

Foliose and fruticose lichens of Kyrgyzstan

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Abstract: LITTERSKI, B. 2006. Foliose and fruticose lichens of Kyrgyzstan. – *Herzogia* 19: 177–190.

A catalogue of 116 foliose and fruticose lichen taxa recorded from Kyrgyzstan with data on distribution and ecology is presented. 16 further species recorded in literature are dubious or need confirmation.

The catalogue is based on literature evaluation and own investigations. Nine species (*Collema subflaccidum*, *Leptogium teretiusculum*, *Phaeophyscia hirsuta*, *Ph. kairamoi*, *Physcia biziana*, *Physconia perisidiosa*, *Xanthoparmelia desertorum*, *Xanthoria fulva* and *X. sorediata*) are new to Kyrgyzstan.

Zusammenfassung: LITTERSKI, B. 2006. Foliose and fruticose lichens of Kyrgyzstan. – *Herzogia* 19: 177–190.

Ein Katalog von 116 Blatt- und Strauchflechten, die aus Kirgistan nachgewiesen sind, wird mit Daten zur Verbreitung und Ökologie der Arten vorgelegt. 16 weitere Arten, die in der Literatur angegeben sind, sind zweifelhaft oder bedürfen einer Überprüfung.

Der Katalog beruht auf Literaturlauswertungen und eigenen Untersuchungen. Neun Arten (*Collema subflaccidum*, *Leptogium teretiusculum*, *Phaeophyscia hirsuta*, *Ph. kairamoi*, *Physcia biziana*, *Physconia perisidiosa*, *Xanthoparmelia desertorum*, *Xanthoria fulva* und *X. sorediata*) sind neu für Kirgisistan.

Key words: Biodiversity, lichenized fungi, macrolichens, checklist, Central Asia, Tien-Shan, Alai, Trans-Alai.

Introduction

The annotated catalogue of foliose and fruticose lichens provided here is based mainly on literature records and own investigations made in Kyrgyzstan.

The first lichen records from Kyrgyzstan were published by BROTHERUS (1898) and VAINIO (1904). Recently the lichen flora of Kyrgyzstan has been investigated by ANDREEVA (1959), BREDKINA (1977, 1980, 1981a, b, c, 1982, 1984) and BAIBULATOVA (1988, 1989). Lichen specimens were collected by the author in July 1999, some information were published (LITTERSKI 2002, FRÖDÉN & LITTERSKI 2005) or used in studies about global distribution of lichens (LITTERSKI & AHTI 2004, OTTE et al. 2002, OTTE et al. 2005).

Kyrgyzstan is 198.500 km² in size, and is situated in Central Asia. There are two major systems of mountain ranges in Kyrgyzstan, the Tien-Shan and the Alai-Transalai Mountains. Floristically Kyrgyzstan is situated in the Turkestanic Subregion of the Irano-Turanian Region (MEUSEL et al. 1965); the Tien-Shan Province is divided into the Northern Tien-Shan, the Issyk-Kul-Area, the Central Tien-Shan, the Inner Tien-Shan and the Southwestern Tien-Shan with the Fergana Range (see ATLAS 1987 and Fig. 1). Information about climate and vegetation were given in ATLAS (1987) or in a short summary in LITTERSKI (2002).

Methods and arrangement of the catalogue

In the following annotated catalogue of foliose and fruticose lichens of Kyrgyzstan, the species are listed alphabetically. For each lichen species, a selection of important references and localities of own research, are provided. Not all papers with citations of Kyrgyzstan lichens were available. Based on literature records and own investigations for each macrolichen regions, altitudinal range and substratum are provided so far as possible. The references are listed in chronological order.

The following regions (see ATLAS 1987 or Fig. 1) are distinguished:

- | | |
|-----------------------|--------------------------|
| I Northern Tien-Shan | IV Inner Tien-Shan |
| II Issyk-Kul-Area | V Southwestern Tien-Shan |
| III Central Tien-Shan | VI Turkestan-Alai-Area |

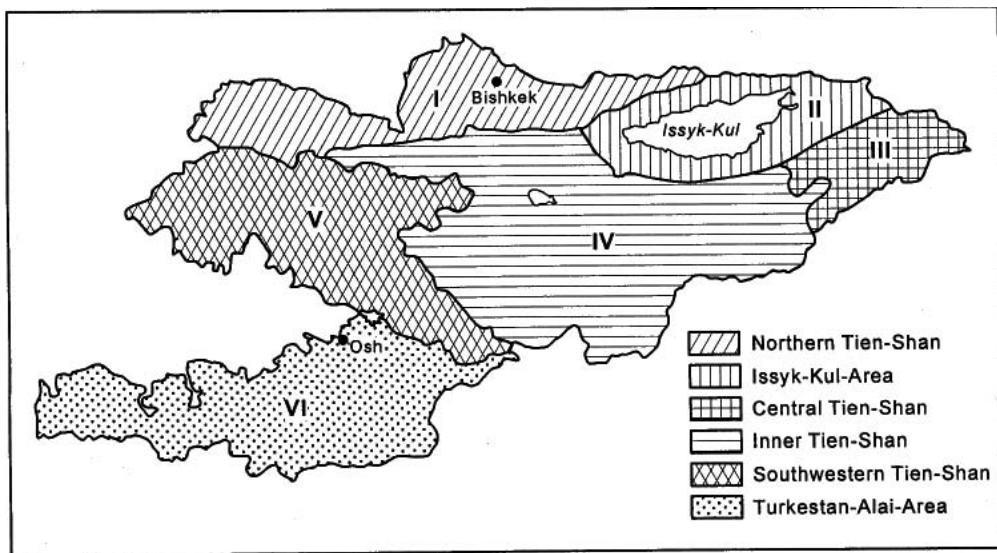


Fig. 1: Geobotanical delimitation of Kyrgyzstan (ATLAS 1987).

Lichens were collected by Tanja Engelke in 1995, by Birgit Litterski in 1999 and by Holger Ringel in 2000 and 2003. All specimens are in the private herbarium of Birgit Litterski (Li). The following collection localities are cited by their number under each species.

