EFFECTS OF CHICKEN FEATHER HYDROCHAR ON SEED GERMINATION IN AN ALKALINE SOIL

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Abstract - Hydrochar produces by hydrothermal carbonization is suitable for soil amelioration and enhanced plant growth. But research related to hydrochar application as soil amendment is lacking in the tropical region. The study was conducted in the nursery of Forestry and Wood Technology Discipline of Khulna University, Bangladesh to assess the impact of various treatments of hydrochar and phosphorus on tomato seed germination and seedlings growth.Chicken feather was used as feedstock for preparation of hydrochar through hydrothermal carbonization. The fifteen treatments were applied such as control, phosphorus treatment (10 and 20ppm), hydrochar treatment (2.5, 5,7.5 and 10 t ha^{-1}) and each hydrochar with P treatment. Complete randomized block design (CRBD) was followed as experimental design with five replicates. Data were analyzed by using Tukey HSD post hoc test followed by ANOVA. In case of germination percentage only hydrochar and hydrochar with phosphorus treatments showed significant ($P<0.05$) decrease compared to control. The 10t ha^{-1} application rate of CFH and 5 t ha-1CFH with 20 ppm P,7.5 t ha-1 and 10 t ha-1 CFH with both P treatments showed significant($P<0.05$) decrease in seed vigor than control. These results suggest that low rate of CFH and CFH with P treatments had no effects on seed germination and seed vigour.

Keywords - Chicken Feather, Hydrothermal Carbonization, Hydrochar, Seed Germination, Seed Vigour