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Subfossil thecamoebians response to climate variations during the transition Lateglacial / Holocene: a case study from Lake Lautrey (Jura, France)

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Thecamoebians (Protista, Rhizopoda) are microscopic organisms enclosed in a solid shell and are usually observed in a wide range of wet and freshwater habitats. The persistence of their shells in lacustrine sediments makes possible their use in paleoecological studies in particular for the reconstitution of past ecosystems quality.

This study points out the usefulness of thecamoebians as indicators of environmental and climatic variations in sedimentary paddings of Lake Lautrey (Jura, France) during the transition between the Lateglacial and the Holocene (15 700 – 11 000 years cal. BP). The results are interpreted in comparison to other paleoenvironmental indicators data (Chironomidae, organic matter, pollens).

First results suggest that thecamoebians respond not only to important climatic variations but also to relatively minor ones. Globally, they follow the same trends than other paleolimnological proxies. Shells accumulation rates are significantly higher in the moderate climatic periods than in colder ones. Furthermore, the repartition of species in the different communities varies from a balanced structure in the cooling phases to a more uneven community during the warmer phases. These changes are surely attributed to an increase and a diversification of nutritive resources (i.e. allochtonous and autochtonous organic matters inputs) caused by both an increase in lake productivity and a development of the catchment vegetation and soils during the temperate climatic periods.

For the future, the recent ecology of thecamoebians species from lacustrine sediments

must be precised in order to develop a reference base and transfer functions. In addition, we are working toward an optimization of the extraction method.

Key words: Thecamoebians – Lake – Paleoenvironment - Paleoclimate – Quaternary