- II: Western Issyk-Kul-Region, close to road crossing towards the Issyk-Kul, along the river Tschu, stony semi-desert [original label data: Westl. Issyk-Kul-Gebiet, nahe Abzweig zum Issyk-Kul, am Fluss Tschu, steinige Halbwüste] 42°28'02"N/75°52'28"E, leg. 15 July 1999 B. Litterski.
- II: Issyk-Kul-Basin, Issyk-Kul W Ak-Saj, semi-desert [original label data: Issyk-Kul-Becken, Issyk-Kul W Ak-Saj, Halbwüste] 42°08'54"N/76°44'23"E, 2000 m, leg. 23 July 2000 H. Ringel.
- III: Enilchek, river, alpinist rest station, forest-steppe boundary [original label data: Enilchek, Fluss, Alpinistenstation, Steppe-Wald-Grenze] 42°08'54"N/79°27'10"E, 2850 m, leg. 26 July 2000 H. Ringel.
- IV: E Terskej Alatau, NW Tschon-Ashuu-Pass, alpine [original label data: E Terskej Alatau, NW Tschon-Ashuu-Pass, alpin] 42°23'39"N/79°03'31"E, 3700 m, leg. 27 July 2000 H. Ringel.
- IV: E Terskej Alatau, S Tschon-Ashuu-Pass, alpine meadow [original label data: E Terskej Alatau, S Tschon-Ashuu-Pass, Hochgebirgswiese] 42°20'47"N/79°03'20"E, 3300 m, leg. 25 July 2000 H. Ringel.

6. IV: Moldo-Too, river bank of the Kurtka, N Kek Dzhar, spruce forest [original label data: Moldo-Too, Kurtka-Ufer N Kek Dzhar, Fichtenwald] 41°38'43"N/75°02'21"E, 2300 m, leg. 15 July 2000 H. Ringel.
7. IV: Valley of the Kajokemeren [original label data: Tal des Kajokemeren] 41°59'13"N/74°09'33"E, leg. 01 August 1999 B. Litterski.
8. IV: Central Naryn-Region, N of Dolon pass, basalt boulders, S-exposed [original label data: Mittleres Naryn-Gebiet, N Pass Dolon, Basaltfelsen, S-exponiert] 41°51'55"N/75°43'38"E, 2800 m, leg. 16 July 1999 B. Litterski.
9. IV: Central Naryn-Region, Dolon pass, strongly grazed alpine mats and bare limestone [original label data: Mittleres Naryn-Gebiet, Pass Dolon, stark beweidete Matten und Kalkgestein] 41°50'23"N/75°44'31"E, 3000 m, leg. 16 July 1999 B. Litterski.
10. IV: Central Naryn-Region, Ottuk valley, alpine meadow and bare limestone [original label data: Mittleres Naryn-Gebiet, Tal Ottuk, Bergwiese und Kalkgestein] 41°47'38"N/75°45'03"E, 2600 m, leg. 16 July 1999 B. Litterski.
11. IV: Song-Kol-Region, SW and E Song-Kol, alpine steppe, grassland [original label data: Song-Kol-Gebiet, SW and E Song-Kol, Hochgebirgssteppe, Grasland] 41°43'53"N/75°05'02"E and 41°43'25"N/75°20'50"E, 3100 m, leg. 14 July 2000 H. Ringel.
12. IV: Environs of the Kara-Sas, Chrebet Kapkatas [original label data: Umgebung am Kara-Sas, Chrebet Kapkatas] 41°43'06"N/76°45'33"E, 2747 m, leg. 19 July 2005 H. Ringel.
13. IV: Central Naryn-Region, Naryn valley, W Dschanbulak, salt pit close to the river [original label data: Mittleres Naryn-Gebiet, Naryn-Tal, W Dschanbulak, Salzstelle nahe Fluss] 41°22'30"N/75°37'13"E, 2000 m, leg. 16 July 1999 B. Litterski.
14. IV: At-Bashy-Mountains, Ottotisch pass SW part of the mountains, alpine steppe, grassland [original label data: At-Bashy-Gebirge, Pass (Ottotisch) im SW des Gebirges, Hochgebirgssteppe, Grasland] 40°47'21"N/75°06'59"E, 3300 m, leg. 19 July 2000 H. Ringel.
15. V: NE-slope of the Fergana-Mountains, SW Chatyr-Kol (See), camp in the Arpa-valley [original label data: NE-Abhang des Fergana-Gebirges, SW Chatyr-Kol (See), Lager im Arpa-Tal] 40°36'17"N/74°53'23"E, 3261 m, leg. 28 July 2003 H. Ringel.
16. V: Susamyr-Valley, c. 25 km W of Susamyr, *Artemisia*-steppe [original label data: Susamyr-Tal, c. 25 km W Susamyr, *Artemisia*-Steppe] 42°12'27"N/73°38'04"E, 2300 m, leg. 31 July 1999 B. Litterski
17. V: Susamyr, steppe [original label data: Susamyr, Steppe] 42°11'06"N/73°27'47"E, 2381 m, leg. 15 July 2003 H. Ringel.
18. V: Tschitschkan-Valley, lower river valley, N Toktogul, along the river [original label data: Tschitschkan-Tal, Unterlauf, N Toktogul, am Fluss] 42°07'07"N/72°48'38"E and 42°06'49"N/72°48'25"E, 1700 m, leg. 30 July 1999 B. Litterski.
19. V: Tschitschkan-Valley, lower river valley, N Toktogul, along the river [original label data: Tschitschkan-Tal, Unterlauf, N Toktogul, am Fluss] 41°57'56"N/72°52'26"E, 1050 m, leg. 29 July 1999 B. Litterski.
20. V: Fergana-Region, SW Kasarman, along the Kysylcy river, siliceous boulders [original label data: Fergana-Gebiet, SW Kasarman, am Fluss Kysylcy, Felsen, Silikatgestein] 41°23'10"N/73°56'27"E, 1300 m, leg. 17 July 1999 B. Litterski.
21. V: Fergana-Mountains, along the Urumbasch river, N-exposed slope, open birch forest and siliceous rocks [original label data: Fergana-Gebirge, am Fluss Urumbasch, N-exp. Hang, lockerer Birkenwald und Silikatgestein] 41°20'18"N/73°39'04"E, 2000 m, leg. 18 July 1999 B. Litterski.
22. V: Fergana-Mountains, Urumbasch pass, alpine mat [original label data: Fergana-Gebirge, Pass Urumbasch, alpine Matten] 41°17'14"N/73°37'45"E, 3100 m, leg. 18 July 1999 B. Litterski .
23. V: Fergana-Mountains, along the Urumbasch river, coppice stand of *Acer turkestanicum* [original label data: Fergana-Gebirge, am Fluss Urumbasch, *Acer turkestanicum*-Niederwald] 41°15'16"N/73°33'12"E, 1750 m, leg. 18 July 1999 B. Litterski.
24. V: Fergana-Mountains, close to the Urumbasch village, forest remains of *Juglans regia* [original label data: Fergana-Gebirge, unweit Dorf Urumbasch, *Juglans regia*-Waldrest] 41°12'22"N/73°23'53"E, 1600 m, leg. 19 July 1999 B. Litterski.

