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ENV/03

Some Quality Parameters of Salt, Water and Soil Samples from Some Selected Areas in the Jaffna Peninsula

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Salt is the most widely distributed inorganic chemical throughout the world and life without salt is improbable. The aim of this project is to analyse quality of the salt of selected areas in Jaffna peninsula to find out the polluted level closely related with the soil and water by measuring their physical and chemical properties. Five areas for salt and seven areas for soil and water were selected for the analysis. Each selected area is further divided into five areas and samples were taken from these areas. Among the physico-chemical properties pH, colour, taste, chloride, sulphate, calcium, magnesium, sodium, potassium, phosphate, iron, total alkalinity and total solids were analysed.

Our salt analysis showed that the calcium and magnesium quality problem exists in all the areas. This can be explained on the basis of the location of Jaffna. The pH values of all the salt samples ranged in safe level as 7.4 to 8.4. In most of these salt samples, the total alkalinity observed below the standard level except Vallai area. The major component of salt is sodium and chloride. Most of these samples show higher than the standard level of the chloride. The sulphate content of most areas is found in higher level than the standard values. Chemmani and Uppuveli areas showed higher sodium content than the standard level, meantime the potassium content is found in the safe level. Our analysis showed that the phosphate and iron quality is found below the standard level. The salt qualities in all the salt samples (except Thanuvi) are chemically safe for consumption. But there are some visible impurities present due to the plantation. The water and soil samples were selected from near these salt bund areas. The pH values of the water samples and soil samples were found to be in the range of 6.8 to 8.3. In most of these water samples the total solids were below the safe level. The water and soil samples from Chemmani area showed high value of total solids. The analysis of water and soil shows that, chloride, sodium, potassium and sulphate are above the safe level in all areas. It is safe for the human consumption except drinking purposes. Calcium and magnesium quality problem exists in all these area's water and soils. Phosphate and iron were found below the safe level in water as well as in soil samples.

The correlation analysis between water and soil samples in pH, chloride, calcium, magnesium, sodium, potassium are closely related to each other (70%-82%) and other parameters weakly related to each other (40%-70%). Most of the parameters correlated well in the water and soil samples. Meantime during the investigation period, irregular rainy season was observed. Therefore some quality parameters showed irregular changes.

Key words: Salt, Water, Soil, Physical and Chemical properties, Jaffna

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