

ABSTRACT

Melisa Andriani. 24020120120020. " Comparison of Liver Structure in Male and Female Sprague-Dawley Rats After Administration of Nanokitosan Preparation of Neem Leaf Ethanol Extract (*Azadirachta indica* A. Juss)". Under the guidance of Sri Isdadiyanto and Agung Janika Sitasiwi.

Neem plants had properties as herbs due to the content of secondary metabolites in them. The active secondary metabolite compounds that entered the body underwent structural changes because of enzymatic degradation or because their particle size was too large; therefore, the application of nanoparticles was required. The drug delivery method using nanoparticles with chitosan polymer was applied to deliver active compounds of neem directly to target cells. This method had not been used for neem leaf ethanol extract, so this research aimed to analyze the effect of neem leaf ethanol extract nanochitosan preparation on the hepatosomatic index of rat livers and the differences in liver structure response between male and female rats. This study used a Complete Randomized Design (RAL). The variables observed were hepatic weight, hepatosomatic index and hepatocyte diameter, in male and female rats. The data obtained were analyzed using two-way ANOVA with a confidence level of 95%. The results of the analysis showed a real difference in the variables observed between treatment with control ($P < 0.05$) on hepatocyte diameter, but no real difference ($P > 0.05$) on hepatic weight and hepatosomatic index (HSI). Based on the research analysis, it was concluded that the administration of nanokitosan ethanol extract of neem leaves did not cause damage to the rat liver, and many binucleate cells were found. The study also concluded that the treatment that had been given did not affect the hepatosomatic index (HSI) values of male and female Sprague-Dawley strain rats.

Keywords: neem leaf, nanochitosan, hepatocyte diameter, HSI