

In Vitro Antioxidant and Cytotoxic Activities Against Human Oral Cancer and Human Laryngeal Cancer of *Limonia acidissima* L. Bark Extracts

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Abstract : *Limonia acidissima* L. (LA) (Common name: wood apple, Thai name: ma-khwit) is a medicinal plant which has long been used in Thai traditional medicine. Its bark is used for treatment of diarrhea, abscess, wound healing and inflammation and it is also used in oral cancer. Thus, this research aimed to investigate antioxidant and cytotoxic activities of the LA bark extracts produced by various extraction methods. Different extraction procedures were used to extract LA bark for biological activity testing: boiling in water, maceration with 95% ethanol, maceration with 50% ethanol and water boiling of each the 95% and the 50% ethanolic residues. All extracts were tested for antioxidant activity using DPPH radical scavenging assay, cytotoxic activity against human laryngeal epidermoid carcinoma (HEp-2) cells and human oral epidermoid carcinoma (KB) cells using sulforhodamine B (SRB) assay. The results found that the 95% ethanolic extract of LA bark showed the highest antioxidant activity with EC50 values of 29.76 ± 1.88 $\mu\text{g/ml}$. For cytotoxic activity, the 50% ethanolic extract showed the best cytotoxic activity against HEp-2 and KB cells with IC50 values of 9.55 ± 1.68 and 18.90 ± 0.86 $\mu\text{g/ml}$, respectively. This study demonstrated that the 95% ethanolic extract of LA bark showed moderate antioxidant activity and the 50% ethanolic extract provided potent cytotoxic activity against HEp-2 and KB cells. These results confirm the traditional use of LA for the treatment of oral cancer and laryngeal cancer, and also support its ongoing use.

Keywords : antioxidant activity, cytotoxic activity, Laryngeal epidermoid carcinoma, *Limonia acidissima* L., oral epidermoid carcinoma

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