25. V: Fergana-Foothills, Tschygyldy pass, montane meadow, NW-slope [original label data: Fergana-Vorgebirge, Pass Tschygyldy, Bergwiese, NW-Hang] 41°09'08"N/74°05'08"E, 2900 m, leg. 17 July 1999 B. Litterski.
26. VI: Alai-Region, S of the Gulscha village, along the Gulscha village, basalt boulders [original label data: Alai-Gebiet, S Dorf Gulscha, am Fluss Gulscha, Basaltfelsen] 40°13'02"N/73°28'34"E, 1600 m, leg. 27 July 1999 B. Litterski.
27. VI: Kischik-Alai, close to the Gulscha river and the Utsch Döbo village, foothills of the Kisch-Karakol-Mountains, sandstone [original label data: Kischik-Alai, nahe Fluss Gulscha und Dorf Utsch Döbo, Ausläufer der Kisch-Karakol-Berge, Sandstein] 39°54'15"N/73°25'10"E, 2450 m, leg. 26 July 1999 B. Litterski.
28. VI: Kischik-Alai close to Nagyr, close to the Kyzul-Alai village, SE-exposed slope with *Juniperus* and bare limestone [original label data: Kischik-Alai bei Nagyr, nahe Dorf Kyzul-Alai, SE-exp. Hang mit *Juniperus* und Kalkgestein] 39°51'00"N/73°17'13"E, 2650 m, leg. 26 July 1999 B. Litterski.
29. VI: Alai-Mountains, Talbyk pass, alpine mats [original label data: Alai-Gebirge, Pass Talbyk, alpine Matten] 39°45'37"N/73°09'55"E, 3600 m, leg. 20 July 1999 B. Litterski.
30. VI: Alai-Valley, limestone boulders near Kara-Kintyk [original label data: Alai-Tal, Kalkfelsen bei Kara-Kintyk] 39°42'07"N/73°27'32"E, 3200 m, leg. 21 July 1999 B. Litterski.
31. VI: Alai-Valley, footpath above the southern bank of the Kysylcy river, boulders in *Artemisia*-steppe, siliceous rock [original label data: Alai-Tal, Weg oberhalb (S) Fluss Kysylcy, Blöcke in *Artemisia*-Steppe, Silikatgestein] 39°38'27"N/73°49'22"E, 3000 m, leg. 21 July 1999 B. Litterski.
32. VI: Alai-Valley, S of the Kysylcy river, W of the Maltabar mountain, alpine mats [original label data: Alai-Tal, S Fluss Kysylcy, W Berg Maltabar, alpine Matten] 39°37'04"N/73°46'13"E, 3400 m, leg. 22 July 1999 B. Litterski.
33. VI: Alai-Valley, S of the Kysylcy river, W of the Maltabar mountain, exposed boulder, limestone [original label data: Alai-Tal, S Fluss Kysylcy, W Berg Maltabar, expon. Felsen, Kalkgestein] 39°36'27"N/73°44'52"E, 3700 m, leg. 22 July 1999 B. Litterski.
34. VI: Alai-Valley, W Daraug Kurgan, NW Tschak, along the Kusyl-Suu river, slope with steppe, boulders [original label data: Alai-Tal, W Daraug Kurgan, NW Tschak, am Fluss Kusyl-Suu, Steppenhänge, Gesteinsblöcke] 39°32'00"N/72°08'39"E, 2500 m, leg. 25 July 1999 B. Litterski.
35. VI: Trans-Alai, N Kysyl-Art pass, NW-exposed slope, alpine mats and sandstone boulders [original label data: Trans-Alai, N Pass Kysyl-Art, NW-exponierter Hang, alpine Matten und Sandstein-Blöcke] 39°26'01"N/73°15'00"E, 3700 m, leg. 23 July 1999 B. Litterski.

Without exact latitude and longitude:

36. IV: Arabelcy, Dschetybel-Mountains [original label data: Arabelcy, Dschetybel-Gebirgskette] about 41°50'N and 77°50'E, 3700–3950 m, leg. 14 July 1995 T. Engelke.
37. IV: Dschon Orjuktu, spruce forest [original label data: Dschon Orjuktu, Fichtenwald] 2170 m, leg. 05 August 1995 T. Engelke.
38. IV: Arabelcy-Syrte, S-exposed slope of Terskej Alatau [original label data: Arabelcy-Syrte, Südhang von Terskej Alatau] c. 41°50'N and 77°50'E, 4050 m, leg. 17 July 1995 T. Engelke.

List of lichenized taxa

The nomenclature mainly follows SANTESSON et al. (2004). The genera and species are listed alphabetically, literature chronologically. The species names are followed by literature references and then by number of collection locality citations. The probably new records for Kyrgyzstan are indicated with an asterisk (*).

ALLOCETRARIA Kurok. & M.J.Lai

Allocetraria madreporiformis (Ach.) Kärnefelt & Thell (*Dactylina* m., *Dufourea* m.) – BROTHERUS 1898, ELENKIN 1901: Lich. Fl. Ross. 13 (leg. Robrowsky 1889, H), ANDREEVA 1959, BREDKINA 1981a, VĚZDA: Lich. sel. exs. 2148 (leg. V. Vasak 1986), BAIBULATOVA 1988, BAIBULATOVA 1989,

CZEZCUGA et al. 1993, KÄRNEFELT & THELL 1996; 4 (Li 5151), 5 (Li 5149), 11 (Li 5139, Li 5141), 14 (Li 5144), 32 (Li 4849), 35 (Li 4869), 36 (Li 5252)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 2700–3900 m; terricolous, vagrant.

ANAPTYCHIA Körb.

Anaptychia ulotrichoides (Vain.) Vain. (*Physcia asiana*) – BROTHERUS 1898, BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989, LITTERSKI 2002; 13 (Li 4718), 18 (Li 4994, Li 5009), 20 (Li 4729), 23 (Li 4771), 28 (Li 4915)

Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1600–2650 m; corticolous (*Abies*, *Acer*, *Populus*), muscicolous and saxicolous (siliceous rocks).

ARCTOPARMELIA Hale

Arctoparmelia centrifuga (L.) Hale (*Parmelia c.*) – ANDREEVA 1959

Issyk-Kul-Area

ASPICILIA A.Massal.

Aspicilia aspera (Mereschk.) Tomin – BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988

Central Tien-Shan, Inner Tien-Shan; 1600–2400 m; terricolous, vagrant.

