

## Changes in Inorganic Element Contents in Potamogeton Natans Exposed to Cement Factory Pollution

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**Abstract :** In this study, the changes in contents of inorganic elements in the aquatic plant (Potamogeton natans) as a reflection of the impact of chemical nature pollution in a cement factory region (CFR) was evaluated. For this purpose, P, S, K, Ca, Fe, Cl, Mn, Cu, Zn, Mo, Ni, Si, Al, and Cd concentrations were measured in the aquatic plant (Potamogeton natans) taken from a CFR. As a control, aquatic plant was collected at a distance of 2000 m from the outer zone of the cement factory. Inorganic element compositions were measured by energy dispersive X-ray fluorescence spectrometry (EDXRF). Three aquatic plant exhibited similar changes in contents of microelements and macroelements in their leaves. P, S, K, Cl, Ca, and Mo contents in plant grown in the CFR were reduced significantly compared to control plant, whereas their contents of Al, Mn, Fe, Ni, Cu, Zn and Cd were very high. According to these findings, it is possible that aquatic plant (Potamogeton natans) inhabiting in the vicinity of cement factory sustains the deficiency of important essential elements like P, S, K, Ca, and Mo and greatly accumulate heavy metals like Al, Mn, Fe, Ni, Cu, Zn, and Cd. In addition, results of water analysis showed that heavy metal content such as Cu, Pb, Zn, Co, and Al of water taken from CFR was remarkably high than that of outer zone of CFR. These findings with relation to changes in inorganic composition can contribute to be elucidated of effect mechanism on growth and development of aquatic plant (Potamogeton natans) of pollution resulted from cement factories.

**Keywords :** aquatic plant, cement factory, heavy metal pollution, inorganic element, Potamogeton natans

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