ABSTRACT

Antiviral Activity of *Curcuma domestica* and *Curcuma xanthorrhiza* Rhizome Extract against Hepatitis C Virus *In Vitro*

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Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). It is estimated that 3 million Indonesians suffer from Hepatitis C. The latest HCV treatment has provided high cure rate with SVR more than 90%, using a combination of DAA (Direct Acting Antiviral). However, those treatment possessed a high cost and a side effects. Medicinal plants are potential sources to find alternative medicine for HCV. The purpose of this study is to determine antiviral activity from *Curcuma domestica* and *Curcuma xanthorrhiza* rhizome extract against HCV. Both of them have been reported to mediate many biopharmacological activity, *C. domestica* and *C xanthorrhiza* contain a curcumin substance which has been know to inhibit the entry step of HCV. The rhizome extract was inoculated to HuH7it cell culture to determine the activity, toxicity, and the target of the extract in the HCV life cycle. From anti-HCV activity test, it was found that extract of *C. domestica* and *C. xanthorrhiza* inhibit HCV with IC_{50} value were 4.59±0.54 µg/ml and 14.35±0.28 µg/ml, respectively. In the toxicity test, the CC_{50} value of *C. domestica* extract and *C. xanthorrhiza* extract were 93.14±0.014 µg/ml and 153.26±11.13 µg/ml, respectively.The mode of action analysis was revealed that both *C. domestica* and *C. xanthorrhiza* extract inhibit HCV infection in the entry and post entry step, while in *C. xanthorrhiza* acted dominantly in the entry step. Those results suggested that *C. domestica* and *C. xanthorrhiza* may a good candidate for anti-HCV agent.

Keyword: antihepatitis C virus, *C. domestica, C. xanthorrhiza,* hepatitis C virus