M 70-71) with a violet tinge, edge concoloured.

Stem 55-95/8-1523 mm, cylindrical or with a somewhat clavate base, lower part pale grey brown (M 70-71), upper part pale violet; with pale, fugacious veil remnants, veil as young forming a thread-like transversal zone on the lower part of stem.

Flesh pale, with a violet greyish tinge in stem apex and beige in stem base, no smell.

Spores: 9-9.5(9.7)/5.7-6 μm (means=9.2x5.3), L/W (Q mean) =1.74.

Ecology: Deciduous forest, by *Tilia*.

The species usually forms mycorrhiza with *Populus* and *Salix* in Fennoscandia, where it is common in suitable places. The Estonian find was by *Tilia*, the only mycorrhiza-forming tree on the locality. Association and probable ectomycorrhiza with *Tilia* is reported by Bresinsky (1987) for a.o. three *Cortinarius* species of subgenus *Telamonia*. From Norway there are several examples of the same with *C. hinnuleus*. At the congress the species was found in the forest at a path border a few hundred metres awey from the huge bog at Nigula. As typical for the species it occurred with a large number of fruit bodies.

The species has not been previously reported from Estonia.

CORTINARIUS HELVELLOIDES (Fr.) Fr.

For description, see Brandrud et al. (1990). The species belongs to section *Helvelloidei* where most of the species are small and thin-fleshed with a distinct yellow veil. Besides, *C. helvelloides* is characterized by violet colour on gills and upper part of stem. The species is obligately associated with *Alnus* and is a typical element of alder forests together with *C. alnetorum* and *C. bibulus*.

C. helvelloides was found at Muuksi (Lahemaa National Park) in a moist forest dominated by *Fraxinus*, but with *Alnus incana* and *Prunus spinosa* as important components. The species has not been previously reported from Estonia, but it has been reported from Latvia by Nezdojminogo (1983).

CORTINARIUS BIFORMIS Fr.

For description, see Moser (1989). The species is variable and possibly represents a complex of more taxa. A micaceous cover of veil remnants in the cap margin is characteristic. The species is very common in Fennoscandia and especially typical for oligotrophic coniferous forests. It has also been called *C. privignus*, but Fries has described this taxon as a species with stronger developed veil cover. The names are discussed by Moser (1989) and Bendiksen & Skifte (1989).

None of the names are connected with finds reported from Balticum, but Nezdojminogo (1983) reported *C. biformis* and *C. privignus* from several places in the former Soviet Union. At the congress *C. biformis* was found at Lahemaa National Park.

ACKNOWLEDGEMENTS

We wish to thank Erik Framstad (NINA, Oslo), for language editing.

REFERENCES

BENDIKSEN, E. & SKIFTE, O. 1989. Bidrag til soppfloraen i Skjomen, Nordland. Rapport fra soppkurs, sept. 1987. - Polarflokken 13 (1): 33-53. BENDIKSEN, E., BENDIKSEN, K. & BRANDRUD, T.E. 1993. *Cortinarius* subgenus *Myxacium* section *Colliniti* (*Agaricales*) in Fennoscandia, with special emphasis on the arctic-alpine zones. - Sydowia (Arctic and alpine mycology III in prep.). BRANDRUD, T.E. 1986. Det sørlige og sørøstlige edelløvskogselement blant jordboende storsopper i Norge. - Agarica 7 (14): 210-220. BRANDRUD, T.E., LINDSTRÖM, H., MARKLUND, H., MELOT, J. & MUSKOS, S. 1990. *Cortinarius*, Flora Photographica. Vol. I (English, German and French version). Härnösand. BRESINSKY, A. 1987. Bemerkenswerte Grosspilzfunde in der Bundesrepublik Deutschland. - Z. Mykol. 53: 289-302. CAILLEUX, A. 1981. Code des couleurs des sols. Paris. HØILAND, K. 1980. *Cortinarius* subgenus *Leprocybe* in Norway. - Norw. J. Bot. 27: 101-126. HØILAND, K. 1984. *Cortinarius* subgenus *Dermocybe*. - Opera Bot. 71: 1-113. KALAMEES, K. & VAASMA, M. 1989. The preliminary list of fungi registered in the localities of scientific excursions. - In: Tenth Congress of European Mycologists, Tallinn, Estonian SSR, August 1989. Tallinn. KORNERUP, A. & WANSHER, J.H. 1978. Methuen handbook of colour. 3. ed. London. KÜHNER, R. 1959. Notes descriptives sur les agarics de France I. *Cortinarius*. - Bull. Mens. Soc. Linn. Lyon 28: 120-127, 131-141. MELOT, J. 1982. Note sul genere *Cortinarius*. - In Atti del Symposium Internazionale di Micologia 1981 : 189-217. MELOT, J. 1986. Les pigments cytoplasmatiques dans le genre *Cortinarius*. - Docum. Mycol. 16: 105-108. MOSER, M. 1960. Die Gattung *Phlegmacium* (Schleimköpfe). Die Pilze Mitteleuropas. B. IV. Bad Heilbrunn. MOSER, M. 1989. On some interesting *Cortinarius* species from the Femsjö area (Sweden). - Opera Bot. 100: 177-183. NEZDOJMINOGO, E.L. 1983. Shlyapochnye griby SSSR. Rod *Cortinarius* Fr. Leningrad. RYMAN, S. & HOLMÅSEN,

I. 1984. Svampar. En fälthandbok. Stockholm. URBONAS, V., KALAMEES, K. & LUKIN, V. 1986. Conspectus florum agaricalium fungorum (*Agaricales* s.l.) Lithuaniae, Latviae et Estoniae. Vilnius.

