

INTISARI

Boron (B) adalah elemen kunci untuk produksi kacang tanah, terutama di daerah tropis, di mana ketersediaan hara umumnya rendah di dalam tanah. Selain itu, informasi tentang dosis, sumber pupuk, metode aplikasi, dan khususnya, perbedaan kebutuhan hara kombinasi diperlukan untuk pemupukan yang efisien pada budidaya kacang tanah. Penelitian ini bertujuan untuk mengetahui respon pemberian kombinasi pupuk boron dengan asam humat dan dosis optimumnya terhadap pertumbuhan dan produktivitas kacang tanah. Penelitian dilaksanakan di Rumah Kaca Fakultas Pertanian Universitas Gadjah Mada serta Laboratorium Departemen Tanah. Rancangan penelitian yang digunakan yaitu rancangan acak lengkap (RAL) faktorial dengan 2 faktor dan 3 ulangan. Faktor pertama sumber pupuk boron dari asam borat (H_3BO_3 mengandung 17,74% B) dan faktor kedua pupuk Ca-humat. Faktor pertama yaitu pupuk boron (H_3BO_3) dengan 5 dosis $0\text{kg}\cdot\text{ha}^{-1}$, $1\text{kg}\cdot\text{ha}^{-1}$, $2\text{kg}\cdot\text{ha}^{-1}$, $3\text{kg}\cdot\text{ha}^{-1}$ dan $4\text{kg}\cdot\text{ha}^{-1}$. Faktor kedua yaitu asam humat dengan 3 dosis $0\text{kg}\cdot\text{ha}^{-1}$, $300\text{kg}\cdot\text{ha}^{-1}$ dan $600\text{kg}\cdot\text{ha}^{-1}$. Hasil penelitian menunjukkan kombinasi pupuk boron dan asam humat memberikan pengaruh beda nyata dalam menaikkan parameter sifat kimia tanah seperti nilai Humat, C-organik, N-total, B-tersedia dan B-total tanah dan menaikkan parameter agronomi tanaman seperti jumlah daun, berat segar akar, berat segar tajuk, berat segar biji, berat kering tajuk, berat kering biji, serapan hara total B biji dan serapan hara total Ca biji. Perlakuan kombinasi pupuk boron dan Ca-humat dosis boron $4\text{kg}\cdot\text{ha}^{-1}$ dan Ca-humat $300\text{kg}\cdot\text{ha}^{-1}$ merupakan dosis optimum dalam penelitian ini.

Kata kunci : Boron, Ca-humat, Kacang Tanah, Inceptisol, Serapan Hara

ABSTRACT

Boron (B) is a crucial element for groundnut production, especially in the tropics, where soil nutrient availability is generally low. Information on dosage, fertilizer sources, application methods, and specific nutrient requirements is essential for effective fertilization in groundnut cultivation. This study aims to determine the response of boron fertilizer combined with Ca-humate and its optimal dose on the growth and productivity of groundnuts. The research was conducted in the Greenhouse of the Faculty of Agriculture, Gadjah Mada University, and the Soil Department Laboratory. The research design used a factorial complete randomized design (CRD) with 2 factors and 3 replications. The first factor was the boron fertilizer source from boric acid (H_3BO_3 containing 17.74% B), and the second factor was the Ca-humate fertilizer. The first factor included boron fertilizer (H_3BO_3) with 5 doses of $0\text{kg}\cdot\text{ha}^{-1}$, $1\text{kg}\cdot\text{ha}^{-1}$, $2\text{kg}\cdot\text{ha}^{-1}$, $3\text{kg}\cdot\text{ha}^{-1}$ and $4\text{kg}\cdot\text{ha}^{-1}$. The second factor was Ca-humate with three doses of $0\text{kg}\cdot\text{ha}^{-1}$, $300\text{kg}\cdot\text{ha}^{-1}$ and $600\text{kg}\cdot\text{ha}^{-1}$. The results indicated that combining boron and Ca-humate fertilizers significantly impacts increasing soil chemical parameters such as humic acid, SOC, total nitrogen, available boron, and total boron in the soil. It also led to improvements in plant agronomic parameters including leaf, root fresh weight, crown fresh weight, seed fresh weight, crown dry weight, seed dry weight, total boron uptake by seeds, and total calcium uptake by seeds. The optimal dose in this study was found to be a combination of $4\text{kg}\cdot\text{ha}^{-1}$ of boron fertilizer and $300\text{kg}\cdot\text{ha}^{-1}$ of Ca-humate.

Keywords: Boron, Ca-humate, groundnut, Inceptisols, nutrient uptake