PENGARUH JUS *MICROGREENS* BAYAM HIJAU (*Amaranthus hybridus L.*) TERHADAP GEJALA PENUAAN PADA HEWAN MODEL *Drosophila melanogaster* YANG DIINDUKSI PARAQUAT

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ABSTRAK

Penuaan merupakan proses menghilangnya secara perlahan kemampuan memperbaiki diri dan mempertahankan struktur fungsi normal suatu jaringan. Salah satu faktor penyebab penuaan adanya paparan radikal bebas. Bayam hijau (*Amaranthus hybridus L.*) merupakan sayuran yang kaya akan antioksidan. Penelitian ini bertujuan untuk mengetahui kemampuan bertahan hidup, geotaksis negatif, kadar *malondialdehid* (MDA) dan kadar *lipofuscin* (LF) pada lalat buah *Drosophilla melanogaster* yang diinduksi paraquat serta mengetahui kekuatan antioksidan, karotenoid, klorofil a,b total pada jus *microgreens* bayam hijau. Penelitian ini merupakan penelitian eksperimental yang menggunakan Rancangan Acak Lengkap (RAL) dengan 4 perlakuan P0, P1, P2, P3 dan P4 dilakukan 3 ulangan. Hasil penelitian menunjukan adanya pengaruh dari penambahan paraquat terhadap gerak lokomotor sebanyak 38,89% penambahan jus *microgreens* sebesar 64,45%. Pada hasil pengujian kelulusan hidup menunjukan penambahan paraquat sebesar 77,5% penambahan jus *microgreens* sebesar 91.68%. Pada pengujian kadar MDA penambahan paraquat menghasilkan kadar MDA 13.42 nMol/mL, penambahan jus *microgreens* 13,30 nMol/mL. Hal serupa terjadi pada pengujian kadar LF adanya paraquat menghasilkan kadar LF senilai 4,92 µg/mg, penambahan jus *microgreens* kadar LF senilai 2,53 µg/mg. Pada pengujian kadar klorofil a,b total serta karotenoid, jus *microgreens* bayam hijau memiliki kandungan berturut 2,69 mg/g, 0,93 mg/g dan 3,63 mg/g karotenoid 6,96 µmol/g. Pada pengujian antioksidan jus *microgreens* mencapai 27,363 µg/mL kategori sangat kuat. Berdasarkan hasil penelitian tersebut dapat disimpulkan bahwa jus *microgreens* bayam hijau berpengaruh terhadap kemampuan bertahan hidup dan geotaksis negatif, serta menurunkan kadar *malondialdehid* (MDA) maupun kadar *lipofuscin* (LF) pada lalat buah *Drosophilla melanogaster* yang diinduksi paraquat, juga kekuatan antioksidan yang termasuk kategori sangat kuat.

Kata kunci: *Amaranthus hybridus L, Drosophilla melanogaster, Microgreens*¸ Penuaan.

THE EFFECT OF *MICROGREENS* GREEN SPINACH (*Amaranthus hybridus* L.) JUICE IN AGING SYMPTOMS WITH PARAQUAT-INDUCED IN MODEL ANIMAL *Drosophila Melanogaster*

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ABSTRACT

The process of aging is the gradual loss of a tissue's ability to repair itself and maintain its normal structure and function. Exposure to free radicals is one of the elements that affects aging. Green spinach (*Amaranthus hybridus L.*) is an antioxidant-rich vegetable. The goal of this research is to determine one's ability to live, negative geotaxis, *malondialdehyde* (MDA), and *lipofuscin* (LF) levels in paraquat-induced *Drosophila melanogaster* fruit flies, as well as antioxidant power, carotenoids, chlorophyll a, b and total in green spinach *microgreens* juice. With three replications, this research used a completely randomized design (RAL) with four treatments: P0, P1, P2, P3, and P4. The addition of paraquat had a 38.89% effect on locomotor motion, while the addition of microgreens juice had a 64.45% effect. The addition of paraquat was 77.5%, and the addition of microgreens juice was 91.68%, according to the results of the live test. The addition of paraquat resulted in MDA levels of 13.42 nMol/mL, although the addition of microgreens juice resulted in 13.30 nMol/mL. The same effect happened when LF levels were tested in the presence of paraquat, with LF levels of 4.92 g/mg, and when *microgreens* juice was added, with LF levels of 2.53 g/mg. Green spinach microgreens juice contains 2.69 mg/g, 0.93 mg/g, and 3.63 mg/g carotenoids, with 6.96 mol/g total chlorophyll a, b, and carotenoids, respectively. The antioxidant *microgreens* juice tested at 27,363 g/mL, which is in the very strong category. According to the findings of this study, green spinach *microgreens* juice has a negative influence on survival and geotaxis, as well as reduces *malondialdehyde* (MDA) and *lipofuscin* (LF) levels in paraquat-induced *Drosophilla melanogaster*, and has a very strong antioxidant potential.

Keywords: *Amaranthus hybridus L, Drosophilla melanogaster, Microgreens*¸ Aging.