



***Lacuneolimna* gen. nov., *Lacuneolimna zalokariae* comb. nov. and *Lacuneolimna novagallia* spec. nov. (Bacillariophyceae) from the French Guiana diatom freshwater flora**

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Abstract

The freshwater diatoms of the French Guiana have received little attention so far. A new diatom genus, *Lacuneolimna*, based on the species *Eolimna zalokariae*, is described from a small rainforest stream. Numerous ultrastructural features differ from the genus *Eolimna*, notably the pluriseriate striae lying between relief-like elevated virgae and depressed externally. In addition, another species new to science, *L. novagallia*, belonging to this new genus, was discovered in the same place. Detailed light and scanning electron microscope observations are used to characterize the morphology and the ultrastructure of these two new taxa.

Key words: Bacillariophyta, Guiana shield, South America, tropical diatoms

Introduction

Until now, the literature about the freshwater diatoms of the French Guiana is very sparse (Reichardt 1995, Tudesque *et al.* 2012). Recent investigations on the freshwater diatom flora collected in small streams in the rainforest of the French Guiana revealed highly diversified benthic communities. During light microscopy-based inventories, *Eolimna zalokariae* Metzeltin & Lange-Bertalot (1998: 39), described from samples collected in the tropical river Tapajós, Brazil, was identified. Scanning electron microscope observations of this species revealed ultrastructural features which do not match with the diagnosis of the genus *Eolimna* Lange-Bertalot & Schiller in Schiller & Lange-Bertalot (1997: 166); pluriseriate striae lying in grooves associated with a network of cross-bars and deep depressions or cavities along the sternum seem to be relevant taxonomical features to establish hereby the diagnosis of a new genus *Lacuneolimna* gen. nov. In addition, another species, belonging to the same genus was detected in the same sampling site. Both species can be distinguished in LM and SEM.

This paper gives ultrastructural information which justifies the erection of a new genus based on the species *Eolimna zalokariae*. Moreover, *Lacuneolimna novagallia* sp. nov. is described using LM and SEM examinations. These observations enable to enlarge the diagnosis of *Lacuneolimna*. Information on the ecology and repartition is also given.

Materials and Methods

The diatom samples come from two distinct surveys carried out in 2009 by the IRSTEA (Institut national de Recherche en Sciences et Technologies pour l'Environnement et l'Agriculture) and in 2011 by the CNRS (Centre National de la