

RINGKASAN

Profil Susunan Asam-Asam Lemak Kacang Tanah pada Berbagai Tingkat Pemberian Sulfur di dalam Tanah

Gatot Sargiman

Penelitian ini bertujuan (1) untuk mengetahui besarnya serapan sulfur dalam akar dan ginofor akibat pengaruh pemberian sulfur dalam tanah (2) untuk menentukan kandungan dan profil komposisi kandungan asam-asam lemak pada biji tanaman kacang tanah akibat pemberian sulfur ke dalam tanah.

Beberapa variabel pertumbuhan yang diamati adalah tinggi tanaman, jumlah daun, berat daun, jumlah cabang, kandungan N,S dan P dalam daun. Variabel produksi tanaman yang diamati adalah jumlah bunga, berat ginofor, berat brangkasan, berat biji per tanaman dan berat 100 biji. Analisis kimia yang dilakukan adalah kandungan S ginofor, (N,P,S,Fe)-total, kadar minyak dan protein serta komposisi asam-asam lemak dalam biji tanaman kacang tanah.

Dari penelitian ini dapat diketahui bahwa pemberian sulfur dapat meningkatkan beberapa variabel pertumbuhan dan perkembangan tanaman kacang tanah seperti tinggi tanaman, jumlah daun, berat daun, jumlah cabang, jumlah bunga serta berat kering ginofor. Namun demikian pemberian sulfur lebih dari 50 kg/Ha dapat menurunkan variabel-variabel tersebut.

Serapan unsur hara sulfur, nitrogen dan fosfor di dalam tanaman dipengaruhi oleh pemberian sulfur. Serapan sulfur tertinggi dicapai pada pemupukan amonium sulfat sebesar 257,77 kg/Ha dengan efektifitas serapan sebesar 58,80%. Nisbah N/S/P yang dibutuhkan tanaman untuk pertumbuhan kacang tanah yang baik adalah sebesar 16/2/1.

Sulfur dapat diserap oleh ginofor tanaman kacang tanah. Serapan sulfur dari pupuk dalam ginofor akan lebih tinggi lewat ginofor daripada melalui akar tanaman. Persentase serapan sulfur tertinggi dari pupuk di dalam ginofor yang melalui ginofor sebesar 28,75% sedangkan yang melalui akar sebesar 22,20%.

Dosis sulfur sebesar 50 kg/Ha dapat menghasilkan variabel produksi tanaman yang tertinggi namun dapat menghasilkan berat 100 biji yang terendah. Dosis sulfur terbaik untuk mendapatkan berat biji per tanaman tertinggi adalah sebesar 40 kg/Ha sulfur, sedangkan untuk menghasilkan kandungan asam oleat tertinggi dibutuhkan pemberian sulfur dengan dosis yang lebih rendah, yaitu dengan kandungan asam linoleat sebesar 23,01% dan asam oleat sebesar 36,83% sedangkan kandungan asam palmitat sebesar 13,01% dan asam stearat sebesar 4,68%.

Kandungan sulfur dalam biji berkorelasi positif dengan kandungan asam stearat dan kandungan besi dalam biji berkorelasi positif dengan kandungan asam oleat di dalam biji. Penurunan berat 100 biji akan meningkatkan nisbah asam linoleat/oleat dan nisbah asam stearat/palmitat di dalam biji.

SUMMARY

Fatty Acid Profiles of Groundnut on the Effect of Sulphur Fertilization

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The general objectives of this study were (1) to evaluate gynoform and root absorption of sulphur due to the effect sulphur fertilization, (2) to determine fatty acids content and profiles of groundnut due to the effect of sulphur fertilization.

The Observation of growth variables included : plant high, amount of leaf, weight of leaf, amount of branch and N,S,P-content in leaves. The yield variables included: amount of flowers, weight of gynoform, plant biomass, nut yield per plant and weight of 100 nuts. The chemical analysis included: S-gynoform, (N, S, P and , Fe)-total, Oil and protein-content and fatty acids of peanut oil.

From these research were found that, sulphur increased for growth and yield variables, include : plant high, amount of leaves, weight of leaf, amount of branches , amount of flowers and dry weight of gynoform, but the dosage of sulfur upper then 50 kg/Ha decreased for those variables.

The absorption of sulphur, nitrogen and phosphorus can be affected by sulphur fertilization. The highest of sulphur absorption can be reached by 257.77 kg/Ha of amonium sulphat fertilizer with efectivity : 58.80 %. The ratio of the ratio of N/P/S needed to grow good groundnut crops was 16/2/1.

UV-Vis), Fe-total (Atomic Absorption Spectrophotometry) of peanut, Oil-content (Soxhlet extraction) and Fatty acids of peanut oil (HR-Gas Chromatography).

From these research were found that, the ratio of N/P/S needed to grow good groundnut crops was 16/2/1. The sulphur could be absorbed by ginofer which was higher than through the root to ginofer. The Dosage of sulphur of 50 kg/Ha resulted the highest on growth variables and nut yield per plant, but it performed the lowest on weight in 100 nuts. The optimum dosage of sulphur to produce the highest nut yield was 40 kg/Ha but to produce highest of oleic acid needed the lower dosage of sulphur fertilization.

These was a positive corelation between sulphur with stearic acid content and iron had a positive corelation with aleic acid content of peanut. Decreasing weight of 100 nuts has increased in linoleic /oleic acid ratio and stearic /palmitic acid ratio on the nut.

Key words : S*, S , *Arachis hipogaea*, Fatty Acid profiles

ABSTRACT

Fatty Acid Profiles of Groundnut on the Effect of Sulphur Fertilization

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The general objectives of this study were (1) to evaluate ginofor and root absorption of sulphur due to the effect sulphur fertilization, (2) to determine fatty acids content and profiles of groundnut due to the effect of sulphur fertilization.

This Research consisted of two experiments which were carried out in a parallel plot. First experiment was application of the amonium sulphate fertilizer on groundnut crops which contain of S*. The amonium sulphate fertilizer consisted of 5 levels i.e. : 0, 25 , 50 , 75 and 100 kg/ha S*. The Second experiment was application of the amonium sulphate fertilizer on groundnut crops which consisted of 5 levels i.e : 0, 25, 50, 75 and 100 kg/ha S. When ginofor was appeared, then it was planted in the soil taken from the first experiment. Both experiments were carried out a greenhouse by using a complete Randomized Factorial Design with four replications.

The Observation of growth variables included : plant high, amount of leaf, amount of shoot, weight of leaf, and (N,S,P)-content in leaves. The yield variables included: amount of flowers, weight of ginofor, plant biomass, nut yield per plant and weight of 100 nuts. The chemical analysis included:N-total (Kjeldahl methods), S-total and P-total (Spectrophotometry

UV-Vis), Fe-total (Atomic Absorption Spectrophotometry) of peanut, Oil-content (Soxhlet extraction) and Fatty acids of peanut oil (HR-Gas Chromatography).

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