

FOLIA CRYPTOGAMICA ESTONICA

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R. P. S. S. Estoniae.

ON THE AGARICALES FLORA OF THE ZAAMIN NATIONAL PARK I

K. KALAMEES

*К. Каламезс. О флоре агарикальных грибов Зааминского национального парка I. Агарикальные грибы Зааминского национального парка Узбекской ССР были изучены автором от 22 по 31 мая 1980 г. Из семейства рядовковых (*Tricholomataceae*) было зарегистрировано 17 нижеприведенных видов. Районы исследования и изученные типы растительности при каждом виде обозначены следующим образом: 1 - Кашкасу, 2 - Кульсай, 3 - Туясай, 4 - Гуралаш, 5 - Туюксай, 6 - Дзульсай; а - пойменные травянистые и кустарниковые (ивовые) сообщества, б - арчовники, с - высокогорные степи. Районы 2 и 4-6 находятся на территории Зааминского госзаповедника. При каждой находке отмечены еще высота над уровнем моря (в метрах) и в скобках номер изученных гербарных образцов.*

Folia
Cryptog.
Eston.

Fasc. 26

p. 1-16

Tartu, 1987

The Zaamin National Park is located in Dzhizak region of the Uzbek SSR on the northern slopes of the Turkestan ridge of the Pamiro-Alai mountains. The Agaricales Flora of this district has been investigated by the author from 22 to 31 May 1980. The centre of the Zaamin State Nature Reserve which lies about 50 km south of the village of Zaamin, in the basin of the river Kulsai, was the base of the investigations. There are 6 investigation areas in this district in the altitude of 2000 to 3700 m above sea level. They are as follows: 1. Kashkasu, 2. Kulsai, 3. Tujasai, 4. Guralash, 5. Tujuksai, and 6. Dzulsai. The areas of 2 and 4-6 are placed on the territory of the Zaamin State Nature Reserve. There are 4 more distributed vegetation types investigated: a) valley flats of mountain rivers, b) juniper forests, c) mountain steppes and d) subalpine and alpine meadows. Several grassy communities and shrubberies of *Salix tianschanica* are distributed on the valley flats. The mountain steppes are represented mainly as the *Festuca+Stipa+Poa* communities. The juniper forests are often interchanged with the spots of mountain steppes. 3 juniper species are spread here, viz. *Juniperus seravshanica* Kom., *J. turcestanica* Kom. and *J. semi-glabosa* Rgl. On subalpine and alpine meadows in the altitude of more than 2800 m above sea level not a single fungal species have been registered since it was still an early spring and, sporadically, much snowy.

The following list consists 17 species of the *Tricholomataceae* found in the Zaamin National Park. By each species the following data are presented: geographical area respectively to numbers 1-6 and vegetation type a-c given above, altitude in meters above sea level, substrates (if needed) and (in brackets) the numbers of herbarium specimens investigated in TAA (Herbarium Instituti Zoologici et Botanici Academiae Scientiarum R. P. S. S. Estoniae, Tartu). The taxonomic notes are presented in case of need.

Omphalina fuliginea sp. nova. - 3b, 2800 (121366); 4b, 2500 (121379). Fig. 1.

Pileus 2-4,5 cm *latus*, *hygrophanus*, *fuliginus*, *ad marginem leviter striatus*, *convexus*, *in centro depressus*. *Lamellae argillaceae*, *decurrentes*. *Stipes* 2-4 cm *longus*, 0,2-0,5 cm *crassus*, *argillaceus*, *cottoneo-fibrillosus*, *facile fissibilis*. *Sporae* (6,5)-7-9,5 x (5)-5,5-6,5-(7) μm , *late-vel ovoideo-ellipsoideae*, *non amyloideae*. *In juniperetis*.

Holotypus: U.R.P.S.S., *Uzbekistan*, *regio Dzhizak*, *distr. Zaamin*, *montes Pamiro-Alai*, *jugum Turkestan*, *Tujasai*, *in junipereto*, *alt. 2800 m s.m.*, 25. V 1980, *K. Kalamees legit* (TAA-121366).

