**ID: 6954**

**Congress:** 1st Tabriz International Life Science Conference and 12th Iran Biophysical Chemistry Conference

**Title:** Effect of mercury chloride on aquaporin activity in green alga Dunaliella salina

**Authors:** R. Mokari and M. Shariati

**Abstract:**

*Introduction:* Dunaliella is a unicellular green algae which do not possess a rigid cell-wall. They respond to changes in osmotic potential of medium by rapid alterations in cell volume by release or uptake the water in order to adjustment of internal osmotic potential. Mercury ions are reported to inhibit water movement by inhibition of some water channels (aquaporin). It seems Dunaliella cells are able pass large amount of water cross their membrane via aquaporin in response to osmotic stress. In this study, in order to preliminary study of existence of aquaporin in Dunaliella, the effect of inhibitor (HgCl₂) of aquaporin was studied.

*Method:* The Dunaliella cells were cultured in the culture medium containing 1.5M NaCl. The concentration of zero, 5, 10, 25, 50, 85, 130 μM HgCl₂ were used. Then the best concentration of inhibitor was applied and then osmotic shock of 1.5M to 2.5 and 1.5 to 1.0M NaCl was performed. The activity of aquaporins was monitored by cell volume shape and changes using light microscopy.

*Results:* Results showed that the aquaporins in Dunaliella salina are sensitive to the HgCl₂ and the best concentration for inhibition of water movement and blocking the cell volume changes is about 25 to 50 μM, while the cells are alive. In addition, 10mM of mercaptoethanol are able to reverse the alteration in cell volume.

*Conclusions:* Large amount of water can move through membrane of Dunaliella cells via aquaporins. This able the cells to respond to osmotic changes of medium by rapid changes in water content and cell volume.

Dunaliella, mercury chloride, aquaporin.

**Presentation:** Poster