

ABSTRACT

Aurel Elizabeth Darsono. 24020120130087. Histological Structure of Duodenum of Female White Rats (*Rattus norvegicus*) after Induced of Nanochitosan Preparations of Neem Leaves (*Azadirachta indica* A. juss) Ethanol Extract, under the guidance of Agung Janika Sitasiwi and Teguh Suprihatin.

Neem is a medical plant that contains various bioactive compounds that are beneficial for health. Oral consumption of drugs has a low level of bioavailability in the body. Nanochitosan is a solution for delivering drugs into the body because it is able to distribute the active compounds throughout systemic circulation and minimize toxic effects. The purpose of this study was to analyze the effect of treatment of nanochitosan ethanol extract of neem leaves (*Azadirachta indica* A. juss) on the histological structure of the duodenum of female white rats (*Rattus norvegicus*). This study used a Completely Randomized Design (CRD) consisted of 3 treatments and 4 replication on each. The treatments was divided into P0 (control), P1 (ethanol extract of neem leaves) at a dose of 2,8 mg, and P2 (nanochitosan ethanol extract of neem leaves), each treatment was given 2 ml/head/day for 21 days. The variables measured were duodenal diameter, muscularis layer thickness, villi length, and villi desquamation damage score. Data were analyzed statistically parametrically with ANOVA at a confidence level of 95%. Desquamation damage is analyzed through scoring which is divided into score 0 (normal), score 1 (light damage), score 2 (moderate damage), and score 3 (severe damage). The results showed that the ethanol extract of neem leaves had no significant difference ($p>0.05$) in duodenum diameter, muscularis layer thickness and villi length. The villi desquamation damage score at P0 showed normal villi with a score of 0, at P1 the villi had moderate damage with a score of 2, and at P2 the amount of desquamation appeared slight with a score of 1. The conclusion shows that treatment of neem leaf ethanol extract in the form of nanoparticles was able to protect the structure of the rat duodenum from damage.

Keyword: *neem, encapsulation, villi, desquamation*