

Changes of pH and EC in alkaline sediments in the context of water content, southern Hungary

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The salinization is one of the most important terraforming processes and its research has long history in Hungary (Abrol *et al.*, 1988; Kádár, 1995; Szendrei, 2006; Tóth, 2005). The natural ancient alkaline areas are in danger, because of the water management in the 19th century, and the agriculture and climatic change (Boros, 1999; 2010). These areas have an individual ecosystem, which is very sensitive to environmental changes (Zhang *et al.*, 2013). It is important to know all the geochemical processes which are forming the typical landscape of these areas because of the more effective protection.

Our aim was to define the changing of pH (active and potential acidity) and the EC in the sediments of the Lake Fehér near Kardoskút, Southern Hungary (Fig. 1). Two sampling dates were chosen to analyse the changing of these two parameters. The sampling dates were designated on the basis of the water content of the sediments. The first sampling time was in the summer of 2012 and the second one was in the autumn of the same year.

The study area was designated representatively. We have chosen a typical alkaline area on the shore of the Lake Fehér of Kardoskút. It has high evaporation rate and saline efflorescence appears in the summer.

We investigated the water content, the particle size, the pH and the EC of the alkaline sediments. Two drill cores were taken; one in the summer and one in the autumn of 2012 and each was 1m deep. The cores were analysed with 5cm resolution.

The upper 25-30 cm of the sediment of Lake Fehér has intensively changed during the year. The whole drill core consists of coarse silt. The top of the lake sediment totally dries out to midsummer and the soluble substances leave with the capillary upflow water and appear on the ground as saline efflorescence. The hiatus of the salts of alkaline hydrolysis in the upper 25-30 cm of the sediment is supported by the pH and EC values. This trend which exists during the dry months changes after the autumn rainfalls. The intensive precipitation takes the precipitated salts to solution and washes them back into the sediment.

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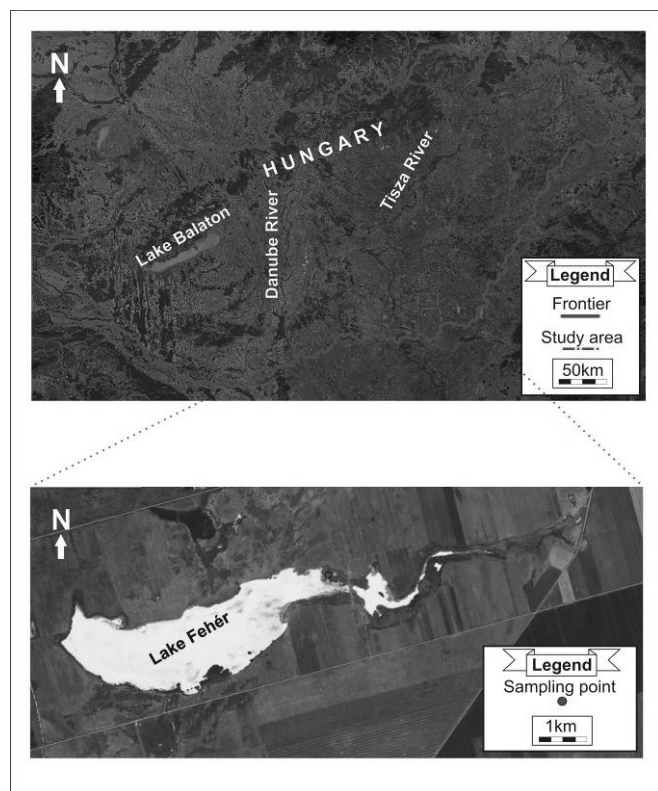


Fig. 1.: The study area