

ENRICHING THE WATER QUALITY USING NATURAL ROCKS AND MINERALS

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Abstract

The increasing of population and other development activities create pressure on available water resources in the country. Thinking alternative and feasible water sources became a valuable factor meet present and future water demand. As an alternative of drinking water, people have used rain water. Rain water, distilled water and reverse osmosis water lack of minerals. The people who are missing certain minerals in drinking water face to various health effects.

Minerals can be added back to mineral free water using natural rock samples. Mineral free water passed through the rock sample it has acquired many dissolved species.

This study evaluated the selected minerals in the distilled water. All anions and cations ion concentrations in the dolomite (D), feldspar (F) and gypsum (G) samples studied were found to be below the national and international standard limits. All Samples are not in detectable level. The pH level 5-8.5, recommended by the Sri Lankan drinking water Quality standard.

SO_4^{2-} and Na ion concentrations were very low compared with national and international standard limits. Dissolve ion concentration values are depending on amount of the material and pH variations. SO_4^{2-} and Na ions were less soluble with pH variation. The CO_3^{2-} ion concentration was varying in range of 60 to 156. That level was preventing hardness in water.

Most suitable pH level is 7. The pH 7 samples had SO_4^{2-} concentration of 3.05 mg/L, recommended by the WHO drinking water Quality standard and Sri Lankan drinking water Quality standard. Total Hardness in pH 7 studied samples were 120 mg/L, recommended by the Sri Lankan drinking water Quality standard. As same as ion concentration of Na is 4.2452 mg/L, recommended by the WHO drinking water Quality standard. There are not available national and international standard limits for Ca, Mg, and K in drinking water. As a result of that cannot concluded Ca, Mg and K ions in water samples. The optimum pH condition is 7. According to results the pH 7 samples are not in detectable level. Those ion concentrations are most suitable for

drinking purposes. According to the final conclusion method of the research was success for enrich water quality with natural rock samples.

The study evaluates the selected macro minerals in the water commonly treated in this method and it help to prevent the occurrence of mineral toxicity due to drinking water.