LEPISTA SAEVA var. ANSERINA (FR.) comb. nova FOUND IN RUSSIA

K. KALAMEES
Institute of Zoology and Botany of the Estonian
Academy of Sciences,
21 Vanemuise St., EE2400 Tartu, Estonia

A. I. IVANOV
Penza Agricultural Institute
30 Botanicheskaya St., 440014 Penza, Russia

There are two widely distributed well defined fungal taxa in the Penza region (Russia): *Lepista saeva* (Fr.) Orton var. *saeva* with light brown pileus and *Lepista saeva* (Fr.) Orton var. *anserina* (Fr.) Kalam. et Ivanov, comb. nova (Basionym: *Agaricus* personatus γ *anserinus* Fr. 1818, Obs. II: 91; *A. personatus* ss. Berk. 1860, Outl.: t. 5, f. 1; *A. personatus* "C" Fr. 1874, Hym. Eur.: 72. *Tricholoma personatum* var. *anserinum* (Fr.) Bres. 1928, Icon. Mycol. III: t. 114; *T. personatum* ss. Lange 1935, Fl. Ag. Dan. I: 63, pl. 28 A) with pure white (varying to alutaceous or pallid grey-white) pileus. The gills are likewise ochre-buff and the stipe bright violaceous in both varieties. Besides of the colour of the pileus there exist only statistical differences in spore measurements between these two varieties. The spores of var. *saeva* are somewhat slender than those of var. *anserina* (on the basis of measuring 20 spores), and namely:

var. *saeva* - (6.4-) 7.2-8 x (4.5-) 4.8-5.0 μm, means = 7.7 x 4.9 μm;
Q = (1.3-) 1.4-1.6, mean = 1.5;
var. *anserina* - 6.4-8 (-9.1) x 4.5-5.3 (-6.0) μm, means = 7.3 x 5.0 μm;
Q = 1.3-1.6 (-1.7), mean = 1.45.

Lepista saeva var. *anserina* is growing in the Penza region in open anthropogeneous sites, in deciduous coppices and forest protection belts from May to October.

Material studied:

Lepista saeva var. *saeva* - Russia, reg. Penza, Ahuny, plantation of *Populus* sp., 18. 9. 1960, leg. et det. A. I. Ivanov (as *L. personata*);

Lepista saeva var. *anserina* - Russia, reg. Penza, Shemyshej, on the composted burned remnants of *Cannabis sativa*, 24. 5. 1990, leg. et det. A. I. Ivanov (as *L. personata*); Russia, reg. Penza, Kalytlej, 18. 10. 1990, leg. et det. A. I. Ivanov (as *L. personata*).

BOOK REVIEWS

H. DÖRFELT/H. GÖRNER. Die Welt der Pilze. Urania-Verlag. Leipzig-Jena-Berlin. 1989. 264 S.

The book by Dr. H. Dörfelt, an excellent specialist in the field of fungal organisms, has been written in a popular form and at the same time with great scientific preciseness. It gives a very good survey of fungal structures and their functions, the fungal systematics in general, ecology, the use of fungi by man, the harm caused by fungi and fungal protection. The chapters of the book have interesting and ever intriguing headings attracting the readers' attention, e.g. "Life at life's cost" (p.106, on parasites), "How fungi become green plants" (p.88, on lichenes), "Fungal flowers - an extraordinarily beautiful picture" (p.72), "Like fallen from the heaven - mildew" (p.118), etc. Numerous original black-and-white (partly coloured) drawings of fungal structures and multiplication cycles give the book a great value. The very complicated life cycles of fungi have been presented in a simple way, comprehensible even to a non-specialist. The tables on the morphology and systematics of fungi in the appendix (pp.249-255) are very informative, providing a brief and precise encyclopedic survey of the main notions and processes connected with the life of fungi.

