

EFFECT OF PGPR ON THE GROWTH OF KASTURI TOBACCO (*Nicotiana tabacum* L.) UNDER CONVENTIONAL CULTIVATION

Muhammad Ma'ruf A. T
Plantation Plant Cultivation Study Program
Department of Agricultural Production
Politeknik Negeri Jember

ABSTRACT

This study aimed to evaluate the effect of Plant Growth Promoting Rhizobacteria (PGPR) application on the growth of Kasturi tobacco plants (*Nicotiana tabacum* L.) under conventional cultivation and to determine the optimal PGPR dosage for enhancing plant growth. The research was conducted in Krajan Hamlet, Sumberpinang Village, Pakusari District, Jember Regency, from July to October 2025, using a Non Factorial Completely Randomized Design (CRD) with five treatments and four replications: P0 (control without PGPR, using urea, ZA, and NPK fertilizers), P1 (35 mL/L), P2 (70 mL/L), P3 (105 mL/L), and P4 (140 mL/L). The observed parameters included plant height, stem diameter, number of leaves, leaf length, leaf width, and leaf area. The results showed that PGPR application did not significantly affect plant height, stem diameter, and number of leaves at 21, 35, and 63 days after transplanting (DAT), but had a significant effect on the number of leaves at 49 DAT and on all leaf parameters at 77 DAT. Polynomial contrast analysis revealed that leaf growth responses to PGPR were nonlinear, with optimal dosages varying among parameters, ranging from 98 to 124 mL/L. The dosage of 105 mL/L (P3) represented the most balanced treatment, as it enhanced nearly all leaf growth parameters without causing performance decline as observed at the 140 mL/L dosage. These findings indicate that PGPR has potential as an alternative or complementary input to chemical fertilizers in sustainable Kasturi tobacco cultivation when applied at an appropriate dosage.

Keywords : Conventional cultivation, kasturi tobacco, optimal dose, PGPR

