

Abstract

Lake sediments consist of terrestrial plant matter, lacustrine plankton primary production and microbial lake biomass. All of these organism groups discriminate during C-substrate fixation and/or its further assimilation heavier and more stable ^{13}C carbon at a certain ratio, which is reflected by ^{13}C concentration in their biomass and consequently in sediments. The reason of discrimination at these enzymatically controlled biochemical reactions lies at kinetic fractionation controlled by binding energies of chemical substances. Isotopic signature contained in organic matter of lake sediments can be influenced by photosynthesis intensity, formation of anoxic zone allowing methanogenic and methanotrophic bacteria activity, lake trophic state or hydrologic isolation (long periods of drought).

Keywords: Paleolimnology, carbon isotopes, discrimination processes, lake sediments