This species is related to *O. umbratilis* (Fr.) Gill. which has gray-ochraceous lamellae and habitat in moist places and in bogs.

Clitocybe subfestiva sp. nova. - 3c, 2100 (121343). Fig. 2.

Pileus 1-2,5 cm *latus*, *hygrophanus*, *non striatus*, *claro-griseo-flavo-brunneus*, *convexo-applanatus*, *leviter glutinosus*, *glaber*, *ad marginem tomentosus*, *involutus*. *Lamellae in iuventute albido-griseae dein colore arenoso albido-brunneae*,

decurrentes, angustae, non ramosae. Stipes 2-3 cm longus, 0,3-0,5 cm crassus, claro-griseo-flavo-brunneus, dense cottoneo-fibrillosus. Odore hexachloranti. Sporae (6,5)-7-8 x (3)-3,5-4 μm. In stepis montanicis.

Holotypus: U.R.P.S.S., Uzbekistan, regio Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum Turkestan, Tujasai, in steppa montana, alt. 2100 m s.m., 25. V 1980, K. Kalamees legit (TAA-121343).

This species is related to *C. festiva* Favre but the latter has no odor, spores are narrower /by Favre (1955) very constant with width 2.7-3.3 μm/ and pileus is more dark-colored brown gray.

C. festiva Favre. - 2b, 2100 (121326).

C. aff. gibba (Pers.: Fr.) Kumm. - 3b, 2800 (121368).

Pileus 2-4 cm broad, pale ochraceous cream, convexo-applanate, flexuoso-lobate, margin in places whitish, dense cottony fibrillous. Lamellae pale creamish, short decurrent, narrow. Stipe 2-3 cm long, 0.3-0.5 cm thick, pale ochraceous cream, cottony fibrillous. Spores 5-6.5 x 3-3.5 μm, ellipsoid. Odor and taste not distinct. Fruticose.

Lepista juniperi sp. nova. - 3b, 2600 (121361).
Fig. 3.

Pileus ad usque 10 cm latus, griseo-brunneus, nitidus, convexus, lobatus. Lamellae claro-lilacinae, latae, dispersae, emarginatae, erosae. Stipes ad usque 5 cm longus, 1,5 cm (ad basim 2 cm) crassus, claro-lilacinus, dense cottoneo-fibrillosus, bulbosus. Caro pallido-lilacinea, in stipite in centro pallido-brunnescens, locus compressus brunnescens. Odor et sapor inconspicui. Mycelium claro-lilacinum. Sporae (7,5)-8-9-(9,5) x (5)-5,5-6,5 μm, late-ellipsoideae, costato-tuberculosae, non amyloideae. In juniperetis.

Holotypus: U.R.P.S.S., Uzbekistan, regio Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum Turkestan, Tujasai, in junipereto, alt. 2600 m s.m., 25. V 1980, K. Kalamees legit (TAA-121361).

All other species in *Lepista nuda* group differ from this species by smaller spores.

Leptoglossum muscigenum (Bull.: Fr.) P. Karst. - 2b, 2100, on moss (121312).

Melanoleuca brunnea sp. nova. - 4b, 2500 (121384); 6b, 2800 (121375). Fig. 4.

Pileus ad usque 3,5 cm latus, leviter hygrophanus, brunneus, glaber, laevigatus, convexo-applanatus, umbonatus. Lamellae albae. Stipes ad usque 5 cm longus, 0,4 cm crassus, brunneus, glaber. Caro in stipite obscure-brunnea, in pileo pallido-brunnea. Odor et sapor indistincti. Sporae 6,5-8 x 5-5,5 μ m, Q = 1,3-1,6, ellispoideae, leviter tuberculosae, amyloideae, Cheilo- et pleurocystidia 40-60 x 10-16 μ m, lageniformia vel fusi-formia, incrustata, numerosa. In juniperetis.

Holotypus: U.R.P.S.S., Uzbekistan, regio Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum Turkestan, reservatum Zaamin, Guralash, in junipereto, alt. 2500 m s.m., 28. V 1980, K. Kalamees legit (TAA-121384).

