

***Diah Sudiarti, 2012, The Effectiveness of BIOFERTILIZER And NPK On Tobacco (Nicotiana tabacum) Growth And Productivity, THESIS, On the direction of Dr. Ir. Tini Surtiningsih, DEA and Dr. Ni'matuzahroh., Department of Biology Faculty of Science and Technology, Airlangga University, Surabaya.***

*This study to determine the effectiveness of the giving BIOFERTILIZER, NPK, and combination of both to increase of tobacco growth and productivity. Microbial consortia used consists of Lactobacillus, Pseudomonas, Bacillus, Saccharomyces, Rhizobium, Azotobacter, Azospirillum and Cellulomonas. This research is experimental using 4x4 factorial design, which consists of two factors. Factor B is the concentration of microbial consortia with 4 level (0, 5, 10, and 15 mL / plant) and the K factor consists of NPK with 4 level (0, 25, 50, and 75% / plant). So there are 16 combined treatment, as well as a positive control (100% NPK), each treatment was replicated 5 times. Parameters were observed, the growth of plants, including: plant height at 4, 8, and 12 weeks, root length, stem biomass, and root biomass. As for the productivity include fresh leaf weight, leaf dry weight, leaf amount and the leaf area. Data were analyzed using the test results ANAVA, if there is a real difference followed by Duncan at 5% significance level. The results showed that giving of BIOFERTILIZER, NPK, and combination of both affect ( $\alpha < 0.05$ ) on growth and productivity of tobacco plants. Giving BIOFERTILIZER highest in treatment B2 (10 mL /plant) for plant height  $53 \pm 6.71$  cm/plant, root length  $40 \pm 1.58$  cm/plant, stem biomass  $97.20 \pm 1.30$  g/plant,  $52.60 \pm 2.07$  root biomass g/plant. The treatment is better than other treatments. While giving of NPK, better growth in treatment K2 (NPK 50%) for plant height  $62 \pm 2.74$  cm/plant compared to other treatments, treatment of K+ (100% NPK) are the best for root length  $23.20 \pm 1.30$  cm/plant and stem biomass  $85.80 \pm 3.19$  g/plant, root biomass is the best at giving K1 (NPK 25%). Giving of combination BIOFERTILIZER and NPK, the positive control (100% NPK) is the best treatment for plant height  $61.4 \pm 4.1$  cm/plant, B2K1 the best for root length  $25.00 \pm 1.58$  cm/plant, B2K2 the best stem biomass  $\pm 4.62$   $98.60$  g/plant, B2K1 the best root biomass  $\pm 1.58$   $43.00$  g/plant. The best treatment of productivity is B2 (10ml) for fresh leaf weight of  $678.0 \pm 7.97$  g/plant, treatment B3 (15 mL) is the best for leaf biomass  $92.80 \pm 2.39$  g/plant, leaf amount  $20 \pm 1.23$  /plant, B0 (negative control) is the best treatments to leaf amount  $35.39 \pm 3.07$  g/plant. B3 (15 mL) the best of effectiveness with value 4520%. So giving BIOFERTILIZER is more effective to increase tobacco growth and productivity than giving NPK and the combinations of both.*

*Keywords: BIOFERTILIZER, Effectiveness, NPK, Tobacco (Nicotiana tabacum).*