

**EFEK KOMPOSIT ALGINAT-ZEOLIT Fe (3:1) TERHADAP
PERTUMBUHAN DAN PRODUKTIVITAS TANAMAN JAGUNG MANIS
(*Zea mays L. var. saccharata* Sturt.)**

Oleh:

Shilpa Juliannery

12/329807/BI/08835

INTISARI

Tanaman jagung manis (*Zea mays L. var. saccharata* Sturt.) merupakan salah satu komoditas sayuran yang penting di Indonesia. Unsur besi diketahui memegang peranan penting dalam proses metabolisme seperti sintesis klorofil, respirasi, sintesis DNA dan fotosintesis yang dapat meningkatkan produktivitas tanaman. Namun, penelitian mengenai aplikasi pupuk lepas lambat mikro Fe untuk meningkatkan produktivitas tanaman jagung manis belum pernah dilakukan. Oleh karena itu, penelitian ini bertujuan untuk mempelajari pengaruh komposit alginat-zeolit Fe (3:1) terhadap pertumbuhan dan produktivitas tanaman jagung manis (*Zea mays L. var. saccharata* Sturt.). Biji jagung manis dikecambahkan dalam polybag ukuran 45x30 cm yang telah diisi media tanam berupa campuran tanah kebun dan kompos (3:1). Pupuk lepas lambat mikro Fe diaplikasikan saat tanaman berumur satu minggu setelah berkecambah dengan variasi konsentrasi 0 ppm, 50 ppm, 100 ppm, 150 ppm, 200 ppm dan 400 ppm. Pertumbuhan vegetatif tanaman diukur setiap dua minggu sekali, kadar klorofil diukur menggunakan metode spektrofotometri, laju fotosintesis diukur menggunakan *Li-6400 Portable Photosynthetic System* dan kadar pati dianalisis menggunakan metode Nelson-Somogyi. Hasil penelitian menunjukkan bahwa aplikasi komposit alginat-zeolit Fe (3:1) meningkatkan pertumbuhan dan produktivitas tanaman jagung manis yang terukur dari peningkatan tinggi tanaman, jumlah daun, luas daun, berat segar daun, berat kering daun, jumlah pipilan, berat pipilan, berat tongkol, kadar klorofil, laju fotosintesis, kerapatan stomata dan kadar pati biji jagung manis. Komposit alginat-zeolit Fe (3:1) paling berpengaruh dalam peningkatan berat pipilan. Dosis komposit alginat-zeolit Fe (3:1) yang baik untuk meningkatkan pertumbuhan dan produktivitas tanaman jagung manis adalah dosis 150 ppm.

Kata Kunci : Komposit alginat-zeolit Fe (3:1), pertumbuhan, produktivitas, pupuk lepas lambat, tanaman Jagung Manis (*Zea mays L. var. saccharata* Sturt.)

EFFECT OF COMPOSITE ALGINATE-ZEOLITE FE (3:1) ON GROWTH AND PRODUCTIVITY OF SWEET CORN (*Zea mays L. var. saccharata* Sturt.)

By:

Shilpa Juliannery

12/329807/BI/08835

ABSTRACT

Sweet corn (*Zea mays L. var. saccharata* Sturt.) is one of the important agricultural commodities in Indonesia. Iron is known to play critical roles in metabolic processes such as chlorophyll synthesis, respiration, DNA synthesis and photosynthesis which can improve plant productivity. However, the study of micro slow release Fe fertilizer application for increasing the productivity of sweet corn has not been done. Hence, the purpose of this research was to determine the effect of composite alginate-zeolit Fe (3:1) on growth and productivity of sweet corn (*Zea mays L. var. saccharata* Sturt.). Sweet corn seed were germinated for one week in polybags which have been filled with a planting medium consisting of a mixture of soil and compost. Polybag used for planting was 45x30 cm. The ratio of soil and compost mixture in the planting medium was 3:1. One week after seed germinate, Fe slow release fertilizer was added to the planting medium with concentration of 0 ppm (control), 50 ppm, 100 ppm, 150 ppm, 200 ppm or 400 ppm concentration. Vegetative growth of the plants were measured every two weeks, chlorophyll level was measured using the spectrophotometric method, the rate of photosynthesis was measured using Li-6400 Portable Photosynthetic System and starch content was analyzed using Nelson-Somogyi method. The result showed that composite alginate-zeolite Fe (3:1) was capable of promoting growth and productivity of sweet corn as measured from the increase in plant height, number of leaves, leaf area, leaves fresh weight, leaves dry weight, number and weight of shelled corn, cob weight, chlorophyll levels, photosynthesis rate, density of stomata and the starch content of sweet corn. Composite alginate-zeolite Fe (3:1) influent mostly in increasing weight of shelled cob. The optimal concentration for promoting growth and productivity of sweet corn was 150 ppm composite alginate-zeolite Fe (3:1).

Keywords : Composite alginate-zeolite Fe (3:1), growth, productivity, slow release fertilizer, Sweet Corn (*Zea mays L. var. saccharata* Sturt.)