Aspicilia esculenta (Pall.) Flag. – ELENKIN 1901: Lich. Fl. Ross. 24c (leg. Eversmann 1820), 24d (leg. Roborowsky 1889, H, W), ANDREEVA 1959, HANDBOOK 1971

Issyk-Kul-Area.

Aspicilia fruticulosa (Eversm.) Flagey – ELENKIN 1901: Lich. Fl. Ross. 24h (leg. Roborowsky 1889), 24i (leg. Fetissow 1882, H, W), ANDREEVA 1959, HANDBOOK 1971, BREDKINA 1981a, BREDKINA 1981b, LITTERSKI 1992; 11 (Li 5152), 15 (Li 5241), 17 (Li 5243), 29 (Li 4803)

Issyk-Kul-Area, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 2381–3600 m; terricolous, vagrant.

Aspicilia hispida Mereschk. – ANDREEVA 1959, BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1982, LITTERSKI 1992; 11 (Li 5153), 15 (Li 5242), 16 (Li 5053), 17 (Li 5244), 29 (Li 4802)

Issyk-Kul-Area, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 2300–3600 m; terricolous, vagrant.

Aspicilia vagans Oxner (*A. affinis* var. *intermedia*) – ANDREEVA 1959, HANDBOOK 1971, BREDKINA 1981b, LITTERSKI 1992; 14 (Li 5137), 32 (Li 4848), 35 (Li 4876)

Issyk-Kul-Area, Inner Tien-Shan, Turkestan-Alai-Area; 3300–3700 m; terricolous, vagrant.

CANDELARIA A.Massal.

Candelaria concolor (Dicks.) Stein – LITTERSKI 2002; 18 (Li 4967, Li 5015, Li 5016, Li 5050)

Southwestern Tien-Shan; 1700 m; corticolous, on *Abies*, *Betula*, *Lonicera*.

CETRARIA Ach.

Cetraria islandica (L.) Ach. – ANDREEVA 1959, BAIBULATOVA 1988

Issyk-Kul-Area, Central Tien-Shan.

Cetraria steppae (Savicz) Kärnefelt (*Cornicularia steppae*) – ANDREEVA 1959, BREDKINA 1981a, BREDKINA 1981b, BAIBULATOVA 1988, BAIBULATOVA 1989

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 3100–3400 m; terricolous, vagrant.

CLADONIA Hill ex P.Browne

Cladonia acuminata (Ach.) Norrl. – BREDKINA 1981b; 18 (Li 5018)

Inner Tien-Shan, Southwestern Tien-Shan; 1700–2500 m; terricolous.

Cladonia cariosa (Ach.) Spreng. – BROTHERUS 1898, BREDKINA 1981a

Issyk-Kul-Area, Inner Tien-Shan; 3400 m; terricolous.

Cladonia chlorophaea (Flörke ex Sommerf.) Spreng. – BROTHERUS 1898; 18 (Li 5019)

Inner Tien-Shan, Southwestern Tien-Shan; 1700 m; terricolous.

- Cladonia coniocraea*** (Flörke) Spreng. – BREDKINA 1981b
Inner Tien-Shan; 2500 m; corticolous.
- Cladonia fimbriata*** (L.) Fr. – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1982; 37 (Li 5265)
Issyk-Kul-Area, Inner Tien-Shan; 2170 m; corticolous.
- Cladonia furcata*** (Huds.) Schrad. – ANDREEVA 1959; 37 (Li 5266)
Issyk-Kul-Area, Inner Tien-Shan; 2170 m; terricolous.
- Cladonia macroceras*** (Delise) Hav. – ELENKIN 1901: Lich. Fl. Ross. 96c (leg. Regel 1877, als *C. gracilis* var. *elongata*, det. T. Ahti 1980, H), AHTI 1980 (leg. 1877 Regel, in Elenkin: Lich Fl. Ross. 96c, BM, H)
Issyk-Kul-Area; 3000 m; terricolous.
- Cladonia magyarica*** Vain. – LITTERSKI & AHTI 2004; 18 (Li 4971)
Southwestern Tien-Shan; 1700 m; terricolous.
- Cladonia ochrochlora*** Flörke – BREDKINA 1981b
Inner Tien-Shan; 2500 m; corticolous.
- Cladonia pocillum*** (L.) Grognot – BROTHERUS 1898, BREDKINA 1981b, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989; 18 (Li 5020)
Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 1700–2500 m; terricolous.
- Cladonia pyxidata*** (L.) Hoffm. – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981b, BAIBULATOVA 1988, BAIBULATOVA 1989; 37 (Li 5267)
Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 2170–2500 m; terricolous.
- Cladonia squamosa*** Hoffm. – BREDKINA 1981c
Inner Tien-Shan; 2100 m; terricolous.
- Cladonia subulata*** (L.) Weber ex F.H.Wigg. (*C. fimbriata* var. *cornuto-radiata*) – ANDREEVA 1959
Issyk-Kul-Area.
- Cladonia symphycarpa*** (Flörke) Fr. – BREDKINA 1981a, BREDKINA 1981b, BAIBULATOVA 1988, BAIBULATOVA 1989; 18 (Li 4972), 37 (Li 5268)
Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 1600–3400 m; terricolous.
- COLLEMA** Weber ex F.H.Wigg.
- Collema ceraniscum*** Nyl. – BAIBULATOVA 1988; 20 (Li 4749), 27 (Li 4918)
Central Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1300–2450 m; terricolous.
- Collema coccophorum*** Tuck. – BREDKINA 1980, BREDKINA 1981c, BREDKINA 1982, FRÖDÉN & LITTERSKI 2005; 10 (Li 4715)
Inner Tien-Shan; 1600–2600 m; terricolous.
- Collema crispum*** (Huds.) Weber ex F.H.Wigg. – BROTHERUS 1898, BREDKINA 1981a, BREDKINA 1982, BAIBULATOVA 1988; 20 (Li 4745), 29 (Li 4800, Li 4804)
Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1300–3600 m; terricolous.
- Collema cristatum*** (L.) Weber ex F.H.Wigg. (*C. minor*) – BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1981c, BREDKINA 1982, BREDKINA 1984, BAIBULATOVA 1988, BAIBULATOVA 1989; 10 (Li 4707), 20 (Li 4730), 27 (Li 4900)
Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1300–3400 m; terricolous on calcareous rocks.
- Collema flaccidum*** (Ach.) Ach. – BREDKINA 1981a; 18 (Li 5023)
Inner Tien-Shan, Southwestern Tien-Shan; 1700–3400 m; terricolous, muscicolous on siliceous rock.
- Collema fuscovirens*** (With.) J.R.Laundon (*C. furvum*, *C. tunaeforme*) – BROTHERUS 1898, BREDKINA 1981a, BREDKINA 1981c, BREDKINA 1982; 18 (Li 4973), 26 (Li 4935), 27 (Li 4900, with *C. cristatum*)
Northern Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1600–2650 m; terricolous, saxicolous on siliceous and calcareous rocks.
- Collema polycarpon*** Hoffm. – BAIBULATOVA 1988; 18 (Li 4976), 20 (Li 4728)
Central Tien-Shan, Southwestern Tien-Shan; 1300–1700 m; terricolous on rocks.

