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Comune di Lecco

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Abstract Book



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Exploring benthic diatom diversity in a high-altitude lake

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ABSTRACT

High-altitude lakes have been studied intensively over the last decades as they are considered excellent sentinels of environmental change. Upper Lake Balma (altitude: 2212 m a.s.l.; surface area: 0.82 ha; maximum depth: 2.77 m) has been recently investigated for some biological units (fish and invertebrates), trophic conditions (nutrient concentrations) and microplastic occurrence. Here, we studied benthic algae, namely diatoms, in seven littoral areas of different periods. Preliminary result of the morphological analysis revealed the presence of 120 taxa, belonging to 9 orders, 21 families and 37 genera. The genera with a higher number of species were *Eunotia* (16 species), *Psammothidium* (14), and *Pinnularia* (8). *Fragilaria* cf. *nanana* Lange-Bertalot is the dominant species in all samples (max 81% of relative abundance). Some taxa need an in-depth study, as they may refer to new species. (i.e. small Araphids; *Geissleria* sp., *Adlafia* sp., *Humidophila* sp.).

High-throughput sequencing (rbcl gene; Diat.barcode, version 10 database) revealed 618 amplicon sequencing variants (ASVs). Of these ASVs, only 16 species were found both with microscopy and sequencing, and 41 species were specific for sequencing. With sequencing, many ASVs were not assigned to species level.