This species is characterized by the presence of heterogeneous cystidia lageniformes and fusi-formes and therefore has not been placed in the section *Strictipedes* Bon or *Melanoleuca*. There are 2 varieties with heterogeneous cystidia in system by Bon (1978), namely: *M. subpulverulenta* (Pers.: Fr.) Sing. var. *heterocystidiosa* and *M. pulverulenta* var. *heterocystidiosa* Bell.-Bon. Those taxons have gray color, pileus is farinaceous and

spores are more slender ($Q = 1.8$); besides, they are growing in deciduous forests.

M. stridula (Fr.) Sing. ss. Gulden /= *M. graminicola* (Vel.) Kühner et Maire ss. Kühner et Romag. p.p./ - 3c, 2600 (121363).

M. humilis (Fr.) Sing. - 2a, 2000 (121337); 3c, 2100 (121342); 3c, 2600 (121370).

M. striimarginata Mét. - 6b, 2800 (121374).

M. substrictipes Kühner. - 4c, 2500 (121381).

Melanoleuca zaaminensis sp. nova. - 3c, 2600 (121360). Fig. 5.

Pileus ad usque 3,5 cm latus, hygrophanus, obscure-flavo-brunneus, in iuventute convexo-applanatus dein depressus, umbonatus, leviter glutinosus. Lamellae albidae, emarginatae. Stipes ad usque 5 cm longus, 0,4 cm crassus, obscure-flavo-brunneus, ad basim nigro-brunneus et dense cottoneus, ad apicem albo-flocculoso-farinaceus, deorsum fibrillosus, clavatus. Caro in pileo et in stipite aquoso-brunnescens, ad basim stipitis nigro-brunneus. Odor et sapor indistincti. Sporae $8-9 \times 5,5-6,5 \mu\text{m}$, late-ellipsoideae, leviter tuberculosae, amyloideae. Cheilocystidia forma pilorum urticae, numerosa. In steppis montanicis.

Holotypus: U.R.P.S.S., Uzbekistan, regio Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum Turkestan, Tujasai, in steppa montana, alt. 2600 m s.m., 25. V 1980, K. Kalamees legit (TAA-121360).

This species is related to *M. excissa* (Fr.) Sing. ss. Kühner et Romag. (Bon, 1978: 57) but the former has a white stipe, context in stipes is also white, pileus is grayish.

Macrocystidia cucumis (Pers.: Fr.) Heim. -

6a, 2500 (121393).

Mycena avenacea (Fr.) Quél. ss. A. H. Smith. -
3c, 2500 (121356).

Mycena pura (Pers.: Fr.) Kumm. f. *roseo-brunnescens* forma nova. - 4b, 2500 (121378).

Varietati typicae Mycena pura (Pers.: Fr.)
Kumm. f. *pura colorem roseo-brunnescens* differt.
In *juniperetis*.

Holotypus: U.R.P.S.S., Uzbekistan, regio
Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum
Turkestan, reservatum Zaamin, Guralash, in *junipe-*
reto, alt. 2500 m s.m., 28. V 1980, K. Kalamees
legit (TAA-121378).

Pileus 1-3 cm broad, hygrophanous, pale dirty
pink brownish, margin striate and whitish, strong
radiate rugose. Lamellae pink brownish, sinuate,
margin eroded. Stipe 3-5 cm long, 0.5 cm thick,
pink brownish. Odor and taste like radish. Spores
and cheilocystidia typical like in *M. pura* f. *pura*.

This taxon is similar to *M. pearsoniana* Den-
nis ex Sing. but the latter has subdecurrent la-
mellae.

M. rosea (Bull.) Gramberg. - 3b, 2300 (121347).

Hydropus flocculinus sp. nova. - 3b, 2500, on
trunk of *Juniperus* sp. (121354). Fig. 6.

