

pH and Outdoor Education- the example of the Hromnice Lake and the Kladská Peat Bog

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Abstract

The paper is focused on the description of the outdoor teaching project preparation with the topic of pH. The different available methods usable for in-situ pH determination were addressed. The problems that may arise when measuring in real natural samples were discussed too.

Two interesting sites in western Bohemia were chosen. The Hromnice lake, which was formed on a tailings dump after vitriol shale extraction, is an example of extreme properties of the water. Due to its origin it has a significant content of ferric sulphate and free sulphuric acid. pH of about 3 corresponds to the content of these. Determination of pH by pH-paper is problematic due to interference of ferric ions. The high conductivity corresponds to the salt content, and presence of ferric ions can be proved easily in the water sample. The relationship with geology and biology is also significant in this project, as is the overlap with the history of the chemical technology.

The peat bog near Kladská is another example of the extreme environment. It is an upland peatland. The water has a typical colour due to humic acid content, low pH and also a low mineral content. There is also a significant relationship to biology (typical flora and fauna, occurrence of carnivorous plants).

The described projects are also useful in interdisciplinary education combined chemistry with other subjects (geography, biology). In connection with the topic of pH, they are the suitable projects for secondary schools, but they can be used also for primary school pupils with a reduced scope of knowledge.

Keywords

Outdoor education, project teaching, pH