

Compounds in *Chlorella ellipsoidea*

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Chlorella ellipsoidea cultured both in wastewater and in Hg, Cd, Pb-treated wastewater analyzed the heavy metal compounds that were transmitted into the cells. If those components affected the growth of *C. ellipsoidea*, biosynthesis of organic compounds and phosphate metabolism compared with the control. The quantities of heavy metals in the wastewater were decreased significantly to 32.0%, whereas it in cells were increased. Growth showed a decrease to 17.8-31.1% in wastewater; to 47.4% in Hg-treated wastewater; to 59.9% in Cd-treated wastewater; to 76.8% in Pb-treated wastewater was compared with the control. The contents of acid insoluble inorganic poly-P were decreased significantly to compare with the control, in the wastewater and in the treated with the heavy metals according to the duration of culture. In contrast, the contents of acid soluble inorganic poly-P were confirmed an increase to compare with the control, in the wastewater and in wastewater treated with the heavy metals as the duration of culture went up. The contents of RNA-P and DNA-P were showed the increase level throughout the duration of culture. In contrast, it showed an evident inhibition in the wastewater and in the wastewater treated with the heavy metal compounds. The contents of protein bounding phosphate, free amino acid, alkali-labile protein, alkali stable-protein were showed a lower level in the wastewater and in the wastewater treated with the heavy metal compounds to compare with the control throughout the whole duration of culture. The contents of fat-soluble

carbohydrate, PCA soluble, alkali insoluble carbohydrate and were exhibited a change according to the duration of culture, but the contents of the wastewater and the wastewater treated with the heavy metal compounds showed a significantly low level in the late-phase of culture. As the result of above experiment, it is clear that *C. ellipsoidea* actively absorbed heavy metal composition in the wastewater and heavy metals absorbed in the cells prevented normal metabolism, changing the growth, biosynthesis of organic compounds and phosphate metabolism.

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Study on DNA damage and Accumulation Capacity of Metal Compounds in *Chlorella ellipsoidea*

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Chlorella ellipsoidea were cultured both in wastewater and in wastewater treated with Hg, Cd, and Pb. The heavy metal compounds analyzed that were transmitted into the cells if those components were affected DNA damage of *C. ellipsoidea*. The quantities of heavy metals in the wastewater decreased significantly, whereas it in cells increased. The damage of DNA was analyzed by COMET assay (single cell gell electrophoresis). As the result of this experiment, there no the damage of DNA in the wastewater and Cd-treated wastewater compared with the control. The low level damage was showed in Hg-treated wastewater and the high level damage was found out in Pb-treated wastewater. This result showed that these heavy metals elicited an increase in DNA damage under the studied ranges of concentration.