

ANALYSING THE DRINKING QUALITY OF REVERSE OSMOSIS AND MINERAL WATER IN ANURADHAPURA AND MIHINTALE, SRI LANKA

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Reverse Osmosis (RO) filters are used in many places like government and private sector institutes, shops for water businesses, and local households. However, the quality of water filtered through RO plants must be checked to continue the filter system for sustainability. Also, the quality of bottled mineral water is optimized during the manufacturing process to ensure its quality. This study investigated the drinking water quality of water filtered by RO plants and mineral water brands available in the market. The selected chemical parameters were studied and compared with Sri Lankan drinking water quality standards to identify the more suitable water source for human consumption. Water samples were gathered from three distinct categories of RO plants: commercial, institutional, and local household. In total, 30 samples were collected. Additionally, 10 water samples were collected from different brands of bottled mineral water. Data on water quality analysis of all the RO water and bottled mineral water were compared with the drinking water quality standards approved by the Sri Lanka Standards Institution (SLS). Further, the quality of bottled mineral water and RO water was determined. The data were analysed by descriptive statistics using MINITAB 16 software with one-way ANOVA test at the probability level of 0.05. The mean separation was done by the Bonferroni method. According to the results, only pH and Dissolved Reactive Phosphorus (DRP) had significant differences ($p < 0.05$) between RO water sources and mineral water. In contrast, other parameters, TDS, Alkalinity, and availability of nitrate-N, Ca, Mg, As, and Zn, had no such differences ($p > 0.05$). However, all the chemical water quality parameters analysed in RO and mineral water sources were within SLS guidelines, thus ensuring drinking safety.

Keywords: Mineral water, RO water, SLS standards, Water quality parameters