PENGARUH DURASI *PRIMING* DENGAN ASAM SALISILAT TERHADAP PERTUMBUHAN DAN STRUKTUR ANATOMI DAUN JAGUNG MANIS (*Zea mays* L.) TERCEKAM SALINITAS

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INTISARI

Cekaman salinitas diketahui memiliki efek merugikan bagi tanaman. *Priming* dengan asam salisilat diyakini mampu meningkatkan ketahanan tanaman dalam kondisi tercekam. Penelitian ini bertujuan untuk mengetahui pengaruh durasi *priming* dengan asam salisilat terhadap pertumbuhan dan anatomi daun, serta durasi *priming* optimal untuk semai jagung manis (*Zea mays* L) yang tercekam salinitas. Percobaan menggunakan Rancangan Acak Lengkap dengan dua faktor dan lima ulangan. Faktor pertama adalah durasi *priming* asam salisilat (2 mM) selama 0 jam (kontrol), 12 jam, 18 jam dan 24 jam. Faktor kedua adalah level salinitas 0% dan 3%. Parameter yang diamati antara lain daya kecambah, tinggi batang, panjang akar, bobot basah, bobot kering, rasio tajuk-akar, kadar klorofil, kadar prolin, struktur anatomi daun dan densitas stomata. Data dianalisis dengan, uji t, ANOVA dan dilanjutkan dengan uji DMRT pada tingkat kepercayaan 95%. Hasil penelitian menunjukkan bahwa durasi *priming* selama 18 jam pada jagung manis menghasilkan daya kecambah tertinggi pada kondisi tercekam salinitas. *Priming* selama 24 jam bersifat menghambat perkecambahan jagung manis. *Priming* dengan asam salisilat dengan durasi 12 jam, 18 jam atau 24 jam memperbaiki pertumbuhan akar dan batang; menaikkan bobot basah, bobot kering, rasio tajuk-akar, kadar klorofil, kadar prolin dan densitas stomata; serta mempertahankan struktur anatomi daun semai jagung manis dari efek negatif salinitas. Durasi *priming* asam salisilat yang optimal bagi semai jagung manis pada kondisi tercekam salinitas adalah selama 18 jam.

Kata Kunci: Jagung manis, asam salisilat, cekaman salinitas, durasi *priming*

EFFECTS OF PRIMING DURATION WITH SALICYLIC ACID ON GROWTH AND LEAF ANATOMY STRUCTURE OF SWEET CORN (*Zea mays* L.) UNDER SALINITY STRESS

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ABSTRACT

Salinity stress is known for adverse effect on plants. Priming with salicylic acid was believed to be able to improve plant performance under salinity stress. This study was aimed to determine the effect of priming duration with salicylic acid on growth, leaf anatomy and to determine optimal priming duration for sweet corn seedlings (*Zea mays* L.) under salinity stress. The experiment was based on Completely Randomized Design with two factors and five replications. The first factor was priming duration with salicylic acid (2 mM) for four different durations (0, 12, 18 and 24 hours). The second factor was the level of salinity (0% and 3%). Parameters observed were germination capacity, plant height, root length, fresh weight, dry weight, shoot-root ratio, chlorophyll content, proline content, leaf anatomy and stomatal density. Data were analyzed with t-test, ANOVA and followed by Duncan's test at 95% confidence level. The results showed that 18-hour priming duration resulted the highest germination capacity. Priming for 24 hours showed phytotoxic effect for sweet corn on the germination phase. Priming with salicylic acid for all durations improved root and stem growth; increased fresh weight, dry weight, shoot-root ratio, chlorophyll content, proline content and stomatal density, as well as could maintaining the leaf anatomical structure of sweet corn seedlings from the negative effects of salinity. The optimal priming duration with salicylic acid for sweet corn seedlings under salinity stress was 18 hours.

Keywords: Sweet corn, salicylic acid, salinity stress, priming duration