

ABSTRACT

Khusnun Nafidah. 24020120140068. Comparison of Renal Responses in Male and Female Rats (*Rattus norvegicus* L.) After They Were Exposed to a Nanochitosan Preparations of Neem Leaf Ethanol Extract (*Azadirachta indica*). Supervised by Agung Janika Sitasiwi and Sri Isdadiyanto.

Neem was a plant known for its many benefits as a traditional medicine. The use of neem extract as a traditional remedy was thought to cause several disorders in the body's organs, especially if consumed over a long period and in high doses. Nanoparticles were seen as an effective solution to overcome the difficulty of drug delivery into the body, facilitate the distribution of bioactive compounds from neem plants into systemic circulation, and reduce the toxic effects of neem. This study aimed to examine the differences in the effect of neem leaf ethanol extract nanoparticle preparations (SNEEDM) on the kidneys of male and female Sprague Dawley rats. This study used 12 male rats and 12 female rats, divided into 4 treatment groups with 3 repetitions: K0 (Normal control), K1 (Positive control), P2 (Treatment with neem leaf ethanol extract using distilled water as a solvent), and P3 (Treatment with nanochitosan and neem leaf ethanol extract using nanochitosan as a solvent). The treatments were carried out for 28 days. The research data were analyzed using the T-test to determine whether there were differences between male and female rats. The observation data were not homogeneous, so a non-parametric analysis test was carried out using the Mann-Whitney test. The results were analyzed using the ANOVA test to determine differences between treatment groups in male and female rats. If the data showed significant results, the DMRT test was conducted. The study concluded that administering nanochitosan preparations from the ethanol extract of neem leaves showed differences in response between male and female rats. However, the administration of these preparations in each treatment group did not make a significant difference in kidney weight, glomerular diameter, and Bowman's capsule distance in rats.

Key words: *glomerular diameter, bowman's capsule spacing, kidney organ weight*