

Preliminary Paleoecologic Assesment Of Belshi Lake (Dumre Region - Central Albania)

Arensa Poçi^{1*}, Lirika Kupe², Thomas Hübener³, Aleko Miho¹

¹Department of Biology, Faculty of Natural Sciences, University of Tirana, Albania; ²Faculty of Agronomy, Agricultural University of Tirana; ³Universität Rostock, Fachbereich Biowissenschaften, Institut für Biodiversitätsforschung, Allgemeine und Spezielle Botanik, Wismarsche Str. 8, D-18051 Rostock, Germany

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Abstract: There are more than 90 carstic lakes spread all over the albanian territory, mostly known are those of Dumre region; These lakes are often filled by the rainfall; therefore, their water level oscillates drastically during the year. Sporadic samples of peryphyton or phytoplankton were collected in some of Dumre lakes (Belshi, Merhoja, Mulleza, Cepi). One sediment core (ca. 38 cm) was taken in Belshi lake, in June 2005; based on Pb²¹⁰ and Cs¹³⁷, the sediments were the well laminated, dating only to the last 20 years (between 2005-1984), where alternated white and black layers might belong to one year. The calculated sedimentation rate was 1.76 cm/yr, considered relatively high, due to the strong erosion from the surrounding watershed. About 210 taxa of micropic algae, diatoms (Bacillariophyta), were found in the collected samples, represented mainly from genera *Navicula* (29 taxa), *Nitzschia* (24 taxa), *Cymbella* (18 taxa), *Fragilaria* (17 taxa). More than 170 species were found in the littoral samples of different lakes, where the sample from Cepi, a shallow eutrophic pond was the richest with diatoms, with more than 90 species. About 140 species were found in the core sample from Belshi lake, represented mainly from *Achnanthes minutissima*, *Cyclotella ocellata*, *C. stelligera*, *Gyrosigma acuminatum*, *Cymbella affinis*, *Gomphonema olivaceum*, *Hantzschia amphioxys*, etc. Centric diatoms *Cyclotella ocellata* and *C. stelligera*, and the pennate *Achnanthes minutissima* were found also relatively abundant in the population community of each sediment layer. The calculated Trophic Index of Diatoms (TI_{DIA}) in each sediment layer oscillated from 1.2 (oligotroph) to 3.4 (polytroph), showing a moderate pollution with nutrients (phosphorous and nitrogen). Saprobic index seemed to be more stable, oscillating from 1.5 (oligosaprob) to 2 (beta-mesosaprob), corresponding to scarcely polluted (I-II class) to moderately polluted water quality (II class). Polluosensitivity index (IPS) oscillated from 9.4 (moderate quality class) to 19.3 (high quality class). The terrigenous hilly relief, the typical Mediterranean climate characteristics combined also with poor land use activities (land denuding), can be the principal causes of the relatively high rate of sedimentation observed in Belshi lake. The decentralized management of wastewater is recommended to prevent the eutrophication processes, and protect the water quality of the lakes. Moreover, forestation activities especially in denuded area would restore the vegetation cover and decrease the erosion.

Keywords: Albanian karst lakes; Belshi lake; sediment core sampling; Albanian diatoms

*Corresponding: E-Mail: arena_poci@hotmail.com; Tel: +355 692467117