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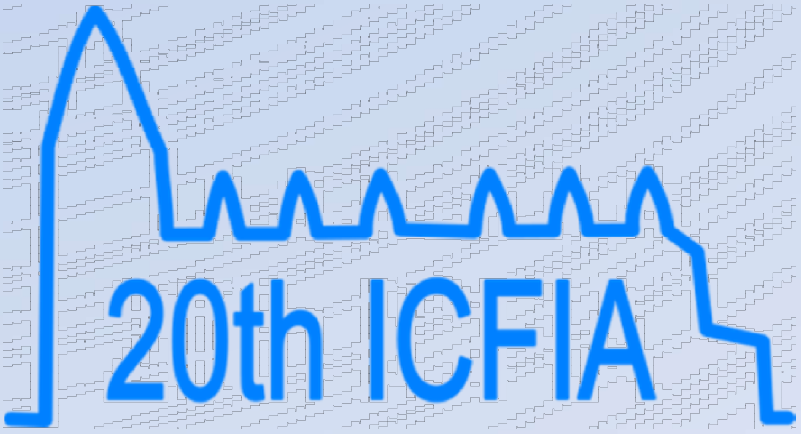

1P30

Developing integrated flow analysis tools to monitor the soil-water interface: Application to laboratory scale soil columns (LSSC)

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Monitoring soil leaching of nutrients and contaminants has become fundamental for environmental and agricultural studies. With the growing concern on soil contamination, and the increasing awareness of inorganic and organic contaminants effects on environmental and soil quality, studying soil leaching is vital to assess contaminant concentrations and to monitor nutrient levels. The leachates from soil have a huge impact on the quality of surface and ground waters. Conventional soil testing can hardly keep up with this ever-increasing demand of sample analysis as it is based on manual or mechanical soil sampling and atomic absorption/emission spectroscopy detection, leading to costly and time consuming assays. Additionally, the mentioned spectroscopic techniques only provide information on total elements content.

In this context, this work aimed to initiate tackling this issue by setting a laboratory scale soil column (LSSC) and developing a flow analysis method for soil leachates characterization. The LSSC was set with soil cores from different locations and loaded with rain water. The target parameters were total hardness and alkalinity. The developed SI methodology was used for assessing the rain water before and after going through the LSSC. Afterwards, being iron an important micronutrient, simulations of iron supplementation were made by adding an iron chelator to the loading rain water. Again the rain water before and after going through the LSSC was assessed with the developed SI method.

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