**Collema subflaccidum* Degel. – 18 (Li 4975), 23 (Li 4775), 24 (Li 4784)

Southwestern Tien-Shan; 1600–1750 m; corticolous, on *Acer*, *Betula*, *Juglans*.

Collema tenax (Sw.) Ach. em. Degel. – BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989; 18 (Li 4974, Li 5024), 25 (Li 4724), 28 (Li 4905)

Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1600–3100 m; terricolous.

Collema tenax var. *ceranoides* (Borrer) Degel. – BREDKINA 1982

Inner Tien-Shan.

Collema tenax var. *corallinum* (A.Massal.) Degel. (*C. kansuense*) – BREDKINA 1980, BREDKINA 1981c, BREDKINA 1984

Inner Tien-Shan; 1600–2240 m; terricolous.

DERMATOCARPON Eschw.

Dermatocarpon miniatum (L.) Mann (*D. m.* var. *complicatum*, *Endocarpon m.*, *E. m.* var. *complicatum*) – BROTHERUS 1898, ANDREEVA 1959, BAIBULATOVA 1988, BAIBULATOVA 1989, LITTERSKI 2002; 28 (Li 4906)

Issyk-Kul-Area, Central Tien-Shan, Turkestan-Alai-Area; 2650 m; saxicolous, on calcareous rocks.

Dermatocarpon rivulorum (Arnold) Dalla Torre & Sarnth. – BAIBULATOVA 1988

Central Tien-Shan.

Dermatocarpon vellereum Zschacke – ANDREEVA 1959, HANDBOOK 1977; 20 (Li 4752)

Issyk-Kul-Area, Southwestern Tien-Shan; 1300 m; saxicolous, on siliceous rocks.

EVERNIA Ach.

Evernia divaricata (L.) Ach. – ELENKIN 1901: Lich. Fl. Ross. 63 (leg. Regel 1877, H), ANDREEVA 1959, BAIBULATOVA 1988, BAIBULATOVA 1989, CZEZCUGA et al. 1993, HANDBOOK 1996

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 2700 m, corticolous.

Evernia terrestris (Tomin) Golubk. – HANDBOOK 1996

GLYPHOLECIA Nyl.

Glypholecia scabra (Pers.) Müll.Arg. (*G. placodiiformis*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1982, BAIBULATOVA 1988, LITTERSKI 2002; 8 (Li 4696), 26 (Li 4936), 28 (Li 4902), 30 (Li 4813, Li 4814), 33 (Li 4854), 34 (Li 4894)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 1600–3700 m; saxicolous, on basaltic and calcareous rocks.

HYPOGYMNIA (Nyl.) Nyl.

Hypogymnia austerodes (Nyl.) Räsänen – BAIBULATOVA 1988

Central Tien-Shan.

LEPTOGIUM (Ach.) Gray

Leptogium lichenoides (L.) Zahlbr. – BREDKINA 1981c, BREDKINA 1982; 18 (Li 4984, Li 4986, Li 5036)

Inner Tien-Shan, Southwestern Tien-Shan; 1700–2000 m; muscicolous.

Leptogium saturninum (Dicks.) Nyl. – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1982, BAIBULATOVA 1988, LITTERSKI 2002; 18 (Li 5034), 23 (Li 4773), 24 (Li 4783)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 1600–1750 m; corticolous, on *Acer*, *Betula*, *Juglans* and *Picea*.

Another specimen, which resembles *Leptogium saturninum*, was collected at locality 35 (Li 4867), Turkestan-Alai-Area; 3700 m; terricolous. It differs from the other collected specimens in some morphological features and ecological conditions.

Leptogium tenuissimum (Dicks.) Körb. – BREDKINA 1982

Inner Tien-Shan; terricolous.

**Leptogium teretiusculum* (Wallr.) Arnold – 18 (Li 5035)

Southwestern Tien-Shan; 1700 m; terricolous.

MELANELIA Essl. (incl. *Melanelixia*, *Melanohalea*)

Melanelia exasperata (De Not.) Essl. (*Parmelia aspidota*) – ANDREEVA 1959

Issyk-Kul-Area.

Melanelia exasperatula (Nyl.) Essl. – BREDKINA 1981b; 18 (Li 4987)

Inner Tien-Shan, Southwestern Tien-Shan; 1700–2500 m; corticolous, on *Abies*, *Betula*.

Melanelia elegantula (Zahlbr.) Essl. – OTTE et al. 2005; 18 (Li 4953)

Southwestern Tien-Shan; 1700 m; corticolous, on *Betula*.

The collected specimen differs from material, which I know from Europe. The upper surface is heavily pruinose and the density of isidia is lower. The features pruinosity and density of isidia were discussed for a separation of *M. elegantula* (corticolous) and *M. infumata* (saxicolous), but according to ESSLINGER (1977) these morphological characters are variable in both saxicolous and corticolous specimens. SANTESSON et al. (2004) do not accept Esslinger's concept.

Melanelia koftrae (Clauzade & Poelt) Essl. (*Parmelia k.*) – ESSLINGER 1977 (leg. Brotherus No. 119)

Inner Tien-Shan.

Melanelia olivacea (L.) Essl. (*Parmelia o.*) – ANDREEVA 1959; 37 (Li 5269)

Issyk-Kul-Area, Inner Tien-Shan; 2170 m; corticolous.

Melanelia panniformis (Nyl.) Essl. (*Parmelia omphalodes* var. *p.*) – ANDREEVA 1959

Issyk-Kul-Area.

Melanelia subargentifera (Nyl.) Essl. (*Parmelia s.*) – BROTHERUS 1898 (as *Parmelia verruculifera*, see ESSLINGER 1977), ANDREEVA 1959, ESSLINGER 1977; 23 (Li 4764)

Issyk-Kul-Area, Inner Tien-Shan, Southwestern Tien-Shan; 1750 m; corticolous, on *Acer*, *Picea*.

Melanelia subaurifera (Nyl.) Essl. (*Parmelia s.* var. *albo-sorediosa*) – BROTHERUS 1898, OTTE et al. 2005; 18 (Li 5037)

Southwestern Tien-Shan; 1700 m; corticolous, on *Betula*.

