

STUDIES ON PROPAGATION THROUGH STEM CUTTINGS AND EFFECT OF BIOFERTILIZERS ON GROWTH OF *OCIMUM KILIMANDSCHARICUM* G. IN ODISHA CONDITION

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ABSTRACT

The present investigation “Studies on propagation through stem cuttings and effect of biofertilizers on growth of *Ocimum kilimandscharicum* G.” was carried out with the objective to study the propagation of *Ocimum kilimandscharicum* through cuttings and the effect of different biofertilisers on its biomass yield.

In the first experiment the effect of IAA and IBA in different concentrations (50 ppm, 100 ppm, 200 ppm, 400ppm, 500ppm, 1000ppm, 2000ppm and Control) on rootings and growth parameters of apical and middle portion cuttings of *Ocimum kilimandscharicum* G. in two different lengths of 10 cm and 20 cm was studied. Middle portion Cuttings of 20cm length treated with 2000 ppm IAA showed maximum no.of leaves per plant (94.00), root length (28.50cm), fresh root biomass (3.83 g), oven dry root biomass (1.00g), fresh shoot biomass (33.86g), oven dry shoot biomass (5.58g), total fresh biomass(37.69g) and total oven dry biomass (6.58g). However, Collar diameter (0.50cm) was found to be statistically at par with the maximum value (0.53cm). The cutting type also shows high sprouting percentage (83.66%), plant height (60.50 cm), rooting percentage (80.00%) and no. of branches per plant (3.00).

In the second experiment, the effect of various biofertilisers, organic and chemical fertiliser on growth and biomass yield of *Ocimum kilimandscharicum* was studied. Eleven different treatments were applied to seedlings raised in separate plots of size 1.2m x 1.0 m at spacing of 40cm x 30cm with various doses of biofertilisers, organic, chemical fertilizer and without any fertiliser. Among all treatments plants treated with T₃ gave maximum collar diameter (1.35cm), number of branches (15.50), no.of leaves per plant (356.50), fresh leaf biomass per plant (79.16g), fresh stem biomass (300.56g), total fresh biomass (425.28g), fresh leaf biomass yield per hectare (6.59 tonne), oven dry stem biomass (163.69g), total oven dry biomass (201.55g) . Plant height (107.81cm), Root length (35.83cm) recorded for T₃ are found to be statistically at par with maximum values of plant height (110.40cm) and root length (36.16cm) respectively. It also records higher values in fresh root biomass (45.56g) and oven dry leaf biomass (18.05g). Among biofertilisers and its combinations, Plants applied with T₈ recorded highest Plant height (110.40g), Collar diameter (1.29cm), root length (35.83cm), fresh root biomass (57.80g), fresh leaf biomass (71.65g), fresh stem biomass (238.92g), total fresh biomass (368.37g), fresh leaf biomass yield per hectare (5.97 tonnes), oven dry root biomass (29.33g), oven dry leaf biomass (20.42g), oven dry stem biomass (140.27g), total oven dry biomass (190.02g) and oven dry biomass yield per hectare (1.70 tonne) . No.of branches (11.33) and no. of leaf (253.77) were also observed higher values for the respective plant characters among all treatments of biofertiliser applications.

KEYWORDS: Fresh Root Biomass, Oven Dry Root Biomass & Rooting Percentage

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