

ABSTRACT

Dharma Satya Aryana. 24020122120002. The Effect of Madura Herbal Medicine for Diabetes on Liver Histomorphometry of Diabetic White Rats (*Rattus Norvegicus*). Under the guidance of Agung Janika Sitasiwi and Kasiyati.

Diabetes mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia and can cause damage to various organs, including the liver. Chronic hyperglycemia triggers oxidative stress and metabolic disorders that impact histomorphometric changes in liver tissue. This study aims to analyze liver histomorphometry and determine the effective dose of Madura diabetes herbal concoctions in diabetic white rats (*Rattus norvegicus*). This study is an experimental study using 30 Wistar white rats divided into five treatment groups, namely P0 (control), P1 (streptozotocin/STZ + metformin induction), P2 (STZ + 5 g herbal concoction), P3 (STZ + 10 g herbal concoction), and P4 (STZ + 15 g herbal concoction). The parameters observed included liver weight, hepatosomatic index (HSI), central vein diameter, hepatocyte diameter, liver damage scoring, and central vein and hepatocyte morphology. Data were analyzed using normality and homogeneity tests, followed by ANOVA. The results showed that all parameters were normally and homogeneously distributed, and there were no significant differences between treatment groups. Liver weight and HSI index did not show significant differences between groups. Central vein diameter in all groups was above the normal range, but did not show significant differences. Hepatocyte diameter was within the normal range, but morphologically indicated damage, especially in groups P2 and P3. Group P4 showed an improvement in hepatocyte morphology compared to the other groups, although it had not fully returned to normal. It was concluded that administration of Madura diabetes herbal concoction improved liver structure, supported adaptive capacity, and liver regeneration, and a dose of 15 g showed the best potential for improving liver morphology.

Keywords: *hepatocytes, hyperglycemia, streptozotocin, central vein*