

Chelation of iron, recovered from waste horticultural mineral wool, by EDDHA

Chelatacja żelaza, odzyskanego z odpadów ogrodnich wełny mineralnej, z użyciem EDDHA

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In soilless crops most commonly used mineral wool. The advantages of its use are: ease of cultivation, inert nature, and ease of rooting in the plant. The plants are supplied with liquid fertilizers, rich in nutrients. The compounds inter alia rich in nitrogen, phosphorus, iron enters the solution of fertilizer to the ground. Mineral wool after the crop is troublesome waste that is not disposed of and landfilled.

Conducted research aimed at finding uses for mineral wool waste and recover nutrients. The proposed solution is to use it to produce the substrate or liquid fertilizer.

The aim of the study was to determine the degree of complexation of iron recovered from the horticultural mineral wool waste, the chelating agents complexed to the ligand used ethylenediamine- *N*, *N'*-di [(*ortho*-hydroxyphenyl) acetic acid] (*o*, *o*-EDDHA). Measurements were carried out using differential pulse voltammetry at pH 6 in water. The degree of complexation by the ligand micronutrient defined in EU regulation, which states that at least 80% of the declared, water-soluble micronutrient content must be chelated form.

As a result of analysis voltamperogramm obtained (Fig. 1). Iron ions have been complexed with 95% in a molar ratio of ligand to metal equal to 1: 1.

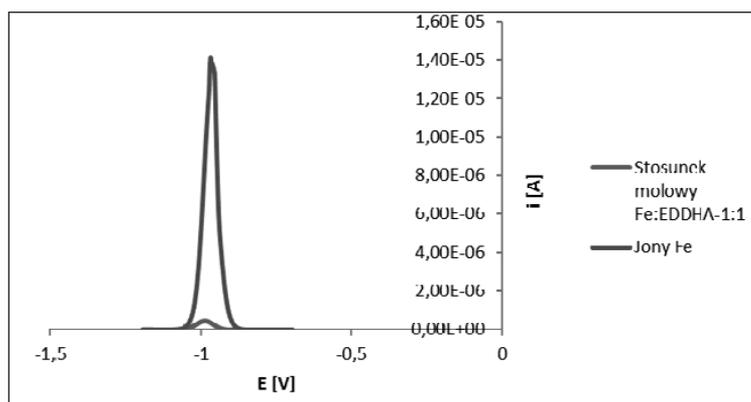


Fig. 1. Voltamperogramm of iron ions and EDDHA

The degree of complexed iron ions is more than 80% at a molar ratio of metal-ligand of 1: 1. The high degree of complexation will allow for efficient recovery of trace elements from waste horticultural mineral wool. The use of EDDHA possible to stabilize iron ions in wide range pH. Fertilizer based on such chelate can be used on alkaline soils.

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