

Growth of Green Algae in Deuterium Oxide

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Deuterium (^2H or D), a stable isotope of hydrogen, makes up about 0,015 mol % in natural water. It differs from protium in many physico-chemical properties resulting in strongest kinetic isotope effect among all stable isotopes. Aim of our work is to describe and understand mechanisms underlying the tolerance of deuterium in green algae *Parachlorella kesslerii* and *Chlamydomonas reinhardtii* under varying growth conditions. These two algae exhibit different tolerance to deuterium oxide; while *P. kesslerii* is able to grow in 99% D_2O , *C. reinhardtii* doesn't grow in medium with more than 70% D_2O . Response to deuterium was analysed using biochemical methods and microplate fluorescence assays as well as Raman microscopy. Important part of the work was optimizing the cultivation system in the need for minimizing the amount of deuterium oxide used.