

## **Penggunaan Zeolit untuk Meningkatkan Efisiensi Pemupukan Amonium Sulfat pada Bibit Kakao di Media Pasiran**

### ***Application of Zeolite to Increase Ammonium Sulphate Fertilizing Efficiency on Cocoa Seedlings at Sandy Medium***

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#### **Ringkasan**

Penelitian penggunaan zeolit untuk meningkatkan efisiensi pemupukan amonium sulfat pada bibit kakao di media pasiran telah dilakukan di rumah kaca Pusat Penelitian Kopi dan Kakao Indonesia, Kaliwining, Jember, pada ketinggian tempat 45 m dpl., tipe iklim D (Schmidt-Ferguson). Penelitian ini dilakukan mengingat sebagian lahan kakao di Indonesia berkelas tekstur tanah pasiran. Bahan yang digunakan adalah bibit tanaman kakao dengan induk ICS 60, serbuk mineral zeolit, bahan tanah bertekstur pasiran, dan pupuk amonium sulfat. Penelitian disusun secara faktorial dengan menggunakan rancangan acak kelompok lengkap dalam tiga blok dengan perlakuan faktor dosis zeolit, terdiri atas lima taraf yaitu Z0 : bahan tanah pasiran tanpa zeolit (kontrol), Z1 : zeolit 5%, Z2 : zeolit 10%, Z3 : zeolit 15% dan Z4 : zeolit 20% masing-masing terhadap bobot tanah. Faktor frekuensi pemupukan amonium sulfat, terdiri atas tiga taraf, yaitu N1 : 1 g/tanaman/minggu, N2 : 2 g/tanaman/2 minggu, dan N3 : 3 g/tanaman/3 minggu. Tolok ukur yang diamati adalah kadar N, pH, dan KPK tanah; kadar N jaringan tanaman; tinggi tanaman; diameter batang; jumlah daun; bobot segar dan bobot kering tanaman. Data dianalisis ragam dan Uji Jarak Duncan 5%. Hasil penelitian menunjukkan bahwa peningkatan dosis zeolit pada medium pertumbuhan tanaman menyebabkan kenaikan KPK dan pH tanah, tetapi menurunkan kadar nitrogen tanah. Peningkatan dosis zeolit pada medium pertumbuhan tanaman menyebabkan meningkatnya pertumbuhan akar dan batang tanaman, tetapi menurunkan pertumbuhan daun dan kadar air tanaman. Tidak terdapat perbedaan pengaruh antara pemupukan amonium sulfat yang diberikan seminggu sekali dosis rendah dengan tiga minggu sekali dosis tiga kali lipat. Sampai dengan dosis 20% terhadap bobot tanah, tidak tampak adanya pengaruh pemberian zeolit terhadap peningkatan efisiensi pemupukan amonium sulfat dan pertumbuhan kakao.

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### *Summary*

*An experiment of zeolite use to increase efficiency of sulphate ammonium fertilization on cocoa seedlings at sandy medium had been conducted in a glasshouse of Indonesian Coffee and Cocoa Research Institute, Kaliwining, Jember, on altitude 45 m above sea level and D type of climate (Schmidt-Ferguson). Materials used were cocoa seedlings derived from ICS 60 clone, zeolite powder, sandy soil, and sulphate ammonium fertilizer. The experiment was arranged in factorially randomized complete block design in three blocks. Zeolite doses factor consist of five levels, i.e. Z0 : no zeolite (control), Z1 : 5% zeolite, Z2 : 10% zeolite, Z3 : 15% zeolite, and Z4 : 20% zeolite. Factor of sulphate ammonium fertilization frequency consist of three levels, those are N1 : 1 gram/plant/week, N2 : 2 gram/plant/2 weeks, and N3 : 3 gram/plant/3 weeks. Observed variables were soil nitrogen, soil pH, CEC, plant nitrogen, plant height, stem diameter, leaves number, plant fresh weight as well as dry weight. Data were analyzed by variance and Duncan's multiple range test 5%. The results showed that the higher zeolite doses, the higher CEC and pH of soil, but the lower soil nitrogen. The increase of zeolite doses caused an increase of root as well as stem growth, but reduced leaves number and plant water content. There was no significant effect of sulphate ammonium fertilization applied by weekly low doses application and three times doses per three weeks. Up to 20% by weight, there was no effect of zeolite application on the increase of sulphate ammonium fertilization and on the cocoa growth.*

**Key words :** Zeolite, ammonium sulphate, fertilizing efficiency, cocoa, sandy soil.