

SUMMARY

Kharisma Dwi Veteriananta. Research entitled “The Effect of Holy Basil (*Ocimum sanctum*) Leaf Extract on SGOT and SGPT Levels in Mice (*Mus musculus*) Exposed by Lead Acetate” under the supervision of Dr. Nove Hidajati, drh., M.Kes as the first supervisor and Prof. Dr. Fedik Abdul Rantam, drh. as the co-supervisor.

Lead is a heavy metal with a high level of toxicity. The mechanism of lead toxicity is oxidative stress which lead can cause productivity and increase Reactive Oxygen Species (ROS) and directly suppress the body's antioxidant system and cause lipid peroxidation. Phospholipids which are the main constituents of plasma membranes are often the subject of lipid peroxidation. Lipid peroxidation that binds to lead increases cell membrane permeability and disrupts the distribution of ions, resulting in necrosis and liver cell damage.

The presence of liver damage due to lead exposure can be detected through examination of the enzyme group aminotransaminase, which is the enzyme Serum Glutamic Oxaloacetic Transaminase (SGOT) and Serum Glutamic Pyruvic Transaminase (SGPT). If the liver cells are damaged, these enzymes will be released into the circulatory system which will cause increased levels of these enzymes in blood serum. *Ocimum sanctum* contains of antioxidant such as vitamin A, vitamin C, carotenoids and flavonoids that are needed to prevent liver cell damage caused by oxidative stress. Eugenol, flavonoids and ursolic acid components which present in *Ocimum sanctum* leaf, have free radical scavenging and anti-lipoperoxidative effects.

The purpose of this research was to prove the effect of *Ocimum sanctum* leaf extract as hepatoprotector towards enzyme Serum Glutamic Oxaloacetic Transaminase (SGOT) and Serum Glutamic Pyruvic Transaminase (SGPT) levels of mice (*Mus musculus*) exposed by lead acetate. The type of this research was experimental research using Completely Randomized Design (CRD). The sample used 30 male mice range 2.5-3 months with average body weight 25-30 grams which were divided into five groups with four times of minimum repetitions. In this research, *Ocimum sanctum* leaf extract were given per oral for 24 days to the treatment groups (T1, T2, T3) with dose 140 mg/kg BW, 280 mg/kg BW, and 560 mg/kg BW with per oral lead acetate induced 20 mg/kg BW for 21 days (from the 4th day until 24th day). Meanwhile negative control group (C-) was given Tween 80 1% and aquadest, and positive control group (C+) was given Tween 80 1% and lead acetate 20 mg/kg BW.

SGOT and SGPT was measured by the photometric method using clinical chemical analyzer (ERBA Mannheim GmbH XL 600). Data analysis results show significant difference between C(-) and T2 with C(+) in SGOT test. In SGPT, C(-) was not significantly different with T2, but T2 was also not significantly different with C(+), T1, and T3. C(-) was significant different with C(+). It can be concluded that the *Ocimum sanctum* leaf extract has an effect to decrease the SGOT level of mice exposed by lead acetate effectively at a dose of 280 mg/kg BW level, but it does not have an effect to decrease the SGPT level of mice exposed by lead acetate.

**THE EFFECT OF HOLY BASIL (*Ocimum sanctum*) LEAF
EXTRACT ON SGOT AND SGPT LEVELS IN MICE
(*Mus musculus*) EXPOSED BY LEAD ACETATE**

Kharisma Dwi Veteriananta

ABSTRACT

The aim of this study was to know the effect of holy basil (*Ocimum sanctum*) leaf extract on SGOT and SGPT levels in mice (*Mus musculus*) exposed by lead acetate. The research used 20 adult male mice as experimental animals which divided into five groups; C(-) as negative control which were given Tween 80 1% and aquadest, C(+) was given Tween 80 1% and lead acetate 20 mg/kgBW, T1 was given *Ocimum sanctum* leaf extract 140 mg/kgBW and lead acetate 20 mg/kgBW, T2 was given *Ocimum sanctum* leaf extract 280 mg/kgBW and lead acetate 20 mg/kgBW, T3 was given *Ocimum sanctum* leaf extract 560 mg/kgBW and lead acetate 20 mg/kgBW. Samples were taken on day 25th. Then the data were compared using ANOVA and DMRT test. In SGOT, C(-) and T2 was significantly different with C(+). Meanwhile in SGPT, C(-) was not significantly different with T2, but T2 was also not significantly different with C(+), T1, and T3. C(-) was significant different with C(+). T2 was the group with the highest decrease in SGOT and SGPT level among the treatment group because the antioxidant content can effectively prevent oxidative stress caused by lead acetate. It can be concluded that the *Ocimum sanctum* leaf extract has an effect to decrease the SGOT level of mice exposed by lead acetate effectively at a dose of 280 mg/kgBW level, but it does not have an effect to decrease the SGPT level of mice exposed by lead acetate.

Keywords: Antioxidant, lead acetate, *Ocimum sanctum*, SGOT, SGPT

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