Melanelia tominii (Oxner) Essl. (*Parmelia substygia*, *Parmelia t.*) – BAIBULATOVA 1988, BAIBULATOVA 1989

Central Tien-Shan.

NEOFUSCELIA Essl.

Neofuscelia loxodes (Nyl.) Essl. (*Parmelia isidiotyta*) – ANDREEVA 1959

Issyk-Kul-Area.

Neofuscelia pulla (Ach.) Essl. (*Parmelia delisei*, *Parmelia prolixa*, *Parmelia p.*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981c, ESSLINGER 1977; 26 (Li 4939)

Issyk-Kul-Area, Inner Tien-Shan, Turkestan-Alai-Area; 1600–2000 m; saxicolous, on basaltic rocks.

Neofuscelia rysseola (Ach.) Essl. (*Parmelia r.*) – BREDKINA 1981b, BREDKINA 1981c

Inner Tien-Shan; 1600–2200 m; terricolous, vagrant.

Neofuscelia verruculifera (Nyl.) Essl. (*Parmelia v.*) – BAIBULATOVA 1988, BAIBULATOVA 1989

Central Tien-Shan.

PARMELIA Ach.

Parmelia omphalodes (L.) Ach. – ANDREEVA 1959

Issyk-Kul-Area.

PECCANIA

Peccania coralloides A.Massal. – HANDBOOK 1975, BAIBULATOVA 1988, BAIBULATOVA 1989, CZEZCUGA et al. 1993

Central Tien-Shan, Inner Tien-Shan; 1650 m; terricolous.

Peccania terricola H.Magn. – BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989

Central Tien-Shan, Inner Tien-Shan; 1600–1800 m; terricolous.

PELTIGERA Willd.

Peltigera canina (L.) Willd. (*P. canina* f. *spongiosa*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1977, BREDKINA 1981b, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989, CZECHUGA et al. 1993

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1670–2700 m; terricolous.

Peltigera continentalis Vitik. – STENROOS et al. 1994 (LE)

Peltigera didactyla (With.) J.R.Laundon (*P. erumpens*) – BREDKINA 1977, BAIBULATOVA 1988, BAIBULATOVA 1989; 18 (Li 5039, teste O. Vitikainen)

Northern Tien-Shan, Central Tien-Shan, Southwestern Tien-Shan; 1700–2100 m; muscicolous.

Peltigera elisabethae Gyeln. (*P. mauritzi*) – BREDKINA 1977, BREDKINA 1981b

Northern Tien-Shan, Issyk-Kul-Area, Inner Tien-Shan, Southwestern Tien-Shan; 2060–2500 m; terricolous.

****Peltigera* aff. *monticola*** Vitik. – 18 (Li 5040, Li 5041 in H, det. O. Vitikainen), 20 (Li 4751)

Southwestern Tien-Shan; 1300–1700 m; muscicolous and terricolous.

Peltigera horizontalis (Huds.) Baumg. – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1977

Northern Tien-Shan, Issyk-Kul-Area, Inner Tien-Shan; 1500–2500 m.

Peltigera lepidophora (Vain.) Bitter – BREDKINA 1977

Northern Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1800–3200 m.

Peltigera malacea (Ach.) Funck – ANDREEVA 1959, BREDKINA 1977

Issyk-Kul-Area, Inner Tien-Shan, Turkestan-Alai-Area.

Peltigera praetextata (Flörke ex Sommerf.) Zopf (*P. rufescens* var. *p.*, *P. canina* f. *subcanina*) – BREDKINA 1977, BREDKINA 1982; 37 (Li 5263)

Northern Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 2150–2900 m.

Peltigera rufescens (Weiss) Humb. (*P. canina* f. *ulorhiza*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1977, BREDKINA 1981a, BREDKINA 1981b, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989; 6 (Li 5142)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1800–3400 m; terricolous.

PHAEOPHYSCIA Moberg

Phaeophyscia ciliata (Hoffm.) Moberg – BREDKINA 1981c

Inner Tien-Shan; 1800 m; corticolous.

Phaeophyscia constipata (Norrl. & Nyl.) Moberg – BREDKINA 1981c

Inner Tien-Shan; 2200 m; terricolous.

****Phaeophyscia hirsuta*** (Mereschk.) Essl. – 19 (Li 4947, det. R. Moberg)

Southwestern Tien-Shan; 1050 m; corticolous, on *Alnus*?

Phaeophyscia hirtuosa (Kremp.) Essl – BAIBULATOVA 1988

Central Tien-Shan.

****Phaeophyscia kairamoi*** (Vain.) Moberg – 18 (Li 5043, det. R. Moberg, Li 5042, Li 5044, Li 5045)

Southwestern Tien-Shan; 1700 m; corticolous, on *Abies*, *Betula*.

Phaeophyscia nigricans (Flörke) Moberg – BREDKINA 1982; 18 (Li 4995), 24 (Li 4796, teste R. Moberg)

Inner Tien-Shan, Southwestern Tien-Shan; 1600–1700 m; saxicolous, corticolous, on *Betula*, *Juglans*.

Phaeophyscia orbicularis (Neck.) Moberg (*Physcia obscura*) – ANDREEVA 1959, BAIBULATOVA 1988; 23 (Li 4765, Li 4767, teste R. Moberg)

Issyk-Kul-Area, Central Tien-Shan, Southwestern Tien-Shan; 1750 m; corticolous, on *Acer*.

Phaeophyscia sciastra (Ach.) Moberg – BAIBULATOVA 1988

Central Tien-Shan.

PHYSCIA (Schreb.) Michx.

Physcia adscendens (Fr.) H. Olivier – ANDREEVA 1959, BREDKINA 1981b; 18 (Li 4998, Li 4999, teste R. Moberg)

Issyk-Kul-Area, Inner Tien-Shan, Southwestern Tien-Shan; 1700–2500 m; *Betula*.

Physcia aipolia (Ehrh. Ex Humb.) Fűrnr. – ANDREEVA 1959

Issyk-Kul-Area.

**Physcia biziana* (A.Massal.) Zahlbr. – 23 (Li 4766, det. R. Moberg)

Southwestern Tien-Shan; 1750 m; corticolous, on *Acer*.

Physcia caesia (Hoffm.) Fűrnr. – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989, FRÖDÉN & LITTERSKI 2005; 10 (Li 4710, teste R. Moberg)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 1800–2600 m; saxicolous, on calcareous rocks, corticolous.

