

Comparative assessment of advanced membrane treatment of municipal wastewater for reuse in Kuwait

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ABSTRACT

This study compared characteristics of municipal sewage treated up to advanced level, using ultra filtration and reverse osmosis (UF + RO) membrane filtration, to that treated up to conventional tertiary level. Data from Kuwait's municipal wastewater treatment plants were used to assess the two types of effluents which are used as irrigation water in Kuwait. Obtained results revealed that conventional membrane treatment deprives the water from the essential nutrients and results in loss of higher amounts of water (>15%) than tertiary treatment (4%). Considering these observations, for agricultural irrigation, tertiary effluents should be preferred over conventional RO effluents. However, the advanced effluents can be utilized beneficially in other suitable urban, industrial or environmental applications.

Keywords: Municipal wastewater; Tertiary treatment; Advanced treatment; Reuse

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