SHORT COMMUNICATION

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SUPPLEMENTARY NOTES ON THE DISTRIBUTION OF *HYDRURUS FOETIDUS* (VILL.) TREVISAN (CHRYSOPHYTA) IN SERBIA.

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Chrysophyta, or golden-brown algae, are widely distributed in inland waters, more frequently during the winter months and in cold places such as northern latitudes or mountain streams. These organisms can grow well under ice in freshwater ponds. However, a few species are found in brackish or marine waters, and some of these apparently grow equally well in marine and inland waters (Trainor, 1978).

The genus *Hydrurus* is a freshwater macroscopic form with the single species *H. foetidus* (John et al., 2002). The thalli are mucilaginous, branched and bushy, and up to 30 cm long. The cells are subspherical to ellipsoid, measuring 8-12 μm in their longest axis and arranged peripherally in the mucilage (Fig. 1). Thallus growth is apical. Any cell can develop a flagellum and swim away. Shape of the motile cell is unusual, exhibiting a certain degree of plasticity (Lund and Lund, 1998). It is typically triangular in outline, with more or less elongate angles.

Hydrurus foetidus is a cold-water stenotherm (Vavilova and William, 1999; Hieber et al., 2001; Kristiansen, 2002) and rheophilic that can resist strong currents (Hieber et al., 2001; Lindstrøm et al., 2004). One of the most important factors governing seasonality is temperature variation (Kawecka, 1981; Kristiansen, 2002). Optimal temperature for its growth varies between 2 and 12°C (Kawecka, 1981). When water temperature rises much above 10°C, this alga begins to disappear (Lund and Lund, 1998; Kristiansen, 2002). Some cells swim away, others form chrysophycean cysts, many probably die, and the colonies break up and disappear. Also, different light conditions affect the abundance and occurrence of *Hydrurus*. In the open *Hydrurus foetidus* forms numerous conglomerations, while in the shade its abundance drastically decreases (Kawecka, 2003). This confirms earlier suggestions that *H. foetidus* prefers good light conditions, although some authors reported its occurrence under ice (Squires et al., 1973).

Hydrurus is one of the few algae which can be recognized by smell. A characteristic powerful pungent odor can emanate from collected samples of *Hydrurus*. However, this smell is not necessarily a sign of impending death. It may be present or absent before collection, and when *Hydrurus* is very abundant in a stream the distinctive odor sometimes can be detected well before the stream is reached (Lund and Lund, 1998).

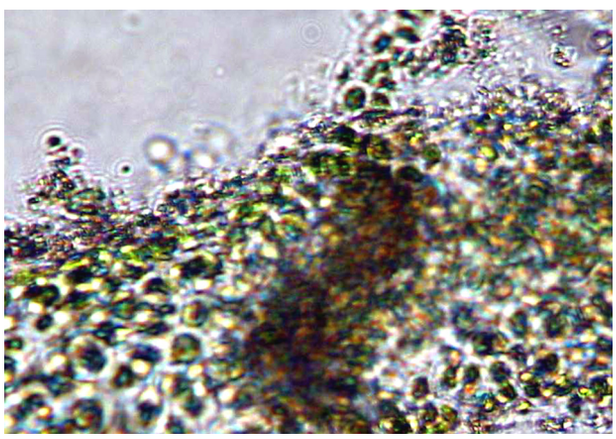

Fig. 1. *Hydrurus foetidus* from the Ibar River (400x magnification).

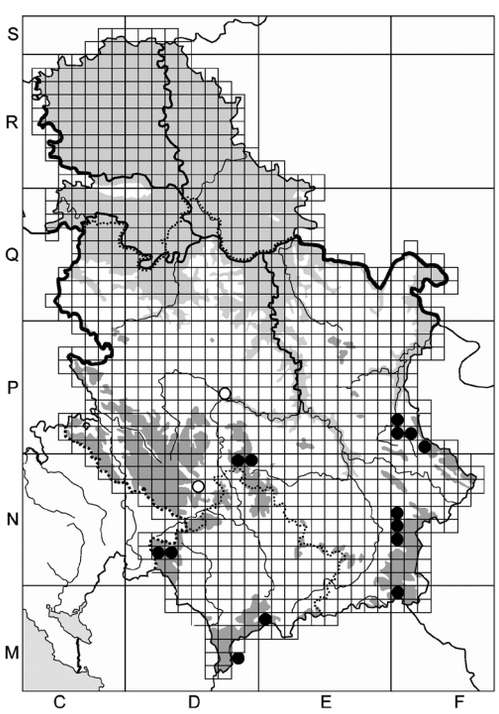

Fig. 2. UTM map of occurrence in Serbia of *Hydrurus foetidus* (○-new records; ●-old records).

In our country, *Hydrurus foetidus* has mostly been reported from streams and rivers in mountainous districts of Serbia: the Crnovrška Brook (FP20) and Trgoviški Timok River (FP11) in the on Stara Planina Mountains (Simić, 1995, 1996, 2002); an arm of Ginevodno Lake in the Šar Planina Mountains (DM84) (Urošević, 1997, 1998); Muržica Brook in the Šar Planina Mountains (EM07) (Nikitović, 1996; Simić 2003); a spring below Dreljsko Lake in the Prokletije Mountains (DN22, DN32) (Urošević, 1998a); the Vlasina River (FN03, FN04, FN05) (Nikitović, 1998; Nikitović and Laušević, 1999); the Samokovska River (DN89) and Duboka Brook (DN89, DN99) on Mt. Kopaonik (Simić, 2002); and the Pčinja River (FM09) (Simić and Simić, 2003) (Fig. 2).

New records of *Hydrurus foetidus* in Serbia were obtained in April of 2003, when samples were found at two localities in Southwest Serbia. The fountainhead of the Raška River at Gradina (DN57) is a favorable place for it, with low water temperature (4.6°C), fast flow, and adequate oxygen saturation (15.1 mg/l). The second new record is from the Ibar River (DP74) near Kraljevo. Although water temperature and oxygen saturation were appropriate (9.6°C and 11.0 mg/l, respectively), this was a little surprising because the alga was found in a phytoplankton sample. In both cases *Hydrurus foetidus* was found as a free-floating alga, which is probably a result of the pulling out of thalli from the epilithic community and splitting into parts.

Physico-chemical analysis of water at the sites of the new records confirmed the known temperature demands of *Hydrurus foetidus* and the rheophilic nature of this species.

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