RESEARCH REGARDING BIOREMEDIATION OF THE SOIL POLLUTED WITH PETROLEUM HYDROCARBONS, IN THE GREEN HOUSE

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Abstract

On the background where no absorbent was used, the highest rate of degradation of the petroleum hydrocarbons (47%) was attained in the variants treated with the AH-SH fertilizer, the highest rate of degradation of the hydrocarbons (45%) on a background without absorbent was attained in the variants treated with potassium humate and microelements along with the bacterial inoculant. Upon utilization of 16 t/ha peat as absorbent without using any microbial inoculant, the highest rate of degradation (43%) of the petroleum hydrocarbons was attained following the fertilization with AH-SG1, upon application of the bacterial inoculant, the highest rate of degradation of the petroleum hydrocarbons (47%) was provided by fertilization with AH-SG2. Upon application of a 16 kg/ha dose of Zeba absorbent without any bacterial inoculant, the highest rate of degradation (47%) of the petroleum hydrocarbons, 45 days after the application of the treatments, was provided by the fertilizer AH-SG2. Upon treatment with 16 kg/ha Zeba absorbent and application of the bacterial inoculant, the highest rate of degradation (52%) was provided by the fertilizer AH-SG1. The second highest rate of degradation, 51%, was provided by the fertilizer AH-SG1. Upon application of 32 kg/ha Zeba absorbent without any bacterial inoculant, the best results in the bioremediation process were obtained following the treatment with the fertilizer AH-SG2 in a dose of 650 l/ha plus 64 kg/ha glucose. In these variants, the level of the petroleum hydrocarbons dropped by 59% after just 45 days of treatment or 60 days after the pollution. Upon application of 32 kg/ha Zeba absorbent along with the bacterial inoculant, the highest rate of degradation of the petroleum hydrocarbons (54%) was provided by the fertilizer AH-SG1. The second highest rate – 53% – was provided by the fertilizer AH-SG2.

Key words: petroleum hydrocarbons, bacterial inoculant, liquid fertilizers, absorbents, bioremediation