Pileus ad usque 1 cm latus, hygrophanus, stri-
atus, griseo-farinaceus, griseo-brunneus, campanu-
latus, umbonatus. Lamellae brunneo-griseae, ad
aciem claro-griseae anastomosans, rugosae, dis-
tantes, adnexae. Stipes ad usque 5 cm longus, 1 cm
crassus, griseo-brunneus, griseo-farinaceus. Odor
alcalinus, sapor indistinctus. Sporae 6,5-11 \times
 \times 5-6,5 μ m, cylindricae, ellipsoideae, ovoideae

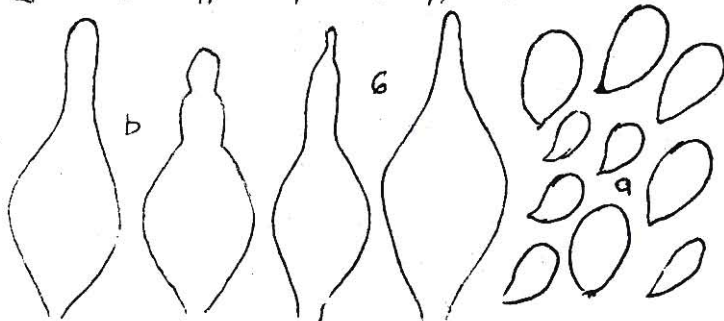
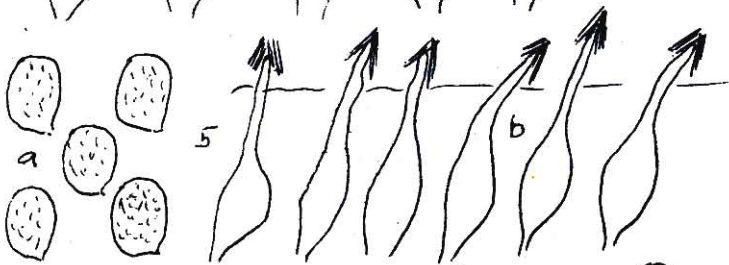
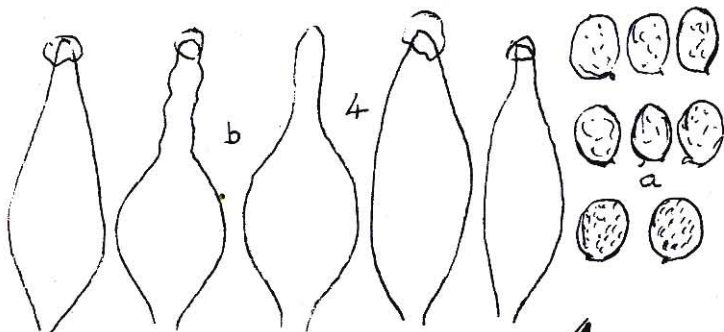
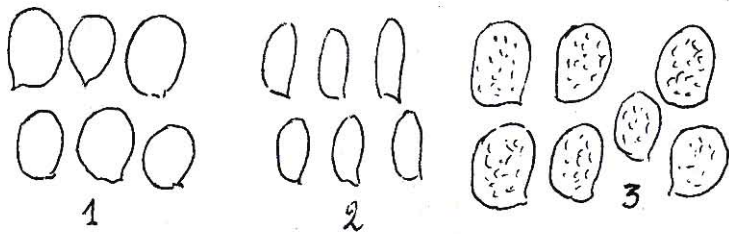
vel guttiformes. Cheilocystidia 50-75 x 11-13 x 6,5 μ m, numerosa, lageniformia. In juniperetis, ad lignum putridum.

Holotypus: U.R.P.S.S., Uzbekistan, regio Dzhizak, distr. Zaamin, montes Pamiro-Alai, jugum Turkestan, Tujasai, in junipereto, ad truncum *Juniperus* sp., alt. 2500 m s.m., 25. V 1980, K. Kalamees legit (TAA-121354).

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Figs. 1-6: a - spores, b - cheilocystidia (materials of holotypes). 1 - *Omphalina fuliginea*, 2 - *Clitocybe subfestiva*, 3 - *Lepista juniperi*, 4 - *Melanoleuca brunnea*, 5 - *M. zaaminensis*, 6 - *Hydropus flocculinus*.