The book contains 80 coloured photoes of fungi, most of them taken by H. Görner. The photoes are a success as concerns the camera work as well as print. Untypically of most popular scientific books about fungi, even microfungi have been presented in colour, *Erysiphe heraclei* (p.173) and *Ochrospora sorbi* (p.174) being of especially good quality. The printing of a number of microphotoes of rust fungi and parasitic *Ascomycetes* on a satisfactory level is also worth mentioning. The choice of species for the coloured tables should be approved as well: a number of species have been included which cannot be found elsewhere or which have been presented rarely, e.g. *Mitrula paludosa, Sarcoscypha protracta, Sparassis crispa, Hirneola auriculae-judae, Tremiscus helvelloides, Tremella foliacea, Dacrymyces stillatus, Hericium erinaceus, Phlebia merismoides, Creolopus cirrhatus, Datronia mollis, Hygrocybe acutoconica, Lepista abdita, Leucoagaricus cinerascens, Suillus collinitus, Xerocomus parasiticus, Psathyrella hydrophila, Clathrus archeri, Clathrus ruber, Astraeus hygrometricus, Sphaerobolus stellatus*. Especially notable is the coloured photo of the steppe species *Lepista abdita* described by H. Dörfelt as it has not been found up to now anywhere else in Europe than in Germany. As to the print, however, a few photoes appear to be obscure: we cannot very well recognize *Laccaria amethystina, Lepista nuda, Leccinum scabrum, Amanita fulva, A. citrina* and *A. rubescens*.

The choice of *Boletaceae* (24 species) is perfect and technically satisfactory, a number of rare species have been included. The photo of the *Basidiomycetes*-lichen *Lentaria mucida* (p. 175) is wonderful.

On the whole we can regard the book by H. Dörfelt a great success in the

series of popular scientific surveys of fungi, to be recommended to both professional and amateur mycologists.

Kuulo Kalamees

PLANTAE NON VASCULARES, FUNGI ET BRYOPSIDA ORIENTIS EXTREMI SOVIETICI. FUNGI. Tomus 1. *Basidiomycetes. Russulaceae, Agaricaceae, Cortinariaceae, Paxillaceae, Gomphidiaceae, Strobilomycetaceae*. (E. M. Bulakh, S. P. Wasser, M. M. Nazarova, E. L. Nezdoiminogo). Red. princ. Z. M. Azbukina. Red. tomi S. P. Wasser. Leningrad. "Nauca". 1990. 408 pp.

The present book is the first in the successive fundamental series about the lower plants, fungi and mosses of the Russian Far East. The series represents a "Flora" in its classical sense. Volume I, containing a few families of *Basidiomycetes*, viz. *Russulaceae, Agaricaceae, Cortinariaceae, Paxillaceae, Gomphidiaceae* and *Strobilomycetaceae*, wholly meets the high requirements set to such series.

The material for the present book has been collected and worked through by the renowned specialists of the corresponding fungal groups: Dr. S. P. Wasser, Dr. E. M. Bulakh, Dr. E. L. Nezdoiminogo, and Dr. M. M. Nazarova. In the scientific sense, therefore, the book cannot be subjected to criticism. 449 species from 28 genera have been treated. The specification tables of the taxa as well as the diagnoses, nomenclature and synonyms have been presented precisely and correctly, so has the iconography applying to the species. The identification of the taxa has been fully guaranteed by the amount of the given data. The most up-to-date literature has been used and the nomenclature is in accordance with the latest requirements of the International Code.

The scientific names of the fungal species and their synonyms have been provided with full references to their sources, this circumstance gives the book a special value. The distribution of the species in the Far East has been characterized in detail on the basis of herbaric material from several herbaria of the scientific establishments of the former Soviet Union. The authors have also used the data of their personal observations in the Far East nature. The species descriptions have been provided with valuable taxonomic notes. The data on the distribution of the species in the former Soviet Union and the whole world give an idea of their distribution in general.

The scientific weight of the book would have been still greater if the used herbaric specimens had been listed in case of each species as it has been practiced in world literature. The species distribution maps of the Far East could also have been of use. It remains unclear why the data on the species distribution in the Far East have not been included in the paragraphs "Distribution in general" and "Distribution in the Soviet Union". For example, the species spread only in the Far East (*Russula*

rosea Quél., p. 81; *Cortinarius angulosus* Fr., p. 259 and many others) have thus not been indicated as growing in Asia, neither have they been presented as existing in the Far East as a part of the former Soviet Union. The scientific value of the book would have gained as well if the species had been provided with references to types. This, although envisaged in the "Introduction" (p. 7), has not been done.

The book has been illustrated with numerous original high-quality black-and-white drawings by E. M. Bulakh, one of the authors, and the artists N. A. Volynets and I. G. Gaj. The technique and the typography of the book give credit to the Publishing House "Nauca". The work of the editors, proof-readers and designers should also be rated highly. Dr. S. P. Wasser, editor of the book, and Dr. Z. M. Azbukina, editor of the whole series, have undoubtedly rendered a great service, publishing a book of high quality both in its scientific contents and appearance.

So we have a good new book about the Agaric fungi of the Russian Far East which should also be of interest in the international scope, for the mycobiota of the Russian Far East is original and rich in species, being regarded as a bridge between the mycobiota of North America and Eurasia. The edition of only 800 copies is unfortunately too small for such an essential book for the mycologists of the whole world. Taking into account the international importance of this series, the successive editions should have a comparatively larger number of copies.

Kuulo Kalamees