



Thermal shock effect on aluminum leaching in a forest burnt soil: a laboratory simulation study

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The main of this study is to analyze the influence of fire severity on soil aluminum (Al) leaching. For this purpose, unaltered blocks of forest soils were subjected to thermal shock and subsequently to rain simulations. The thermal shock was performed in topsoil (1cm) by the action of infrared lamps, which allowed to reproduce similar temperatures to those reached in moderate and high severity fires (220 and 430°C, respectively). The rain simulations were carried out in two different stages with duration of two hours and intensity of 150 mm/h. This high rain intensity was employed to obtain the maximum leaching. The results showed that the Al leaching was increased with increasing fire severity. Visual Minteq analysis (Gustafsson, 2000) let to determine that Al was primarily mobilized bound to dissolved organic matter, so in complexed form as joined by weak electrostatic bonds. The most intensive thermal shock, in which the highest alkaline conditions occurred, exhibited an appreciable Al mobilization in inorganic form.