Physcia dimidiata (Arnold) Nyl. – BAIBULATOVA 1988, BAIBULATOVA 1989, FRÖDÉN & LITTERSKI 2005; 10 (Li 4708, teste R. Moberg), 28 (Li 4897, teste R. Moberg)

Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 2600–2650 m; saxicolous, on calcareous rocks.

Physcia dubia (Hoffm.) Lettau – BAIBULATOVA 1988; 18 (Li 4950, teste R. Moberg), 21 (Li 4752, teste R. Moberg)

Central Tien-Shan, Southwestern Tien-Shan; 1700–2000 m; corticolous, on *Betula*.

Physcia stellaris (L.) Nyl. – BROTHERUS 1898, ANDREEVA 1959, LITTERSKI 2002; 18 (Li 4949, teste R. Moberg), 23 (Li 4770, Li 4782), 24 (Li 4787, det. R. Moberg, Li 4795)

Issyk-Kul-Area, Southwestern Tien-Shan; 1600–1750 m; corticolous, on *Acer*, *Betula*, *Juglans*.

Physcia tenella (Scop.) DC. (*P. hispida*) – ANDREEVA 1959, BAIBULATOVA 1988; 18 (Li 4951, teste R. Moberg), 23 (Li 4772, teste R. Moberg)

Issyk-Kul-Area, Central Tien-Shan, Southwestern Tien-Shan; 1700–1750 m; corticolous, on *Acer*, *Betula*.

Physcia tribacia (Ach.) Nyl. – BAIBULATOVA 1988

Central Tien-Shan.

PHYSCONIA Poelt

Physconia deterosa (Nyl.) Poelt – BAIBULATOVA 1988

Central Tien-Shan.

Physconia enteroxantha (Nyl.) Poelt – BROTHERUS 1898 (as *Physcia pulverulenta* var. *pityrea*), specimen (*Physcia pityrea*) in H, det. O. Vitikainen

Physconia muscigena (Ach.) Poelt (*Physcia m.*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981b, BREDKINA 1981c, BAIBULATOVA 1988, BAIBULATOVA 1989; 18 (Li 4952), 20 (Li 4743)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 1300–2200 m; muscicolous.

**Physconia perisidiosa* (Erichsen) Moberg – 18 (Li 5047, det. R. Moberg)

Southwestern Tien-Shan; 1700 m; corticolous, on *Betula*.

POLYCHIDIUM (Ach.) Gray

Polychidium muscicola (Sw.) Gray – ANDREEVA 1959

Issyk-Kul-Area; saxicolous among mosses.

RHIZOPLACA Zopf

Rhizoplaca chrysoleuca (Sm.) Zopf (*Squamarina rubina*) – BROTHERUS 1898, ANDREEVA 1959, BAIBULATOVA 1988, CZEZUGA et al. 1993; 18 (Li 4990)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan; 1600–2700 m; saxicolous, on basaltic rocks.

Rhizoplaca melanophthalma (DC.) Leuckert & Poelt (*Squamarina m.*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981a, BAIBULATOVA 1988, CZEZUGA et al. 1993; 34 (Li 4886, Li 4887), 36 (Li 5254), 38 (Li 5256)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 2500–4050 m; on siliceous rocks.

Rhizoplaca peltata (Ramond) Leuckert & Poelt (*Squamarina p.*) – ANDREEVA 1959, BREDKINA 1981c, BAIBULATOVA 1988, BAIBULATOVA 1989; 20 (Li 4734), 27 (Li 4922)

Issyk-Kul-Area, Central Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1300–2450 m; saxicolous, on siliceous rocks, e. g. sandstone.

SEIOPHORA Poelt emend. Frödén

Seiophora contortuplicata (Ach.) Frödén (*Teloschistes contortuplicatus*, *Teloschistes montanus*, *Xanthoanaptychia c.*) – BREDKINA 1981a, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989, LITTERSKI 2002, HANDBOOK 2004, FRÖDÉN & LITTERSKI 2005; 10 (Li 4705, Li 4712), 27 (Li 4919), 28 (Li 4896, Li 4907), 31 (Li 4841)

Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 2400–3000 m; muscicolous and saxicolous, on calcareous and siliceous rocks.

Seiophora orientalis Frödén – FRÖDÉN & LITTERSKI 2005; 7 (Li 5054, B, LD)

Inner Tien-Shan; corticolous, on *Populus*.

Probably to this species: ANDREEVA 1959 (*Teloschistes chrysophthalmus*), BAIBULATOVA 1988 (*Teloschistes brevior*), BREDKINA 1981b (*Teloschistes brevior*), BREDKINA 1981c (*Teloschistes brevior*), HANDBOOK 2004 (*Xanthoanaptychia kotovii*).

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 2200–2500 m; corticolous.

Seiophora tenera Frödén & Litterski – LITTERSKI 2002 (as *Teloschistes lacunosus*), FRÖDÉN & LITTERSKI 2005; 10 (Li 4709, B, LD), 30 (Li 4828), 35 (Li 4875)

Inner Tien-Shan; 2600–3700 m; terricolous, vagrant.

Probably to this species: HANDBOOK 2004 (*Xanthoanaptychia villosa*).

SOLORINA Ach.

Solorina bispora Nyl. – ANDREEVA 1959, HANDBOOK 1975, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan.

Solorina saccata (L.) Ach. – BROTHERUS 1898, HANDBOOK 1975, BREDKINA 1981b

Issyk-Kul-Area, Inner Tien-Shan; 2500 m; terricolous.

Solorina spongiosa (Ach.) Anzi – BROTHERUS 1898, HANDBOOK 1975, BAIBULATOVA 1988

Central Tien-Shan, Inner Tien-Shan.

UMBILICARIA Hoffm.

Umbilicaria decussata (Vill.) Zahlbr. (*Argyrophora ptychophora*) – BROTHERUS 1898, BAIBULATOVA 1988, WEI & JIANG 1993

Issyk-Kul-Area, Central Tien-Shan.

Umbilicaria neoprobooscidea Wei & Jiang – WEI & JIANG 1993

Northern Tien-Shan.

Umbilicaria virginis Schaer. (*Argyrophora rugifera*, *Gyrophora rugifera*) – BROTHERUS 1898, ANDREEVA 1959, VĚZDA: Lich. sel. exs. 2147 (leg. V. Vasak & A. Vězda 1986), BAIBULATOVA 1988, BAIBULATOVA 1989, CZEZUGA et al. 1993, WEI & JIANG 1993; 36 (Li 5258)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 2000–3700 m; saxicolous.

