

**Respon Pertumbuhan dan Morfologi Tanaman Kangkung Darat
(*Ipomoea reptans* Poir) terhadap *Osmopriming* Benih dan Pupuk Nitrogen
pada Kondisi Kekeringan**

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INTISARI

Cekaman kekeringan merupakan salah satu faktor penghambat dalam pembudidayaan tanaman kangkung darat (*Ipomoea reptans* Poir). Solusi dalam mengatasi masalah tersebut adalah melalui teknik *osmopriming* benih dan pupuk nitrogen. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh *osmopriming* benih, pupuk nitrogen (urea), serta interaksi keduanya terhadap respon pertumbuhan dan morfologi tanaman kangkung darat (*Ipomoea reptans* Poir) pada kondisi kekeringan. Tahapan penelitian terdiri atas: 1) percobaan laboratorium yang meliputi uji perkecambahan dan analisis profil protein; 2) percobaan lapangan yang terdiri atas 3 macam perlakuan yaitu *osmopriming* benih dengan konsentrasi 0%, 5%, 10%, dan 15% (w/v) PEG; pupuk urea dengan dosis 0 mg/kg tanah, 60 mg/kg tanah, dan 120 mg/kg tanah; serta cekaman kekeringan dengan interval penyiraman 1, 3, dan 5 hari sekali. Parameter yang diamati adalah persentase berkecambah, kecepatan berkecambah, keserempakan berkecambah, profil protein, panjang akar, berat kering tajuk, berat kering akar, kadar klorofil, dan kadar prolin. Hasilnya menunjukkan bahwa *osmopriming* meningkatkan persentase berkecambah, kecepatan berkecambah, keserempakan berkecambah, konsentrasi protein pada benih, panjang akar, berat kering tajuk, berat kering akar, kadar klorofil, dan kadar prolin. Interaksinya dengan cekaman kekeringan meningkatkan panjang akar, berat kering tajuk, berat kering akar, kadar klorofil, dan kadar prolin dengan konsentrasi optimumnya adalah PEG 15%. Pupuk urea meningkatkan panjang akar, berat kering tajuk, berat kering akar, dan kadar klorofil. Interaksinya dengan cekaman kekeringan meningkatkan panjang akar, berat kering tajuk, dan kadar klorofil tetapi menurunkan berat kering akar dan kadar prolin dengan dosis optimum 120 mg/kg tanah pada interval penyiraman 1 dan 3 hari sekali serta 60 mg/kg tanah pada interval penyiraman 5 hari sekali. Interaksi *osmopriming*-pupuk urea dan interaksi keduanya pada cekaman kekeringan meningkatkan panjang akar, berat kering tajuk, dan kadar klorofil tetapi menurunkan berat kering akar dan kadar prolin. *Osmopriming*, pupuk urea, dan interaksi keduanya meningkatkan panjang akar, berat kering tajuk, berat kering akar, kadar klorofil, dan kadar prolin tetapi perlakuan pupuk urea cenderung menurunkan berat kering akar dan kadar prolin pada kondisi cekaman kekeringan.

Kata kunci: *Ipomoea reptans* Poir, *osmopriming* benih, pupuk nitrogen, cekaman kekeringan

The Growth and Morphophysiological Response of Leafy Vegetable (*Ipomoea reptans* Poir) to Seed Osmopriming and Nitrogen Fertilizer in Drought Condition

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ABSTRACT

Drought stress is one of the inhibiting factors on the cultivation of leafy vegetable (*Ipomoea reptans* Poir). Hence, solutions to overcome that problems are seed osmopriming and nitrogen fertilizer. The aim of this experiment was to investigate the effect of seed osmopriming, nitrogen fertilizer, and interaction between them to the growth and morphophysiological response of leafy vegetable (*Ipomoea reptans* Poir) in drought condition. The experiment consisted of: 1) laboratorium experimental including germination test and protein profile analysis; 2) field experimental consisting of 3 treatments which were seed osmopriming with concentration of 0%, 5%, 10%, and 15% (w/v) PEG; nitrogen fertilizer with concentration of 0 mg/kg soil, 60 mg/kg soil, and 120 mg/kg soil; and drought stress with watering interval of 1, 3, and 5 days. Parameters observed were germination percentage, germination rate, germination synchronization, protein profile, root length, shoots dry weight, roots dry weight, leaves chlorophyll content, and leaves proline content. The results showed that osmopriming increased germination percentage, germination rate, germination synchronization, seed protein concentration, root length, shoots and roots dry weight, leaves chlorophyll content, and leaves proline content. Its interaction with drought stress increased root length, shoots and roots dry weight, leaves chlorophyll content, and leaves proline content by optimum concentration of 15% PEG. Urea increased root length, shoots and roots dry weight, leaves chlorophyll content and its interaction with drought stress increased root length, shoots dry weight, and leaves chlorophyll content but decreased roots dry weight and leaves proline content by optimum dose of 120 mg/kg soil at watering interval of 1 and 3 days, and 60 mg/kg soil at watering interval 5 days. Osmopriming-urea fertilizer interaction and its interaction to drought stress increased root length, shoot dry weight, and chlorophyll content but decreased roots dry weight and leaves proline content. Osmopriming, urea fertilizer, and osmopriming-urea fertilizer interaction increased root length, shoots dry weight, roots dry weight, leaves chlorophyll content, and leaves proline content but urea fertilizer treatment tend to decreased roots dry weight and leaves proline content at drought stress condition.

Keyword: *Ipomoea reptans* Poir, seed osmopriming, nitrogen fertilizer, drought stress