

ABSTRACT

Despite being the second leading cause of death, treating cancer is still remarkably challenging. The most commonly used option to treat cancer is chemotherapy regardless of its toxicity not only to cancer cells but also to highly proliferative cells under normal physiological conditions such as hair follicle, bone marrow, and GI tract mucosa, which possibly decrease the patient's quality of life. In the current study, cytotoxic effects of *Laportea decumana* were observed as a new potential anticancer. MTS assay was performed on both cancerous cells (HeLa) and non-cancerous cells (HEK293), and demonstrated that *Laportea decumana* is selective to cancer cell with IC₅₀ of 58.64µg/ml which indicate moderate cytotoxic activity. Furthermore, *Laportea decumana* were able to significantly inhibit clonogenicity and migratory activity of cancer cells in a dose-dependent manner, performed by clonogenic assay and scratch assay, respectively. DNA ladder assay was implemented to detect the apoptotic activity of *Laportea decumana* towards cancer cells. The ladder pattern was observed in HeLa-treated cell but not in the untreated control cell, indicating the presence of DNA fragmentation which is the hallmark of apoptosis.

Keyword : *Laportea decumana*; Anti-cancer; Cytotoxicity; Apoptosis