

## Ground Water Contamination by Tannery Effluents and Its Impact on Human Health in Peshawar, Pakistan

**Authors :** Fawad Ali, Muhammad Ateeq, Ikhtiar Khan

**Abstract :** Ground water, a major source of drinking water supply in Peshawar has been severely contaminated by leather tanning industry. Effluents from the tanneries contain high concentration of chromium besides several other chemical species. Release of untreated effluents from the tanning industry has severely damaged surface and ground water, agriculture soil as well as vegetables and crops. Chromium is a well-known carcinogenic and mutagenic agent. Once in the human food chain, it causes multiple problems to the exposed population including various types of cancer, skin dermatitis, and DNA damage. In order to assess the extent of chromium and other heavy metals contamination, water samples were analyzed for heavy metals using Graphite Furnace Atomic Absorption Spectrometer (GFAAS, Analyst 700, Perkin Elmer). Total concentration of chromium was above the permissible limit (0.048 mg/l) in 85% of the groundwater (drinking water) samples. The concentration of cobalt, manganese, cadmium, nickel, lead, zinc and iron was also determined in the ground water, surface water, agriculture soil, and vegetables samples from the affected area.

**Keywords :** heavy metals, soil, groundwater, tannery effluents, food chain

**Conference Title :** ICCCE 2016 : International Conference on Chemistry and Chemical Engineering

**Conference Location :** Amsterdam, Netherlands

**Conference Dates :** May 12-13, 2016