

**ANATOMI DAUN, BATANG, DAN AKAR TANAMAN KEMANGI  
(*Ocimum sanctum* L.) SETELAH PERLAKUAN NaCl**

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**Intisari**

Setiap tumbuhan memerlukan kondisi lingkungan yang sesuai untuk keberlangsungan hidupnya. Lahan marginal mempunyai daya dukung yang relatif sangat rendah untuk menunjang pertumbuhan dan perkembangan tanaman, meliputi ketersediaan unsur makro dan mikro, ketersediaan air, cekaman logam berat (polutan) atau residu tertentu, termasuk kandungan garam (salin) yang tinggi dalam tanah. Cekaman salinitas menyebabkan kekeringan pada tanaman yang mengakibatkan tumbuhan menjadi kekurangan air. Respon tanaman dalam menghadapi cekaman salinitas juga nampak pada struktur anatomi daun, batang, dan akar tumbuhan. Dalam penelitian ini, digunakan tanaman kemangi (*Ocimum sanctum* L.) yang ditanam pada media pasir dan diberi perlakuan NaCl untuk mempelajari pertumbuhan dan perkembangan serta respon anatomis yang terjadi pada tanaman tersebut. Tanaman *Ocimum sanctum* L. diberi perlakuan pada umur  $\pm 25$  hari setelah tanam. Sampel tanaman *Ocimum sanctum* L. berumur 50 hari kontrol dan perlakuan NaCl 3‰, 6‰, 9‰, dan 12‰ diamati tinggi tanaman, jumlah daun, dan warna daun. Pada daun, diamati tebal mesofil daun, ukuran stomata, dan kerapatan stomata. Pada batang, diamati tebal epidermis, tebal korteks, tebal stele, dan diameter trakea, sedangkan pada akar diamati tebal epidermis, tebal korteks, tebal endodermis, tebal stele, dan diameter trakea. Penelitian ini menggunakan RAL dengan perlakuan pemberian 5 taraf konsentrasi NaCl, yakni 0‰, 3‰, 6‰, 9‰, dan 12‰. Tanaman *Ocimum sanctum* L. kontrol dengan perlakuan NaCl sampai 12‰ memperlihatkan pengaruh yang berbeda nyata pada tinggi tanaman yakni semakin rendah, warna daun semakin mengalami klorosis, dan jumlah daun semakin berkurang bila dibandingkan dengan tanaman kontrol. Pada struktur anatomi daun, berpengaruh nyata pada ketebalan mesofil yang semakin meningkat, panjang stomata semakin berkurang, namun tidak berpengaruh nyata pada lebar dan kerapatan stomata. Pada batang, menyebabkan tebal epidermis, korteks, stele serta diameter trakea semakin meningkat sedangkan pada akar, tebal epidermis, korteks, endodermis, stele serta diameter trakea semakin meningkat,

Kata kunci : *Ocimum sanctum* L., salinitas, daun, batang, akar

## **LEAF, STEM, AND ROOT ANATOMY OF *Ocimum sanctum* L. AFTER NaCl TREATMENT**

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### **Abstract**

Every plant need to live in a suitable environment. Marginal lands have a relatively low support on plant's growth and development, including availability of micro and macro elements, availability of water, heavy metal stress (pollutant) or specific residues, and high salinity in soil. Salinity stress could cause draught in plant which in turn, cause plant to be dehydrated. Plant's response at salinity stress can be seen in the anatomy structure of leaves, stems, and roots. In this study, *Ocimum sanctum* L. was planted in sand media and treated with NaCl in order to study the growth, development and anatomy's response in the plant. The *Ocimum sanctum* L. plants have been treated at the age of  $\pm$  25 days. The samples of *Ocimum sanctum* L. aged 50 days that have been treated by 3%, 6%, 9%, and 12% NaCl, and control plant were observed the plant's height, total leaves, and leaf color. In leaves, mesophyll thickness, stomata size, and stomata density were observed. In stems, epidermis thickness, cortex thickness, stele thickness, and trachea diameter were observed. In root, the epidermis thickness, cortex thickness, endodermis thickness, stele thickness, and trachea diameter. This study used RAL with 5 treatment concentration of NaCl which were 0%, 3%, 6%, 9%, and 12%. All treated plants in this study showed significant differences in plant height, leaf color, and total leaves that decrease with the NaCl concentration compared to control. At anatomy structure of leaf, the mesophyll thickness in higher of the NaCl concentration increased while stomata size decreased, but there was no significant differences in stomata size and density. At anatomy structure of stem, it was observed that the high concentration of NaCl can increase the epidermis thickness, cortex thickness, stele thickness, and trachea diameter. In the anatomy structure of root, it was also observed that the high concentration of NaCl can increase the epidermis thickness, cortex thickness, endodermis thickness, stele thickness, and trachea diameter.

**Keywords:** *Ocimum sanctum* L., salinity, leaf, stem, root