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Kermes oak patchies control soil erosion on Mediterranean slopes

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Kermes oak (Quercus coccifera L.) is a large shrub that can reach 6 meters in height but usually is shorter than 2 meters. This dense evergreen, spiny-serrated leaves and dense scrubland is the most widespread in the maquia of western Mediterranean basin. Sprouting is the main strategy to recover after the recurrent Mediterranean fires and this make that the plant cover takes place in a patchy like-mosaic distribution of bare areas and vegetated ones (1 to 10 m in diameter). The sprouting results in a fast recovery after the fires and they can control the soil and water distribution. Measurements by means of simulated rainfall were carried out at the Serra Grossa (eastern Spain) on the vegetated patches and on the bare inter-patch sites at 55 mm h-1 during one hour on 0.25 m2 plots to determine the hydrological and erosional response of vegetated and bare patches. Runoff and sediment concentration was determined at 1 minute interval. The results show a contrasted runoff and sediment generation on the vegetated patch were the shrub density was high (vegetation cover > 90 %) and the inter-patch bare surfaces which contributed with 23 % of surface runoff. Sediment yield was low due to the effect of rock fragment covers. The main conclusion is that Quercus coccifera patches are a key factor on soil erosion and runoff generation on Mediterranean slopes.
Key words: Kermes oak, Quercus coccifera L., Soil Erosion, Runoff, Mediterranean