

Study on the changes of soil chemical characteristics as result of prescribed fire

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Every year, particularly during the summer period, the Portuguese forests are devastated by forest fire that destroys their ecosystems. So in order to prevent these forest fires, public and private authorities frequently use methods for the reduction of combustible mass as the prescribed fire and the mechanical vegetation pruning. All of these methods of prevention of forest fires alter the vegetation layer and/or soil [1-2].

This work aimed the study of the variation of some chemical characteristics of soil that suffered prescribed fire. The studied area was located in the Serra of Cabreira (Figure 1) with 54.6 ha. Twenty sampling points were randomly selected and samples were collected with a shovel before, just after the prescribed fire, and 125 and 196 days after that event. The parameters that were studied were: pH, soil moisture, organic matter and iron, magnesium and potassium total concentration. All the analysis followed International Standard Methodologies.



Figure 1:
Serra of Cabreira before prescribed fire

This work allowed to conclude that: a) after the prescribed fire; i) the pH remained practically equal to the the initial value; ii) occurred a slight increase of the average of the organic matter contents and iron total contents; b) at the end of the sampling period compared to the initial values; i) the pH didn't change significantly; ii) the average of the contents of organic matter decreased; and iii) the average of the total contents of Fe, Mg and K increased.

References:

[1] Direcção de Unidade de Defesa da Floresta (2008). *Áreas ardidas e ocorrências em 2008*. Autoridade Florestal Nacional. Lisboa.

[2] Rego, F. C.; Botelho, H. e Ruas, L. (1993), Final Report of STEP project, *Forest fire prevention through prescribed burning: experimental study on fire effects on litter and soil*, UTAD, Vila Real.