

The Application of Spent Ion Exchangers as K-Carriers in Restoration of Degraded Soils – Model Studies
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Summary

The present studies aimed at comparing the effect of the potassium monoionic form (prepared from a model spent ion exchanger) and a conventional potassium fertilizer (KCl) on plant vegetation after addition to depleted soil. To achieve the study aim a pot experiment using orchard grass (*Dactylis glomerata* L.) as the test plant was carried out. The vegetation cycle lasted seven weeks. The plants were grown on four series of media: on untreated soil, on soil with added monoionic K form, on soil with added KCl and on soil with Biona-312 substrate added (2% v/v). Biona-312 served as the control fertilizer containing all macro- and microelements. The application of monoionic potassium form positively influenced orchard grass vegetation. The addition of K form into soil increased stem wet and dry biomass, root dry biomass and total dry yield by 15, 10, 13 and 12%, respectively. Bearing in mind that the amount of dry plant matter as source material for humus formation is crucial in soil reclamation, the effectiveness of potassium monoionic form was found to be similar to that of the mineral fertilizer – KCl. Biona-312 was the most efficient fertilizer used in the study, resulting in the greatest yield of *Dactylis glomerata* L.