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Analysis of the content and leaching tendency of Magnesium (Mg), Zinc (Zn) and Cesium (Cs) from clays into the water

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Clay is an economically valuable earth material which is found in a large number of certain locations around the world. In the utilizations of this earth resource, it is used in the preliminary purposes such as the pottery industry and roof tile manufacturing even though it would be much applicable material/agent for the sake advanced uses because of the variations in the physic-chemical characteristics of most of different clay verities foremost of the adsorption. The investigations of the leaching of some metallic elements to water were the aims and objectives of the existing research component prior to the choosing for the water treatment systems. In the existing research there were experimented three different types of clay types available in Sri Lanka. A few of clay samples from each of clay was dissolved in distilled water and prepared a batch of solutions after filtering each of them. The prepared solutions were analyzed using Atomic Absorption Spectroscope (AAS). As the general outcomes of the relevant analysis, there were obtained 1.8640ppm, 3.1952ppm and 1.1408ppm of Mg in anthill clay, brick clay and roof tile clay. Also there were not obtained neither Zinc nor Cesium in anthill clay, brick clay and roof tile clay. When comparing of the obtained results with the Sri Lankan drinking water quality norms there were found some non-hazardous conditions as the maximum permissible limits of Magnesium (Mg) and Zinc (Zn) for drinking water are 150ppm and 15ppm. The long term effects on the human health as results of the long term contaminated/ non-recommended water consumption and accumulation of such elements.

Keywords: Anthill clay, Brick clay, Roof tile clay, Leaching, Magnesium, Zinc, Cesium.

Biography

Suresh Aluvihara received his first-degree B.Sc. (Hon's) in 2017 from a recognized government university in Sri Lanka. He studied Earth and Mineral Science and Technology for his bachelor's degree. After that, he commenced his postgraduate studies at the Department of Chemical and Process Engineering, the University of Peradeniya under the disciplines of Environmental Engineering, Water Engineering and Chemical and Material Engineering. Currently, he is working towards his postgraduate research activities. He has published a large number of research papers in high indexed journals, reputed conferences and symposiums as abstracts, full papers and scientific reports including the role of keynote speeches including outstanding experiences in reviewing and editorial works. In addition, he has been awarded as the best young scientist and as the best scholar in a few of the recognized awarding schemes held in the year 2022.

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