

Antioxidant and Hepatoprotective Activity of Phytoconstituents Isolated from *Euphorbia hirta* Leaves: An Integrated *in Vitro* and *in Silico* Approach

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ABSTRACT The hepatoprotective potential of *Euphorbia hirta* ethanol leaf extract was studied in this research. The leaves that were collected were washed followed by drying then powdered and extracted with ethanol. The findings revealed that phenolics, flavonoids, and tannins, which have significant antioxidant activity, may inhibit oxidative stress and free radical damage in liver cells. Gas chromatography study revealed various bioactive compounds in the extract. Molecular docking studies showed that some ligands had good binding affinity for the Hepatitis B virus X protein, which is associated with liver disease. Based on the findings, *Euphorbia hirta* could be a hepatoprotective and therapeutic option. Based on the study results, the plant can be viewed as a potential natural source for the development of liver-protective agents after further studies through *in vitro*, *in vivo* and clinical studies.