

# International Conference on **Aquaculture & Fisheries** July 20-22, 2015 Brisbane, Australia

## **Inclusion of selenium in lipids *Chlorella vulgaris* Beij: *In vitro***

**Grubinko Vasil**

Ternopil National Pedagogical University, Ukraine

Investigation of sodium selenite inclusion in the structure of freshwater microalgae and the investigation of the accumulation of selenium in the classes of lipids (DAG–diacylglycerols, TAG–triacylglycerols, PL–phospholipids, LPL–lipophilic phospholipids, NEFA–nonesterification fatty acids) on *Chlorella vulgaris*. The inclusion of selenium in the lipids of cells *Ch. vulgaris* was directly proportional to the time and inversely proportional to the concentration. At action of  $Se^{4+}$  in concentration 0.5; 5.0; 10.0 and 20.0 mg/l on the 3<sup>rd</sup> day of selenium in lipids collected 88%, 50%, 36% and 30%. For the 7<sup>th</sup> day, the content of selenium in lipids increased by 106% at concentration of 0.5 mg/l; for 178% at 10.0 mg/l; for 33% at 20.0 mg/l, decreased by 5% at action of 5.0 mg/l of  $Se^{4+}$ . The most active accumulation of  $Se^{4+}$  classes of lipids occurred on the 7<sup>th</sup> day of the experiment with addition of  $Se^{4+}$  at concentrations of 0.5, 5.0, 10.0 and 20.0 mg/l. TAG accumulated a large amount of selenium throughout the experiment compared with the NEFA, DAG, PL and LPL. The results of the analyzed studies are indicative of the possibility of accumulation of selenium by microalgae in large quantities followed by its inclusion into intracellular macromolecular compounds. This can be regarded as a mechanism for detoxification and as a means of retaining selenium by algae cells. Besides, it has been noted that selenium enriched algae biomass can be used effectively as the most productive object for biologically active additives and articles of food.

### **Biography**

Grubinko Vasil is a Doctor of Science, Professor, Biochemist and Ecotoxicologist. He is graduated from biochemistry department, Ternopil Pedagogical University. He worked for Institute hydrobiology, National Academy of Science of Ukraine. Since 1998, he became the Chief of department of General Biology, Ternopil Pedagogical University. Till now he has published more than 400 papers. He was selected as an academician of Ukrainian Academy of Ecological Sciences. In the recent years he has focused on the researches of molecular behavior of the biological systems in a toxic environment and got some important success.

[v.grubinko2@yahoo.com](mailto:v.grubinko2@yahoo.com)

### **Notes:**