XANTHOPARMELIA (Vain.) Hale

Xanthoparmelia camtschadalis (Ach.) Hale (*Parmelia c.*) – BROTHERUS 1898 (as *Parmelia congruens* Ach., H, det. T. Ahti 2005), BAIBULATOVA 1988, BAIBULATOVA 1989, CZEZUGA et al. 1993, LITTERSKI 2002, FRÖDÉN & LITTERSKI 2005; 2 (Li 5146, with *X. desertorum*), 3 (Li 5150), 10 (Li 4706), 12 (Li 5250), 27 (Li 4929), 29 (Li 4798)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Turkestan-Alai-Area; 2450–3600 m; terricolous, vagrant.

Probably to this species, see (HALE 1990): ANDREEVA 1959 (*Parmelia molliuscula*, *P. vagans*), BAIBULATOVA 1988 (*Parmelia molliuscula*), BREDKINA 1981a (*Parmelia vagans*), BREDKINA 1981b (*Parmelia vagans*), BREDKINA 1981c (*Parmelia vagans*)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 1600–3023 m; terricolous, vagrant.

Xanthoparmelia conspersa (Ehrh. ex Ach.) Hale (*Parmelia c.*) – BROTHERUS 1898, BREDKINA 1981c
Inner Tien-Shan; 2000 m; saxicolous.

****Xanthoparmelia desertorum*** (Elenkin) Hale – 2 (Li 5146)

Issyk-Kul-Area; 2000 m; terricolous, vagrant.

Xanthoparmelia stenophylla (Ach.) Ahti & D.Hawksw. (*Parmelia s.*) – CZEZCUGA et al. 1993; 18 (Li 5002)
Southwestern Tien-Shan; 1700 m; saxicolous, on basaltic rocks.

Xanthoparmelia tinctina (Maheu & A.Gillet) Hale (*Parmelia t.*, *P. körosi-csomae*) – BREDKINA 1977, BAIBULATOVA 1988
Northern Tien-Shan, Central Tien-Shan; 2100 m.

XANTHORIA (Fr.) Th. Fr.

Xanthoria elegans (Link) Th.Fr. (*Caloplaca e.*, *Placodium e.*) – BROTHERUS 1898, ANDREEVA 1959, BREDKINA 1981a, BREDKINA 1981c, BREDKINA 1982, BAIBULATOVA 1988, BAIBULATOVA 1989, CZEZCUGA et al. 1993, LITTERSKI 2002; 1 (Li 4695), 9 (Li 4703), 22 (Li 4759), 30 (Li 4810, Li 4830, Li 4831), 37 (Li 5251)

Northern Tien-Shan, Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1600–3950 m; saxicolous, on siliceous and calcareous rocks, corticolous.

Xanthoria fallax (Hepp) Arnold (*X. substellaris*) – BREDKINA 1981c; 7 (Li 5055), 18 (Li 5051), 28 (Li 4912)

Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 1700–2650 m; corticolous, on *Betula*, *Juniperus*, *Populus*.

****Xanthoria fulva*** (Hoffm.) Poelt & Petutschnig – 23 (Li 4769)

Southwestern Tien-Shan; 1750 m; corticolous, on *Acer*.

****Xanthoria sorediata*** (Vain.) Poelt – 18 (Li 5003)

Southwestern Tien-Shan; 1700 m; saxicolous, on siliceous rocks.

Dubious records or records that need confirmation

Anaptychia ciliaris (L.) Körb. – ANDREEVA 1959

Issyk-Kul-Area.

Cladonia cervicornis (Ach.) Flot. – BROTHERUS 1898

Inner Tien-Shan; sterile specimen in H checked by T. Ahti and is not *Cladonia cervicornis*.

Cladonia gracilis (L.) Willd. (*C. elongata* var. *esquamosa*) – ANDREEVA 1959, BAIBULATOVA 1988, BAIBULATOVA 1989; probably *C. macroceras*, see AHTI (1980)

Issyk-Kul-Area, Central Tien-Shan.

Flavoparmelia caperata (L.) Hale (*Parmelia c.*) – ANDREEVA 1959

Issyk-Kul-Area.

Flavoparmelia sorediens (Nyl.) Hale (*Parmelia s.*) – ANDREEVA 1959

Issyk-Kul-Area.

Heterodermia leucomelos (L.) Poelt – BAIBULATOVA 1988, BAIBULATOVA 1989

Central Tien-Shan.

Melanelia infumata (Nyl.) Essl. (*Parmelia i.*) – ANDREEVA 1959, BREDKINA 1981b, BAIBULATOVA 1988; probably *M. elegantula*, see ESSLINGER (1977)

Issyk-Kul-Area, Central Tien-Shan, Inner Tien-Shan; 2500 m; corticolous, on *Abies*.

Parmotrema chinense (Osbeck) Hale & Ahti (*Parmelia perlata*) – ANDREEVA 1959

Issyk-Kul-Area.

- Peltigera collina* (Ach.) Schrad. (*P. scutata* var. *subscutata*) – BREDKINA 1981b
Inner Tien-Shan; 2500 m; terricolous.
- Peltigera* cf. *polydactylon* (Neck.) Hoffm. – BREDKINA 1977 (as *P. polydactyla*)
Northern Tien-Shan, Inner Tien-Shan, Southwestern Tien-Shan, Turkestan-Alai-Area; 2100–2700 m.
- Phaeophyscia hispidula* (Ach.) Essl. (*Physcia setosa*) – ANDREEVA 1959
Issyk-Kul-Area.
- Physcia clementei* (Turner) Maas Geest. (*P. astroidea*) – ANDREEVA 1959
Issyk-Kul-Area.
- Physconia distorta* (With.) J.R.Laundon (*Physcia pulverulenta*) – ANDREEVA 1959
Issyk-Kul-Area.
- Physconia grisea* (Lam.) Poelt (*Physcia g.*) – ANDREEVA 1959, BREDKINA 1982
Issyk-Kul-Area, Inner Tien-Shan; muscicolous.
- Xanthoria parietina* (L.) Th.Fr. (*Physcia p.*) – BROTHERUS 1898
Northern Tien-Shan; saxicolous; specimen in H checked by T. Ahti and is not *Xanthoria parietina*.
- Xanthoria polycarpa* (Hoffm.) Th.Fr. ex Rieber – ANDREEVA 1959
Issyk-Kul-Area.

Records of currently poorly resolved taxa

- Ramalina asahinae* – ANDREEVA 1959
Issyk-Kul-Area.
- Usnea* sp. div. – ANDREEVA 1959
Issyk-Kul-Area.

Supplement

Lichens of Inner Tien-Shan were recently compiled by BREDKINA & MAKAROVA (2005), further literature were cited in this paper.

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