Utilization of Rice Hull as a New Substrate for Turf Grass Seed Germination in Sod Production as a Sustainable Approach

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Abstract

Sod culture is one of the important methods in establishing and repairing of turf grass, especially in sport fields. Nowadays, a mixture of sand and peat are commonly used in sod production in Iran. Because peat media is expensive, it seems necessary to find an alternative medium. Rice hull, tea waste and leaf compost as economical organic material that are available in huge loads in north of Iran. The objective of this study was to evaluate the utilization of low cost organic matter on seed germination and uniformity of turf grass in sod production. Therefore a completely randomized design with 3 replications and 6 treatments: 1- mixture of leaf compost and sand (1:1) (v:v), 2- tea compost and sand (1:1) (v:v), 3- sand, 4- mixture of rice hull and sand (3:1) (v:v), 5- mixture of treatments 1, 2, 3, 4 and 6- petri dish as control was carried out in the experimental field of agricultural school of Islamic Azad University, Chaloos branch during summer 2008. Turf grass species used was Lolium prenne. According to the results, it was revealed that the effect of different substrates was significant on seed germination percentage (p≤0.05). Results showed that mixture of rice hull and sand (3:1) (v:v) increased germination percentage over other treatments. This was probably related to high water retaining capacity and well aeration of rice hull. Furthermore, the lowest and highest uniformity rate was related to mixture treatment and sand media, respectively. It generally seems that these waste products can be used for this purpose economically and sustainably.

Keywords: Agricultural waste, Rice hull, Seed germination, Sod turf grass production, Uniformity.