

## ABSTRAK

**Pendahuluan:** Kontraksi otot akibat latihan fisik berat dapat mengakumulasi peningkatan ROS yang menyebabkan stress oksidatif dan memulai kerusakan sel salah satunya penurunan kualitas sperma. Untuk melihat adanya akumulasi ROS didalam tubuh dengan melihat kadar SOD dan MDA di dalam darah. Ubi ungu merupakan makanan yang mempunyai antioksidan tinggi dan mampu menurunkan stress oksidatif.

**Tujuan:** Membuktikan pengaruh pemberian ubi ungu terhadap kadar SOD, MDA dan kualitas sperma pada tikus yang diberi latihan fisik berat.

**Metode:** Penelitian ekperimental dengan post test only control grup design. Jumlah sampel 24 ekor tikus dibagi 4 kelompok. Kelompok KI hanya diberikan pakan standar, kelompok II diberikan renang selama  $\pm 25$  menit dan pakan standar,. Sedangkan pada kelompok KIII diberi ubi ungu oral dosis 2,7mg/ 200gBB/ hari dan KIV 3,6 mg/ 200gBB/ hari selama 27 hari. Observasi kadar SOD dan MDA pada hari ke 28 dan kualitas sperma pada hari 29.

**Hasil:** Menunjukkan bahwa kadar SOD terendah pada kelompok II ( $29,4 \pm 3,5$ ), kelompok III ( $63,3 \pm 3,4$ ) kelompok IV ( $75,2 \pm 7,5$ ) dan kelompok I ( $81,1 \pm 4,4$ ). Kadar MDA terendah pada kelompok I ( $1,9 \pm 0,6$ ), kelompok IV ( $3,42 \pm 0,6$ ), kelompok III ( $4,52 \pm 0,6$ ) dan kelompok II ( $8,7 \pm 0,9$ ). Jumlah spermatozoa terendah pada kelompok II ( $15,25 \pm 4,1$ ), kelompok III ( $23,13 \pm 4,0$ ), kelompok IV ( $27 \pm 8,5$ ) dan kelompok I ( $27,7 \pm 5,2$ ). Motilitas Spermatozoa terendah pada kelompok II ( $27,3 \pm 5,0$ ), kelompok III ( $36,1 \pm 6,0$ ), kelompok I ( $51,3 \pm 7,8$ ) dan kelompok IV ( $54,6 \pm 17$ ). Morfologi spermatozoa terendah pada kelompok II ( $56 \pm 7,9$ ), kelompok III ( $79,7 \pm 6,5$ ), kelompok I ( $83,9 \pm 4,0$ ) dan kelompok IV ( $91,5 \pm 1,5$ ). Hasil uji Post Hoc LSD menunjukkan perbedaan secara signifikan ( $p < 0,05$ )

**Kesimpulan:** Pemberian ubi ungu mampu menurunkan kadar MDA, meningkatkan SOD dan memperbaiki kualitas sperma pada latihan fisik berat.

**Kata kunci:** latihan fisik berat, ubi ungu, SOD, MDA, sperma.

## ABSTRACT

**Introduction:** Muscle contractions due to strenuous physical exercise can accumulate an increase in ROS that causes oxidative stress and initiates cell damage, one of which is a decrease in sperm quality. To see the accumulation of ROS in the body by looking at the levels of SOD and MDA in the blood. Purple sweet potato is a food that has high antioxidants and can reduce oxidative stress.

**Objective:** To prove the effect of purple sweet potato application on levels of SOD, MDA and sperm quality in rats given heavy physical exercise.

**Methods:** Experimental study with post test only control group design. The number of samples of 24 rats was divided into 4 groups. Group KI was only given standard feed, group II was given swimming for  $\pm 25$  minutes and standard feed. Whereas in the KIII group, they were given oral purple sweet potato at a dose of 2.7 mg / 200gBB / day and KIV 3.6 mg / 200gBB / day for 27 days. Observation of SOD and MDA levels on day 28 and sperm quality on day 29.

**Results:** It showed that the lowest SOD levels were in group II ( $29.4 \pm 3.5$ ), group III ( $63.3 \pm 3.4$ ) group IV ( $75.2 \pm 7.5$ ) and group I ( $81.1 \pm 4.4$ ). The lowest MDA level was in group I ( $1.9 \pm 0.6$ ), group IV ( $3.42 \pm 0.6$ ), group III ( $4.52 \pm 0.6$ ) and group II ( $8.7 \pm 0.9$ ). The lowest number of spermatozoa was in group II ( $15.25 \pm 4.1$ ), group III ( $23.13 \pm 4.0$ ), group IV ( $27 \pm 8.5$ ) and group I ( $27.7 \pm 5.2$ ). The lowest spermatozoa motility was in group II ( $27.3 \pm 5.0$ ), group III ( $36.1 \pm 6.0$ ), group I ( $51.3 \pm 7.8$ ) and group IV ( $54.6 \pm 17$ ). The lowest spermatozoa morphology was in group II ( $56 \pm 7.9$ ), group III ( $79.7 \pm 6.5$ ), group I ( $83.9 \pm 4.0$ ) and group IV ( $91.5 \pm 1.5$ ). The results of the Post Hoc LSD test showed a significant difference ( $p < 0.05$ )

**Conclusion:** Giving purple sweet potato can reduce MDA levels, increase SOD and improve sperm quality in strenuous physical exercise.

**Keywords:** overtraining, purple sweet potato, SOD, MDA, sperm.