SPECIES OF ENTOLOMA NEW FOR ESTONIA II

V. LIIV

В. Лийв. Новые для Эстонии виды из рода *Entoloma*
II. В данной статье продолжается опубликование
данных о первооткрытых видов розопластинника (*Entoloma*) в Эстонии. Опубликованные заранее материалы (Liiv, 1987) дополняются 17 видами, собранными автором также преимущественно в Западной Эстонии в 1979-1985 гг. Номера гербарных образцов указаны в скобках при каждом виде. При определении видов использовалась литература, указанная в предыдущей статье.

The present paper, containing 17 species, is the continuation of the List of 21 species of *Entoloma* new for Estonia (Liiv, 1987). One material was collected mainly in West-Estonia in the years of 1979-1985. The numbers of herbarium specimens have been given in brackets. The materials have been determined by making use of those authors as by Liiv (1987).

Entoloma caesiocinctum (Kühner). - Distr. Kingissepp, Island of Saaremaa, Viidumäe State Nature Reserve, in small aggregate of 8 specimens, IX 1979 (79/006); Distr. Kingissepp, Island of Muhu, Üügu, solitary and in small aggregates in juniper meadows, IX 1983 (83/075); Distr. Rapla, Kuusiku, in the Lipstu heath, in small aggregate of 10 specimens, IX 1984.

E. clandestinum (Fr.) Noordel. - Distr. Kingissepp, Island of Saaremaa, Kipi, in juniper

meadow, 2 specimens, VIII 1984 (84/116); Distr. Kingissepp, Island of Saaremaa, near Tagala Bay, in mixed forest, solitary and in aggregates, VIII 1984 (84/133).

E. clypeatum (L.: Fr.) Quél. f. *pallidogriseum* Noordel. - Distr. Pärnu, Island of Ruhnu, under *Prunus domestica* L., VIII 1982 (82/054).

E. costatum (Fr.) Kumm. ss. Ricken. - Distr. Harju, Virve, in one aggregate in the coastal hayfield, IX 1984 (84/143).

E. erophilum (Fr.) P. Karst. - Distr. Harju, Kalevi-Liiva, in small aggregate of 3 specimens, in juniper meadow, X 1980 (80/014).

E. formosum (Fr.) - Distr. Kingissepp, Island of Saaremaa, Viidumäe State Nature Reserve, on decaying stump of *Picea abies* (L.) Karst., 2 specimens, VIII 1985 (85/187); Distr. Harju, Virve, in small aggregate of 7 specimens in young spruce forest, IX 1985 (85/191).

E. griseocyaneum (Fr.) Moser. - One of the most common species on western islands of Estonia, on pasture lands, in juniper meadows, on overgrown with grass forest tracks, VIII (84/112); Distr. Valga, Lüllemäe, in aggregates on pasture land, VI 1984 (84/096).

E. lividoalbum (Kühner et Romag.) Kubička. - Relatively frequent all over Estonia, in small aggregates on rich of humus soils in forests,

VIII-IX (82/069; 84/110).

E. lividocyanulum (Lunnet ex) Noordel. - Distr. Rapla, Kabala, by the river Konovere, on pasture land with *Alnus incana* (L.) Moench, in small aggregate of 6 specimens, IX 1984 (84/146).

E. lividum (Bull.) Noordel. - Distr. Kingissepp, Island of Saaremaa, Koguva, in one aggregate in wooded meadow, VIII 1982 (82/061).

E. minutum (P. Karst.) Noordel. - Distr. Põlva, Karste, solitary in mixed forest, VII 1984 (84/101); Distr. Kingissepp, Island of Saaremaa, Kipi, in mixed forest, 2 specimens near to each other, VIII 1984 (84/117).

E. nefrens (Fr.) - Distr. Kingissepp, Island of Saaremaa, Audaku, on the lawn, 2 specimens, IX 1984 (84/103).

E. papillatum (Bres.) Dennis. - Relatively frequent all over Estonia, on pasture lands, mostly in aggregates, VIII-IX (84/118; 84/148; 85/164).

E. repandum (Bull.: Fr.) Gill. - Distr. Kingissepp, Island of Saaremaa, Viidu, on pasture land, 3 specimens, VIII 1985, leg. G. Shtshukin (85/189).

