ABSTRAK

PERAKITAN PLANLET PISANG CAVENDISH (*Musa acuminata* Colla) TOLERAN CEKAMAN GARAM (NaCl) BERBASIS BIOTEKNOLOGI SECARA *IN VITRO*

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Pisang merupakan salah satu komoditas hortikultura yang banyak dikonsumsi masyarakat karena mudah diperoleh dengan harga yang relatif murah dan sebagai sumber gizi. Salah satu kendala dalam budidaya tanaman pisang yakni kondisi tanah yang mengandung kadar garam yang tinggi sehingga menyebabkan cekaman bagi tanaman. Pada kondisi tersebut dapat membahayakan tanaman karena dapat meningkatkan tekanan osmotik sehingga akar tidak mampu mengambil air dari lingkungan. Perkembangan bioteknologi yang dapat digunakan untuk memperbaiki karakter suatu tanaman yaitu dengan menggunakan teknik kultur *in vitro*. Tujuan penelitian ini untuk mengetahui konsentrasi NaCl yang toleran terhadap pertumbuhan planlet pisang cavendish dalam cekaman garam serta karakter ekspresi planlet pisang cavendish berupa kandungan klorofil dan kandungan karbohidrat. Penelitian ini dilaksanakan pada bulan Desember 2022-Januari 2023 di ruang Kultur *in vitro*, Laboratorium Botani, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Lampung. Metode yang digunakan adalah Rancangan Acak Lengkap (RAL) dengan penambahan konsetrasi NaCl 5 taraf perlakuan pada medium MS: P_0 (0%), P_1 (0,25%), P_2 (0,50%), P_3 (0,75%), P_4 (1%) dengan 5 kali pengulangan. Data kuantitatif dari setiap parameter dianalisis secara statistik *One Way* ANOVA. Kemudian diuji TUKEY pada taraf nyata 5%. Hasil penelitian menunjukkan bahwa konsentrasi NaCl 1% toleran terhadap pertumbuhan pisang cavendish. Hasil karakter ekspresi dengan peningkatan konsentrasi NaCl berupa kandungan klorofil a,b dan total menurun dan kandungan karbohidrat meningkat.

Kata kunci: pisang cavendish, cekaman garam, NaCl, kultur *in vitro*

ABSTRACT

ASSEMBLY OF CAVENDISH BANANA PLANET (*Musa acuminata* Colla) TOLERANT TO SALT (NaCl) BIOTECHNOLOGY BASED IN VITRO

By

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Bananas are one of the horticultural commodities that are consumed by many people because they are easy to obtain at relatively cheap prices and as a source of nutrition. One of the obstacles in the cultivation of banana plants is the condition of the soil which contains high levels of salt which causes stress for the plants. In these conditions it can be harmful to plants because it can increase osmotic pressure so that the roots are unable to take water from the environment. The development of biotechnology that can be used to improve the character of a plant is by using in vitro culture techniques. The purpose of this study was to determine the concentration of NaCl that was tolerant to the growth of cavendish banana plantlets under salt stress and the expression characteristics of cavendish banana plantlets in the form of chlorophyll content and carbohydrate content. This research was conducted in December 2022-January 2023 in the in vitro culture room, Botanical Laboratory, Department of Biology, Faculty of Mathematics and Natural Sciences, University of Lampung. The method used was a completely randomized design (CRD) with the addition of 5 treatment levels of NaCl concentrations on MS medium: P_0 (0%), P_1 (0.25%), P_2 (0.50%), P_3 (0.75%) , P_4 (1%) with 5 repetitions. Quantitative data for each parameter were analyzed statistically by One Way ANOVA. Then TUKEY tested at 5% level of significance. The results showed that 1% NaCl concentration was tolerant to cavendish banana growth. The results of the expression character with an increase in NaCl concentration in the form of a, b and total chlorophyll content decreased and the carbohydrate content increased.

Key words: cavendish banana, salt stress, NaCl, in vitro culture