

ABSTRACT

Rafly Prasetyo Priambodo. 24020122140191. Microanatomy of the Duodenum in White Rats (*Rattus norvegicus* B.) Administered Green Meniran Leaf Extract (*Phyllanthus niruri* L.) to Protect Against Cisplatin Toxicity. Supervised by Kasiyati and Rasyidah Fauzia Ahmar.

Cancer remains one of the leading health issues causing high mortality rates worldwide. One of the most widely used therapies in cancer treatment is chemotherapy with cisplatin. Although highly effective in inhibiting cancer cell growth, the use of cisplatin can cause side effects such as damage to normal tissues, including the duodenum. This damage is generally associated with increased oxidative stress and inflammatory responses that can disrupt the integrity of the duodenum's microanatomy and impair nutrient absorption. Meniran (*Phyllanthus niruri* L.) is a medicinal plant known to contain flavonoids, lignans, tannins, and phenolic compounds that act as antioxidants and anti-inflammatory agents. These compounds have the potential to help protect tissues from damage caused by exposure to toxic compounds. This study aims to evaluate the effect of Meniran extract on the microanatomy of the duodenum in cisplatin-induced white rats (*Rattus norvegicus*) and to determine the most effective dose as a protective agent. The study was conducted experimentally using 24 male Wistar strain white rats that were administered meniran extract at doses of 200 mg/kg body weight and 400 mg/kg body weight and treated with cisplatin at a dose of 7.5 mg/kg body weight. The variables observed included the structural components of the duodenum namely the lumen, mucosa, submucosa, muscularis, and serosa as well as functional structures such as villus length, Lieberkuhn crypt depth, and goblet cell count. The results showed that cisplatin induction caused changes in the microanatomy of the duodenum, whereas administration of green meniran extract was able to maintain and improve tissue condition. The 400 mg/kg body weight dose demonstrated better protective efficacy compared to the 200 mg/kg body weight dose. Thus, green meniran extract has the potential to be developed as a natural protective agent against cisplatin-induced microanatomical damage to the duodenum.

Keywords: Antiinflammation, antioxidant, nutrient absorption, oxidative stress