

## Abstract

Alum represents the most widely used coagulant for water treatment. It is used due to its low cost and efficiency in the sedimentation of most suspensions, but there is many disadvantages in its use .The most important one is the health effect due to uncontrolled use of alum. When the needed dose is not properly considered, aluminum accumulates with time in human brain and leads to Alzheimer disease.

Aluminum concentrations in the distribution systems of Baghdad city were studied. This was done as a field work investigations.

Samples of raw water were taken from the intake of water treatment plants in Baghdad (Al-Karkh, East Tigris, Al-Karama, Al-Wathba, Al-Dora, Al-Wahda). The samples of tap water were taken from areas which water supply plants provide their potable water.

Samples collection continued for four months (February, April, May, July) –2004 and this included cold and warm seasons.

The results of this study indicated that aluminum concentrations decreased with distance from water treatment plants due to deposition of aluminum hydroxides on pipes walls.

A comparison between raw water aluminum concentration and tap water aluminum concentration has been done and it was found that aluminum concentration increased after alum dosing. Also comparison have been done with aesthetic and health standards, Al-Rasheed water treatment plant showed the higher percents of residual aluminum, 70% of the samples exceeded the health limit and 30% of the samples exceeded the aesthetic limits near the water treatment plant.

Generally, Al-Dora water treatment plant showed the best control conditions with respect to the others, while Al-Rasheed water treatment plant showed the worst conditions.