

## Intisari

### TANGGAPAN DELAPAN HIBRIDA BIBIT KELAPA SAWIT (*Elaeis guineensis* Jacq.) TERHADAP CEKAMAN SALINITAS

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Penelitian bertujuan untuk 1) mengkaji tanggapan morfologis dan fisiologis delapan hibrida kelapa sawit terhadap cekaman salinitas, dan 2) mendapatkan hibrida dengan karakter ketahanan terhadap cekaman salinitas. Penelitian disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) faktorial dengan tiga blok sebagai ulangan. Faktor pertama adalah konsentrasi NaCl, yaitu 0 mM, 100 mM, 200 mM, dan 300 mM. Sedangkan faktor kedua adalah hibrida kelapa sawit, yaitu Yangambi, Avros, Langkat, PPKS 239, Simalungun, PPKS 718, PPKS 540, dan Dumpy. Pengamatan dilakukan terhadap variabel morfologi, fisiologi serta pertumbuhan bibit kelapa sawit. Data yang diperoleh selanjutnya dianalisis varian (ANOVA) pada taraf 5% dan dilanjutkan dengan uji jarak berganda Duncan (DMRT). Tanggapan kedelapan hibrida kelapa sawit terhadap NaCl dianalisis menggunakan uji polinomial orthogonal pada  $\alpha = 5\%$ . Hasil penelitian memberikan informasi bahwa aspek fisiologis bibit kelapa sawit yaitu penutupan dan pengurangan kerapatan stomata serta aspek morfologis yaitu pengurangan jumlah daun merupakan mekanisme adaptasi bibit kelapa sawit terhadap cekaman salinitas melalui mekanisme menghindar untuk mencegah masuknya  $\text{Na}^+$  ke dalam jaringan tanaman. Aspek biokimia bibit kelapa sawit yaitu peningkatan akumulasi prolin merupakan mekanisme adaptasi bibit kelapa sawit terhadap cekaman salinitas melalui mekanisme toleran. Hibrida PPKS 239 dan Dumpy mampu menghadapi cekaman salinitas lebih baik daripada Yangambi, Avros, Langkat, Simalungun, PPKS 540, dan PPKS 718 melalui kemampuannya dalam penurunan densitas, lebar, panjang bukaan dan konduktansi stomata, laju transpirasi serta kemampuannya dalam mengakumulasi senyawa prolin untuk keperluan osmoregulasi sehingga kedua hibrida tersebut memiliki habitus yang lebih tinggi serta batang lebih besar di bawah cekaman salinitas.

Kata kunci: hibrida, kelapa sawit, NaCl, salinitas

*Abstract*

THE RESPONSES OF EIGHT OIL PALM HYBRIDS  
(*Elaeis guineensis* Jacq.) TO SALINITY STRESS

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The objectives of study were 1) to assess the morphological and physiological responses of eight hybrids of oil palm against salinity stress, and 2) to determine oil palm hybrids that were resistant to salinity stress. The research was conducted in Randomized Complete Block Design (RCBD) factorial with three blocks as replications. The first factor was concentrations of NaCl, namely 0, 100, 200, and 300 mM. The second factor was oil palm hybrids, namely Yangambi, Avros, Langkat, PPKS 239, Simalungun, PPKS 718, PPKS 540, and Dumpy. The observations were done on several variables of morphology, physiology and growth of oil palm seedlings. Data were analyzed with Analysis of Variance (ANOVA) at 5%, and continued with Duncan's Multiple Range Test (DMRT). Responses of eighth hybrids of oil palm on NaCl were determined using orthogonal polynomial test at 5%. The results showed that physiological aspects of oil palm seedlings, namely closure and reduction in stomatal density, and morphological aspects, namely reduction in the number of leaves, were adaptation mechanisms of oil palm seedlings to salinity through avoidance mechanisms to prevent the entry of Na<sup>+</sup> into the plant tissues. Biochemical aspect of oil palm seedlings, namely proline accumulation was an adaptation mechanism of oil palm seedlings to salinity through tolerant mechanism. The hybrids of PPKS 239 and Dumpy able to deal with salinity better than Yangambi, Avros, Langkat, Simalungun, PPKS 540, and PPKS 718 through its ability on the reduction of stomatal density, width, length, and conductance, transpiration rate and its ability to accumulate proline for osmoregulation purposes, so both hybrids have higher and larger trunk under salinity stress.

Keywords: hybrids, oil palm, NaCl, salinity