

## ABSTRACT

Amalia Putri. 24020120130048. Microanatomy and Histomorphometry of the Duodenum of Male White Rats (*Rattus norvegicus*) Induced of Doxycycline and Ethanol Extract of Butterfly Pea Flowers (*Clitoria ternatea* L.). Supervised by Kasiyati and Agung Janika Sitasawi.

Indonesia faces significant health challenges, one of which is infectious diseases. Antibiotics, such as doxycycline, can be used to treat infectious; however, excessive use can lead to an overproduction of free radicals, causing oxidative stress that can damage the duodenum of white rats. The butterfly pea flower contains antioxidant compounds that can neutralize free radicals, potentially preventing duodenal damage in white rats. This study aims to determine the effect of administering ethanol extract of butterfly pea flower on the microanatomical structure and histomorphometry of the duodenum in white rats. The research employed a Completely Randomized Design (CRD) with 20 male white rats divided into four treatment groups: P0 (aquadest), P1 (doxycycline 6 mg/rat/day), P2 (ethanol extract of butterfly pea flower 90 mg/rat/day), and P3 (doxycycline 6 mg/rat/day and ethanol extract of butterfly pea flower 90 mg/rat/day). The test substances were administered orally for 14 days. Duodenum histology samples were prepared using the paraffin method and stained with hematoxylin-eosin. Data were analyzed using ANOVA with a 5% significance level. The results indicated that the administration of doxycycline and ethanol extract of butterfly pea flower did not significantly differ in the histomorphometry of the duodenum in white rats ( $P > 0.05$ ), but changes were observed in the microanatomical structure and epithelial cells of the duodenal villi. The conclusion of this study is that ethanol extract of butterfly pea flower has the potential to repair damage caused by doxycycline to the microanatomical structure and histomorphometry of the duodenum in male white rats.

*Keywords: antibiotics, free radicals, antioxidant, intestine.*