

Study Therapeutic Effect of Alkaline Water on Activity of Protease Enzyme and Histopathology of Liver in Rats (*Rattus norvegicus*) *Inflammatory Bowel Disease* (IBD) Models of Indometachine Induced

ABSTRACT

Inflammatory Bowel Disease (IBD) is a chronic inflammatory disease that occurs in the gastrointestinal tract. One of drugs which cause side effects inflammation is a type of *Non-Steroidal Anti-Inflammatory Drug* (NSAID) such as indomethacin which cause gastrointestinal bleeding and can affect the liver. Alkaline water which known high hydrogen-containing as antioxidant which has potential as therapeutic agents for IBD. The purpose of this research was to study the therapeutic of alkaline water in order to decrease the activity of protease enzyme and liver histopathology in rats of *Inflammatory Bowel Disease* (IBD). Rats of IBD were induced using indomethacin dose of 15 mg/kg orally. This study used four groups that are negative control group, positive control group (IBD), therapy group alkaline water administration volumes of 1 ml/rat and 2 ml/rat. Protease activity were determined using spectrofotometry and histopathological liver evaluated with Hematoxylin Eosin staining were analyzed descriptively. Data of protease activity were analyzed by using ANOVA test followed by Honestly Significant Difference test (HSD) $\alpha=0.05$. The result showed that alkaline water could repaired liver damage on *Inflammatory Bowel Disease* (IBD) rats by repaired hepatocytes, sinusoid and significantly ($p<0.05$) decreased activity of protease enzyme. Administration volume therapeutic of 2 ml/rat was the best volume which decreased protease activity of 59,35%. The conclusion of this study indicates that alkaline water therapy can reduce protease enzyme activities and repaired liver damage of IBD rat, so that alkaline water can be used as an alternative therapy in a rats of *Inflammatory Bowel Disease* model.

Key words : *Inflammatory Bowel Disease* (IBD), Alkaline, Protease activity, Liver histopathology.