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Microbial biomass changes in Mediterranean burnt forest soils

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After a wildfire at Central system (Madrid, Spain) the flush of microbial biomass was studied in soils beneath Quercus pyrenaica and Juniperus oxycedrus. Soils samples were collected at 2, 8, 16 and 22 months after the fire, and were taken in autumn and spring of each year. Adjacent unburned soils samples were taken as control soils. Dissolved organic C and extractable P were determined by fumigation-extraction method and extractable N by fumigation-incubation method.

No conversion factor was used for the calculations.

Changes over time of fire on microbial biomass were studied. At 2 months after wildfire dissolved organic C, extractable N and P increased significantly in soils beneath Quercus, due to a higher disponibility. Nevertheless these increases were short-lived and became statistically not significant at 8 months. A parallel decrease below the control values of microbial N and P flush were observed after wildfire. This contrast with the increase of microbial biomass C flush.

The tendency of burned soils is to return to control values within one year after the fire. No differences between burned and control soils was observed with regard the time.

Key words: Forest fire, Mediterranean area, dissolved organic C, extractable N and P