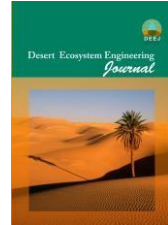




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Investigation of landform and Normalized Difference Vegetation Index (NDVI) value in geological formations to determination of their sensitivity to erosion (case study: north of Darab city)

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Abstract

One of the important factors affecting on the erosion is lithological characteristics in the watershed. Due to the characteristics of the watershed can be considered reaction of rock to the process of weathering and erosion in the study. In the research of erosion and soil conservation investigate the lithological characteristics of the study area is very important. According to the study area (north of the Darab city) is located in arid and semi-arid and it is able to water erosion, the aim of the study area is investigation the characteristics geological formations, determination of sensitive the area to water erosion in the northern of Darab city. Also, in the research, relationship between lithological characteristics and Normalized Difference Vegetation Index (NDVI) was determined. After preparing the geology map and determining the type of formations in the region, based on resource was obtained sensitivity of formations in the study area. Finally, relationship between NDVI and sensitivity of geological formations to water erosion using Landsat 8 images in 2015 was determined. Also, for preparing the landform map used topography position index (TPI) in the study area. The inputs data for preparing the TPI was slope, min curvature, max curvature, plan and profile. The results showed that there were 4 classes of sensitivity that consist of low sensitivity, medium sensitivity, high sensitivity and very high sensitivity in the study area. So that 40.22, 26.81, 20.11 and 13.41 km² were in classes of low sensitivity, medium sensitivity, high sensitivity and very high sensitivity to water erosion respectively in the study area. Also, the results showed that EMas-ja with low sensitivity had the highest NDVI (0.457). So, the EMas-ja was suitable for growing of vegetation and had low erosion in the study area. The results showed that the study area was classified ten classes that consist of canyons, deeply incised streams, midslope drainages, shallow valleys, upland drainages, headwaters, u-shaped valleys, plains small, open slopes, upper slopes, mesas, local ridges/hills in valleys, midslope ridges, small hills in plains, mountain tops, high ridges. The highest area of landform was canyons, deeply incised streams (44.36%) and mountain tops, high ridges (33.38%). While the lowest area of landform was plain small (0.12%).

Keywords: Geological Formations, Water Erosion, NDVI Index, Index TPI Index, Darab City.

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