



Determination of Lead and Cadmium in Tattoo Ink Purchased in Local Market in Tehran

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Abstract: Tattooing practice is adopted worldwide and many people especially women in Iran. In New Zealand, 20 percent of the population have a tattoo, including one in three people under the age of 30. Tattooing in its simplest form is the semi-permanent introduction of inorganic and organic coloured pigments into the dermis of the skin using a needle with repetitive injections. The aim of the survey is to assess whether the tattoo inks supplied by identified, common or commercially accessible brands of tattoo ink suppliers comply with maximum concentrations of heavy metals in the EPA's guidelines.

30 samples of tattoo inks in main seven colours: black, White, yellow, brown, green and red. From 3 common brands mostly Chinese were purchased randomly from cosmetic stores in Tehran. Data was collected on the cost, brand, and colour of product and batch number of the products that was sampled. The samples were analyzed according to standardized international protocols by wet digestion method (Using HNO₃, HClO₄, H₂O₂) analyzed by Atomic Absorption Spectrophotometer in Research Laboratory in Pharmaceutical Sciences Branch, Islamic Azad University. Lead and cadmium detected in all colours in wide range of concentrations. The red and orange colour had highest concentration of lead, while green had lowest concentration of lead. The white and green colours had highest concentration of cadmium. Estimating the safety assessment of cosmetic products such as tattoo inks is a complex issue. There is little understanding of what happens when inks are broken down in the body. Evaluating exposures is also an area of significant uncertainty. Enhanced knowledge, characterization and standardization and banning fake and cheap tattoo inks are suggested.

Keyword: Tattoo Ink, Colour, Heavy Metals, Lead , cadmium, Toxicity .