

EFEK ASAM SALISILAT DALAM AMELIORASI CEKAMAN SALINITAS TERHADAP BIOMASSA, KADAR OKSALAT, DAN BEBERAPA FITOKIMIA PADA BAYAM MERAH (*Amaranthus tricolor* L.)

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INTISARI

Pada era kenormalan baru, masyarakat wajib menjalankan pola hidup sehat untuk meningkatkan imunitas tubuh. Bayam merah (*Amaranthus tricolor* L.) merupakan salah satu tanaman bayam cabut yang kaya gizi, tetapi mengandung oksalat yang dapat mengganggu kesehatan. Asam absisat (ABA) dilaporkan dapat meningkatkan aktivitas oksalat oksidase. Penambahan NaCl pada tanaman dilaporkan dapat meningkatkan kandungan ABA, selain itu penggunaan asam salisilat (SA) dapat meningkatkan daya adaptasi tanaman terhadap kondisi salinitas. Penelitian ini bertujuan untuk mengevaluasi pengaruh SA dan NaCl terhadap biomassa dan peningkatan kualitas bayam merah. Dilakukan budidaya bayam merah dengan kombinasi perlakuan SA (0 ppm, 25 ppm, 50 ppm, atau 100 ppm) dan NaCl (0 ppm, 250 ppm, 500 ppm, 750 ppm, atau 1000 ppm), pengukuran parameter vegetatif, dan analisis fitokimia. Penelitian ini menggunakan desain penelitian faktorial 4 x 5. Hasil dianalisis dengan *Two Way* ANOVA pada tingkat kepercayaan 95% dan uji DMRT. Perlakuan NaCl hingga 1000 ppm menurunkan biomassa, kadar asam oksalat, klorofil, dan zat besi bayam merah. Perlakuan NaCl 500 ppm optimal dalam meningkatkan kadar betasianin dan fenolat. Perlakuan SA hingga 100 ppm meningkatkan biomassa, aktivitas antioksidan, asam askorbat, zat besi, dan menurunkan densitas kristal kalsium oksalat. Perlakuan SA 25 atau 50 ppm optimal dalam menurunkan kadar asam oksalat, diameter dan kristal kalsium oksalat, serta meningkatkan kadar klorofil, betasianin, dan kadar fenolat. Kombinasi perlakuan NaCl 500 ppm dan SA 50 ppm paling baik pada penelitian ini dalam mempertahankan biomassa, mengurangi kadar oksalat, dan meningkatkan kadar zat gizi pada bayam merah.

Kata kunci: asam salisilat, bayam merah, cekaman salinitas, oksalat, zat gizi

***EFFECTS OF SALICYLIC ACID IN AMELIORATION OF SALINITY
STRESS ON BIOMASS, OXALATE LEVELS, AND SOME
PHYTOCHEMICALS IN RED SPINACH (*Amaranthus tricolor* L.)***

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ABSTRACT

*In the new normal era, people are obliged to adopt a healthy lifestyle to increase their immunity. Red spinach (*Amaranthus tricolor* L.) is one of the spinach plants which is rich in nutrients, but contains oxalates which can interfere with health. Absciscic acid (ABA) is reported to increase the activity of oxalate oxidase. The addition of NaCl to plants is reported to increase the ABA content, besides the use of salicylic acid (SA) can increase the adaptability of plants to salinity conditions. This study aimed to evaluate the effect of SA and NaCl on the biomass and quality improvement of red spinach. The procedure carried out is the cultivation of red spinach with a combination of SA (0 ppm, 25 ppm, 50 ppm, or 100 ppm) and NaCl (0 ppm, 250 ppm, 500 ppm, 750 ppm, or 1000 ppm), measurement of vegetative parameters, and phytochemical analysis. This study used a 4 x 5 factorial research design. The results were analyzed by Two Way ANOVA at a 95% confidence level and the DMRT test. NaCl treatment up to 1000 ppm reduced biomass, levels of oxalic acid, chlorophyll, and iron content. The optimal 500 ppm NaCl treatment in increasing betacyanin and phenolic levels. SA treatment up to 100 ppm increased biomass, antioxidant activity, ascorbic acid, iron, and decreased the density of calcium oxalate crystals. Treatment of SA 25 or 50 ppm was optimal in reducing levels of oxalic acid, diameter and calcium oxalate crystals, as well as increasing levels of chlorophyll, betacyanin, and phenolic levels. The combination of NaCl 500 ppm and SA 50 ppm treatment was the best in this study in maintaining biomass, reducing oxalate levels, and increasing nutrient levels in red spinach.*

Keywords: salicylic acid, red spinach, salinity stress, oxalate, nutrients