

## ABSTRACT

Leora Vileyta. 24020121120021. Analysis of Hepatosomatic Index (HSI) and Liver Histopathology in Rats (*Rattus norvegicus*) Following Oral Administration of Polyethylene Terephthalate (PET) Microplastics. Under the supervision of Muhammad Anwar Djaelani and Rizki Sandhi Titisari.

Microplastic pollution, particularly from Polyethylene Terephthalate (PET), has been identified as a contributing factor in increasing oxidative stress and disrupting organ function, including the liver, which plays a vital role in detoxification. This study aimed to analyze the effects of PET microplastic exposure on the Hepatosomatic Index (HSI) and liver histopathology in rats (*Rattus norvegicus*) as the experimental model. The study used an experimental method with a completely randomized design consisting of four treatment groups: P0 (control), P1 (1,25 mg PET/500 mL), P2 (12,5 mg PET/500 mL), and P3 (62,5 mg PET/500 mL), administered orally for 24 days. HSI values were calculated based on the ratio of liver weight to body weight, while histopathological changes were observed through microscopic preparations stained with Hematoxylin-Eosin. Data were analyzed using ANOVA, Kruskal-Wallis, Mann-Whitney U, and descriptive methods. The results showed that HSI values and sublethal hepatocyte damage did not differ significantly ( $p > 0.05$ ), although microscopic histopathological alterations were observed. In contrast, damage scores of the central vein showed significant differences between dose variations. These findings suggest that PET microplastic exposure may induce histological changes in liver tissue, particularly in the central vein, serving as an early indicator of microplastic toxicity response in the hepatic system of rats.

**Keywords:** *Microplastics, Polyethylene Terephthalate, Liver, Oxidative Stress, Central Vein*