

**PENGARUH KONSENTRASI PEG (*Polyethylene Glycol*) 6000 PADA
OSMOCONDITIONING TERHADAP VIGOR, VIABILITAS, DAN
PERTUMBUHAN VEGETATIF KEDELAI HITAM
(*Glycine max* (L) Merrit)**

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ABSTRAK

Benih kedelai hitam (*Glycine max*. L. Merr) termasuk benih orthodok yang cepat mengalami kemunduran. Salah satu cara meningkatkan mutu benih yang telah mengalami kemunduran adalah invigorasi *osmoconditioning*. Penelitian ini bertujuan untuk mendapatkan konsentrasi PEG 6000 yang sesuai untuk perkecambahan dan pertumbuhan vegetatif benih kedelai hitam, serta mendapatkan waktu perendaman yang tepat untuk memperbaiki vigor dan viabilitas benih kedelai hitam. Penelitian dilaksanakan di Laboratorium Teknologi Benih dan *Green House* Fakultas Pertanian UPN “Veteran” Yogyakarta sejak Februari 2020 sampai Maret 2020. Metode penelitian menggunakan Rancangan Acak Lengkap (RAL) dengan satu faktor. Yaitu kontrol, PEG 6000 10%, 15%, dan 20% dengan lama perendaman 8 jam, 12 jam, dan 16 jam. Penelitian dilaksanakan dengan 2 macam percobaan. Percobaan I mengenai vigor dan viabilitas, sedangkan percobaan II mengenai pertumbuhan vegetatif. Banyaknya perlakuan yang dilakukan adalah 10 perlakuan, dengan masing-masing perlakuan 3 ulangan. Data hasil pengamatan dianalisis menggunakan analisis varian (ANOVA) taraf 5% dengan uji kontras orthogonal. Hasil penelitian menunjukkan bahwa perlakuan perendaman konsentrasi PEG 6000 10% nyata lebih baik meningkatkan viabilitas dan vigor benih daripada kontrol, konsentrasi 15% dan 20% pada parameter jumlah cabang dan diameter batang. Perlakuan perendaman 8 jam nyata lebih baik meningkatkan viabilitas dan vigor benih daripada kontrol, lama perendaman 12 jam dan 16. Perlakuan perendaman PEG 6000 pada konsentrasi dan interval waktu perendaman terdapat beda nyata pada parameter indeks vigor dan laju perkecambahan.

Kata kunci : Kedelai hitam, *Osmoconditioning*, PEG 6000, vigor, viabilitas.

EFFECT OF CONCENTRATION OF PEG (*Polyethylene Glycol*) 6000 ON OSMOCONDITIONING TO VIGORS, VIABILITIES, AND VEGETATIVE GROWTH OF BLACK SOYBEAN (*Glycine max* (L) Merrit)

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ABSTRACT

Black soybean (*Glycine max*. L. Merr) seed is an orthodox seed which rapidly declining. One of the ways to improve the quality of seed by invigorating *osmoconditioning*. This study aims to obtain a concentration of PEG 6000 which is suitable for germination and vegetative growth of black soybean seeds and to obtain the right immersion time to improve the viability and viability of black soybean seeds. The research was conducted at the Seed Technology Laboratory and *Green House*, Faculty of Agriculture, UPN “Veteran” Yogyakarta since February 2020 to March 2020. The research method used was a completely randomized design (CRD) with one factor. Namely control, PEG 6000 10%, 15%, and 20% with an immersion time of 8 hours, 12 hours, and 16 hours. The research was conducted with 2 kinds of experiments. Experiment I was about vigor and viability, while experiment II was about vegetative growth. The number of treatments carried out was 10 treatments, with 3 replications for each treatment. Observation data were analyzed using analysis of variance (ANOVA) at 5% level with an orthogonal contrast test. The results showed that the immersion treatment with PEG 6000 concentration of 10% significantly improved seed viability and vigor than the control, concentrations of 15% and 20% on the parameters of the number of branches and stem diameter. The 8 hours immersion treatment significantly improved the viability and vigor of the seeds than the control, 12 hours, and 16 hours of immersion. The PEG 6000 immersion treatment at the concentration and immersion time interval had significant differences in the vigor index and germination rate parameters.

Keywords: Black soybean, *Osmoconditioning*, PEG 6000, vigor, viability.