

## Abstract

Over winter flash floods cause erosive activities in the basins and adjacent agricultural areas in the semi-arid parts of the Negev Desert of Israel. This has led to the formation of waterfalls (gullies) that erode streams. Consequently, this has caused the loss of soil nutrients over time. Soil erosion in conjunction with human activities has greatly contributed to desertification in this part of the Negev. We set out to examine the effects of soil erosion and agricultural practices in seventeen eroded sites in northern Negev Desert. Organic carbon increased along a moisture gradient, being lowest in areas receiving 200 mm and highest where rainfall is over 300 mm per year. Nature reserves had higher organic carbon than cultivated areas. Salinity was highest in the nature reserve sites and irrigated areas because of accumulation of bases resulting from reduced leaching and continuous supplies of heavy metals from brackish water used in the irrigation system, respectively. Water holding capacity was higher in nature reserve soils than in cultivated areas, whereas eroded sites contained bigger soil particles than uneroded ones.