

## ABSTRACT

*Diabetes Mellitus (DM) is a group of metabolic diseases that are usually manifested by high blood sugar levels. Decreased insulin production can be triggered by a number of factors, including damage to the pancreatic  $\beta$  cell network. White turmeric rhizomes contain alkaloids, phenols, saponins, glycosides, steroids, terpenoids, and other ingredients which are also thought to be used as antimicrobial, anticancer, antiallergic, antioxidant, and analgesic-antipyretic. Active compounds are contained in curcuminoids, essential oils, astringents, flavonoids, sulfur, gum, resin, flour, and not too much fat. The aim of this study was to determine the anti-diabetic effect of white turmeric (*Curcuma zedoaria* Rosc.) rhizome extract on male Wistar diabetic rats with fasting blood sugar levels  $>126\text{mg/dL}$ . . This research was an in vivo experimental study with a randomized pre-test and post-test control group design involving normal and diabetic male Wistar strain rats (*Rattus norvegicus*) aged 2-4 months weighing 150-220 grams. White mice were divided into 3 treatment concentrations with doses of 250 mg/KgBW, 500 mg/KgBW, 750 mg/KgBW for 14 days. The results obtained indicate that white turmeric extract has potential as a therapeutic agent, especially in improving the histopathological condition of testicles damaged by diabetes. Significant differences were found in the high dose treatment (500 mg/kgBW and 750 mg/kgBW), indicating that the effect is dose dependent and the use of optimal doses is important for maximum therapeutic results. ANOVA results showed that treatment had a significant effect on histopathological variables ( $p < 0.0001$ ). The R-squared of 0.8841 shows that almost 88.41% of the variation can be explained by treatment. This shows that white turmeric extract as an anti-diabetic agent, white turmeric extract is significantly able to improve the testicular histopathology in male Wistar diabetic rats.*

*Keywords : diabetic, white rat, white turmeric extract, Histopathology*