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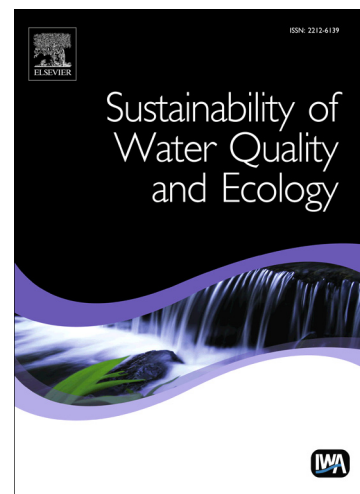
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Identification of a water quality indicator for urban roof runoff

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Abstract

Control and management of stormwater volume and water quality is an important concern in Iran and there is little or insufficient scientific information in assessing domestic roof harvested rainwater quality by suitable indicators. The objectives of this study were (1) to determine water quality factors which vary significantly with roof materials and first flush, (2) to select an indicator from these factors that can be used for water quality monitoring in roof runoff and (3) to find out whether a relationship exists between the resulting roof runoff water quality (WQI) and air quality parameters. Factor analysis (FA) was used to identify water quality factors and discriminant analysis (DA) was used to determine the factors and an indicator most sensitive to first flush and posterior roof runoff within mosaic tile and bitumen roofing material. Therefore, seven water quality parameters were measured in 28 runoff samples collected from two mosaic tile and bitumen roofs in seven rainfall events. FA identified three factors that explained 82.8% of the variation in water quality parameters. Discriminant analysis selected

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