Anticancer activity of Hopea odorata Roxb. stem bark aqueous, ethanolic extracts to Caco-2 colon adenocarcinoma cell line

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ABSTRACT

Introduction: Cancer is one of the causes of fatality around the globe, including colon cancer. Cancer treatment now relies on surgery, chemotherapy and radiotherapy. Drug resistance is one of the major concerns of treatment failure. An alternative cancer treatment is pointed out to natural products alone or in combination with commonly used drugs to improve their efficacy. Aims The study aims to test the antioxidant, anticancer, total phenolic and total flavonoids from Hopea odorata Roxb. stem bark extracted under different conditions: decoction and maceration. **Materials and Methods:** Stem barks were dried at 60°C and grounded to powder, then extracted by decoction at 60°C and 95°C for an hour. The maceration method with 50% and 95% ethanol for seven days and repeated three times. Antioxidant activity was tested by DPPH radical scavenging capacity assay. Total phenolic compound was tested by Folin-Ciocaltel colorimetric assay. Total flavonoids content was tested by aluminium chloride reagent. Cytotoxicity to Caco-2 colon adenocarcinoma cell line was determined by MTT assay. **Results:** For antioxidant activity, aqueous extract 60°C, 95°C and 50%, 95% ethanolic extracts presented IC50 at 195.22±1.85, 85.93±5.82 and 136.04±17.06, 144.62±32.61 µg/ml, respectively. Total phenolic compounds from 95°C aqueous extracts presented the highest at 240.69±2.06 mg GAE/g extract. Total flavonoid contents from 60°C aqueous extracts presented the highest at 131.67±4.92 mg QE/g extract. Cytotoxicity to the Caco-2 cell line by MTT assay of aqueous extracts (65°C and 95°C) and ethanolic extracts (50% ethanol and 95% ethanol) exhibited IC50 at 414.94, 417.66, 468.90, and 528.80 µg/ml, respectively. **Conclusion:** Hopea odorata Roxb. stem bark extracts from decoction and maceration exhibited various antioxidant activity and cytotoxicity to the Caco-2 cell line in this study. The aqueous extracts at 60°C and 95°C have higher levels of total phenolic compounds and total flavonoid contents when compared to 50% and 95% ethanolic extracts.

Keywords: Cancer, Hopea Odorata, Antioxidant, Total phenolic compounds, Colon cancer