Pemberian Polyethylene Glycol (PEG) dan KNO_3 Pada Berbagai Konsentrasi Pada Benih Kakao (*Theobroma cacao* L.) Untuk Meningkatkan Perkecambahan dan Pertumbuhan Bibit

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Abstrak

Benih kakao tergolong dalam benih rekalsitran yang memiliki umur pendek karena rentan terhadap kekeringan dan benih mudah berkecambah ditempat penyimpanan dan sangat mudah diserang cendawan. Penelitian ini bertujuan untuk mengetahui daya simpan benih kakao (*Theobroma cacao L.*) dengan pemberian Polyethylene Glycol (PEG) pada pada berbagai konsentrasi dan untuk mendapatkan konsentrasi Polyethylene Glycol (PEG) dan KNO_3 yang memberikan pengaruh perkecambahan dan pertumbuhan bibit kakao terbaik. Penelitian ini dilaksanakan di Laboratorium Teknologi Benih jurusan Agroteknologi Fakultas Pertanian Universitas Pembangunan Nasional "Veteran" Yogyakarta. Ada 2 percobaan yang dilakukan pada penelitian ini. Percobaan I yaitu penyimpanan benih dan percobaan II yaitu uji pertumbuhan bibit. Percobaan I menggunakan Rancangan Acak Lengkap (RAL) dengan menggunakan 1 faktor perlakuan dengan ulangan sebanyak 4 kali, yaitu konsentrasi PEG dengan 4 taraf yaitu : P0= PEG 0% , P1 = PEG 15%, P2 = PEG 30%, dan P3= PEG 45%. Percobaan II menggunakan Rancangan Acak Lengkap (RAL) dengan dua faktor. Faktor pertama adalah macam konsentrasi *Polyethylene Glycol* (PEG) dengan 4 taraf yaitu : P0= PEG 0% , P1 = PEG 15%, P2 = PEG 30%, dan P3= PEG 45%. Faktor kedua yaitu macam Konsentrasi KNO_3 dengan 3 taraf yaitu : K0= KNO_3 0% , K1 = KNO_3 3%, dan K2 = KNO_3 6%,. Setiap perlakuan diulang sebanyak 3 kali. Data hasil pengamatan dianalisis dengan uji ANOVA (Analisis of Varians) pada jenjang nyata 5% dan apabila terdapat beda nyata maka uji lanjut dilakukan dengan Uji Jarak Berganda Duncan atau *Duncan's Multiple Range Test* (DMRT) pada jenjang 5%. Hasil analisis menunjukan bahwa daya simpan benih kakao terbaik adalah perlakuan konsentrasi PEG 30% pada periode simpan 7 hari. Perlakuan konsentrasi PEG 30% dan KNO_3 3% merupakan kombinasi perlakuan terbaik.

Kata kunci : Kakao**,** *Polyethylene Glycol* (PEG), KNO_3, Daya Simpan, Viabilitas.

Application of Polyethylene Glycol (PEG) and KNO_3 at various concentrations on Cocoa Seeds (*Theobroma cacao* L.) to Increase Germination and Seed Growth

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Abstract

Cocoa seeds are classified as recalcitrant seeds that have a short life because they are prone to drought and the seeds germinate easily in the storage and are easily attacked by fungi. This study aims to determine the shelf life of cocoa seeds (*Theobroma cacao* L.) by giving Polyethylene Glycol (PEG) at various concentrations and to obtain the concentrations of Polyethylene Glycol (PEG) and KNO_3 which give the effect of germination and growth of the best cocoa seedlings. This research was conducted at the Seed Technology Laboratory, Department of Agro technology, Faculty of Agriculture, Universitas Pembangunan Nasional "Veteran" Yogyakarta. There were 2 experiments conducted in this study. Experiment I is seed storage and experiment II is seedling growth test. Experiment I used a Completely Randomized Design (CRD) using 1 treatment factor with a 4 times replication, namely PEG concentration with 4 levels, namely: P0 = PEG 0%, P1 = PEG 15%, P2 = PEG 30%, and P3 = PEG 45%. Experiment II used a Completely Randomized Design (CRD) with two factors. The first factor was the type of Polyethylene Glycol (PEG) concentration with 4 levels, namely: P0 = PEG 0%, P1 = PEG 15%, P2 = PEG 30%, and P3 = PEG 45%. The second factor was the type of concentration of KNO_3 with 3 levels, namely: K0 = KNO_3 0%, K1 = KNO_3 3%, and K2 = KNO_3 6%. Each treatment was repeated 3 times. The observation data were analyzed by ANOVA (Analysis of Variance) at a real level of 5% and if there were significant differences, further tests were carried out with Duncan's Multiple Distance Test or Duncan's Multiple Range Test (DMRT) at 5% level. The results of the analysis show that the best storage capacity of cocoa seeds is the 30% PEG concentration treatment in a storage period of 7 days. The concentration treatment of 30% PEG and 3% KNO_3 is the best treatment combination.

Keywords: Cocoa, Polyethylene Glycol (PEG), KNO_3, Power Save, Viability.