E. roseum (Longyear) Moser. - Distr. Rapla, Kuusiku, in the Lipstu heath, 4 specimens, IX 1984 (84/147).

E. rugosum (Mal.). - Distr. Valga, Lüllemäe,

on pasture land under *Symphytum officinale* L. en masse, VI 1984, leg. S. Veldre (84/090).

E. sphagnorum (Romag. et Favre.) Zschieschang.
- Distr. Valga, Lüllemäe, near Lake Mustjärv, solitary and dispersed in moss in quaggy bog, VII 1985, leg. S. Veldre (85/100).

E. turbidum (Fr.) Qué1. - Relatively frequent all over Estonia, in paludified forests, solitary and in small aggregates of 2-3 specimens, VII-X (81/062; 84/102).

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LECANORA PALLIDA VAR. RUBESCENS

IMSH. & BRODO ALSO IN EUROPE

T. RANDLANE

T. Рандлане. *Lecanora pallida* var. *rubescens* Imsh. & Brodo найдена в Европе. В настоящем сообщении представлен ключ для определения видов лишайников из группы *Lecanora pallida*. Разновидность этого вида, которая содержит норстиктовую кислоту и была до сего времени известна лишь в Северной Америке, найдена на западных островах Эстонии. Приводятся данные о местонахождениях и местообита-

ниях всех образцов (?) этого таксона в Эстонии.

Lecanora pallida - group is characterized by having pruinose disks and atranorine in the thallus as well as in the thalline margins, which give, therefore, KOH + yellow reaction. In the Estonian lichen-flora there are 6 corticolous species from this group (Трасс, 1970). The key for the determination of the species is following (Imshaug, Brodo, 1966; Wirth, 1980).

1. Disk C + yellow 2
- Disk C - 4
2. Thalline margin Pd + deep yellow (psoromic acid)
L. nemoralis Mak.
- Thalline margin Pd - or + faint
yellow in time 3
3. Disk flat or concave; thalline margin
thick, has no real cortex. Pruina
white and fine.
L. leptyroides (Nyl.) Degel.
- Disk flat to convex; thalline margin thick
or later thin, has a real cortex. Pruina gray
and robust.
L. carpinea (L.) Vainio
4. Thalline margin Pd + deep yellow
(psoromic acid)..... 5
- Thalline margin Pd + orange to red (proto-
cetraric acid).
L. pallida (Schreber) Rabenh.

a) Apothecium K - .

L. pallida var. *pallida*

b) Apothecium K + red (norstictic acid).

L. pallida var. *rubescens*
Imsh. & Brodo

5. Thalline margin thin and soon excluded. Spores
12 in ascus.

L. cateilea (Ach.) Massal.

- Thalline margin thick, persistent. Spores 8 in
ascus.

L. intumescens (Rebent.)
Rabenh.

Special interest presents the discovery of norstictic acid including *L. pallida* var. *rubescens* from western islands of Estonia. Up to this the variety was known only in North America (Imshaug, Brodo, 1966). Out of our 7 specimens 6 have been found on the island Saaremaa, in Viidumäe Nature Reserve and 1 - on the island Vormsi. Most of them grew on *Juniperus communis*, only one example on *Betula*. *L. pallida* var. *pallida* has considerably wider occurrence in Estonia, being collected in different parts of our republic.

Specimens examined:

CANADA: Ontario, Thunder Bay District, on exposed Thuja at river's edge, col. and det. I. M. Brodo 02.09.65, no. 6688.

ESTONIA: Island Vormsi, fir forest, on *Juni-*

perus communis, col. L. Martin. - Island Saaremaa, Viidumäe Nature Reserve (VNR), on *Betula*, col. H. Ting 1963, no. 58. - VNR, district 212, spring mire, on *Juniperus communis*, col. M. Reitalu 18.06.66, no. 4; col. T. Randlane 28.08.76, no. 492. - VNR, district 177, spring mire, on *Juniperus communis*, col. T. Randlane 27.08.76, no. 453. - VNR, district 170, the higher ground in spring mire, on *Juniperus communis*, col. T. Randlane 07.08.76, no. 53. - VNR, district 171, the upper slope of ancient coast, pine forest, on *Juniperus communis*, col. T. Randlane 06.08.76, no. 30.

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