STUDY OF ALUMINIUM SULPHATE COMPLEXES OF SURFACE WATER AND FRACTIONATION OF ALUMINIUM FROM BOTTOM SEDIMENT

MARCIN FRANKOWSKI, ANETTA ZIOŁA-FRANKOWSKA, JERZY SIEPAK

Abstract: The paper presents results of aluminium concentration determination in the samples of surface water and bottom sediments of the Mała Wełna River (West Poland). In the surface water the concentration of aluminium varies in the range from 4.14 to 25.9 µg/dm^3. With use of the Mineql+ program the concentration of the aluminium sulphate complexes in the water samples studied has been determined in a model way. In the bottom sediments samples of the river aluminium has been determined in the granulometric fractions of the grain sizes > 2.0; 2.0–1.0; 1.0–0.5; 0.5–0.25; 0.25–0.1; 0.1–0.063; < 0.063 mm, using the sequential extraction scheme proposed by Tessier *et al*. The lowest concentration of aluminium has been found in the granulometric fraction 0.5–0.25 mm, while the highest in the fractions 0.1–0.063 and < 0.063 mm. An elevated concentration of aluminium has been also noted in the fraction > 2.0 mm. Taking into regard the chemical fractions the lowest concentration of aluminium has been found in the exchange fraction and the fraction bounded to carbonates (fractions I and II), whereas the highest concentration of aluminium has been determined in the lithogenic fraction (fraction V). The methods of sample preparation for analysis of aluminium in bottom sediments were compared. It was observed that higher concentration of aluminium was present in grounded samples without its influence on grain size fractions. The concentration of aluminium in surface water samples has been determined by the GF-AAS, while in bottom sediments by F-AAS.