Sulphur Algae from Hungary

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In the year 1905 the late*) Professor Dr **N. Wille** visited Hungary for some time. Among the plants he collected were a number of Sulphur Algae, partially from **Margit-sziget** (Margarethen-insel) near Buda-Pest, and partially from **Herkulesfürdő** (Herkulesbad) and the **Cserna** Valley.

On the whole there were 28 dried samples which he presented to me for investigation.

Concerning the Algal flora of the sulphur springs in Hungary and adjacent countries we know a good deal through papers by **Hansgirg, Strzeszewski, Szafer, Vouk** and others, and there are also some specimens distributed in exsiccati. Especially are the investigations by **Strzeszewski** (Beitr. z. Kenntn. d. Schwefelfl. i. d. Umgeb. v. Krakau), **Szafer** (Z. Kenntn. d. Schw. fl. i. d. Umg. v. Lemberg) and **Vouk** (Biol. Unters. d. Thermalquellen v. Zagorje i. Kroatien) extensive and partly carried out according to biological principles.

The 26 samples which were at my disposal were thus signed:

1. Sulphur Algae from the sulphur springs in **Margit-sziget)** Budapest, June 20th 1905.

2—26. Sulphur Algae from the sulphur springs in **Herkulesfürdő.** June 22nd 1905. From the town proper and up in the **Cserna** valley. Partially from the water and from stones in hot steam.

(Where no locality is mentioned the Algae are from Herkulesfürdő)

Class Myxophyceae.

Order Hormogoneae.

Family Rivulariaceae.

Genus *Calothrix* Ag.

1. *Calothrix parietinum* **(Naeg.) Thur.** var. *thermalis* **G. S. W.** This characteristic variety, which is described from the hot Icelandic geysirs was present in considerable quantities in a number of samples from **Herkulesfürdő.**

Family Stigonemaceae.

Genus *Hapalosiphon* Naeg.

2. *Hapalosiphon laminosus* **(Cohn.) Hansg.** This widely distributed thermal Alga was remarkably scarce, and was only observed from a single collection.

Family Oscillatoriaceae.

Genus *Microcoleus* Desm.

3. *Microcoleus sociatus* W. & **G. S. W.** This interesting species which was originally described from Africa was occurring in quantities in a single sample. It is previously found to occur in sulphur springs in Pjatigorsk in Caucasus also. (K. **Münster Ström:** Fr. w. Algae Cauc. and Turkestan.) Size: lat. trich. 2,5 μ long cell. 3,5—4 μ.

Genus *Phormidium* Kuetz.

4. *Phormidium laminosum* **(Ag.) Gom.** This Alga, which is perhaps the most general in hof springs throughout the World, was very common, and occurred in as much as 10 collections. Size: lat. trich. 0,8—1,2 μ.

Genus *Oscillatoria* Vauch.

5. *Oscillatoria geminata* **Menegh.** var. *sulphurea. Strzesz.* This very characteristic variety occurred in abundance in one sample from Margit-sziget. Size: lat. trich. 2, long. cell. 2,5—4,2 μ.

6. *Oscillatoria animalis* **Ag.** This characteristic species occurred in three or four samples.

7. *Oscillatoria terebriformis* **Ag.** The Alga occurred in abundance in four collections. Size: lat. trich. 5,2—5,3 μ.

8. *Oscillatoria numidica* **Gom.** Oscillatoria numidica is only reported on a few times, and seems to be a characteristic thermal Alga. It occurred in a single sample.

9. *Oscillatoria Okeni* **Ag.** This common thermal Alga was present in a single sample only.

10. *Oscillatoria formosa* **Bory.** Oscillatoria formosa was observed from a couple of collections. Size: lat. trich. 5 μ.

11. *Oscillatoria sp.* Some undeterminable of Oscillatoria occurred in one or two collections.

Order Coccogoneae.

Family Chroococcaceae.

Genus *Chroococcus* Naeg.

12. *Chroococcus minor* **(Kuetz.) Naeg.** This

*) * 28. X. 1858 (**Hobøl** in Smaalenene) † 4. II. 1924 (**Tøien,** Oslo).

ubiquitous species occurred in abundance in a single collection.

13. *Chroococcus sp.* Undeterminable Chroococcus species were present in a couple of collections. Some of them are doubtless species described as various forms of Aphanotece, but their specific identity could not be ascertained.

Genus *Gloeocapsa* Naeg.

14. *Gloeocapsa thermalis* **Lemm.** There may be very great doubt, whether this form should be separated from Gloeocapsa Magma as a species or not. Size: diam. cell. 1,5—2,8 μ.

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