

IN-VITRO CYTOTOXIC ACTIVITY OF *Elaeocarpus serratus* AND *Artocarpus heterophyllus* PLANT LEAF EXTRACTS

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Cancer is one of the main causes of disease and death worldwide, hence the continuous search for new therapeutic agents is essential. This study examined the ability of leaf extracts of *Elaeocarpus serratus* (“Veralu”) and *Artocarpus heterophyllus* (Jackfruit) to kill cancer cells *in-vitro*. A hot aqueous extract, macerated aqueous and macerated methanol extracts were prepared with dried mature leaf samples, which were then tested using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay for cytotoxic activity against two human cancer cell lines; MCF-7 (breast cancer) and HepG2 (liver cancer). The results indicated that, in a dose-dependent manner, both extracts showed notable cytotoxic effects. *Artocarpus heterophyllus* extracts exhibited lower IC₅₀ values when compared to *E. serratus* ($p < 0.0001$) as 27.48 µg/mL, 18.63 µg/mL, and 5.67 µg/mL for hot water, macerated aqueous, and methanol extracts, respectively, against the MCF-7 cell line. The *A. heterophyllus* leaf extract showed low IC₅₀ values against the HepG2 cell line but the values for some extracts were much higher compared to the MCF7 cell line. The IC₅₀ values were 22.07 µg/mL, 47.07 µg/mL and 54.01 µg/mL for hot water, macerated water, and macerated methanol extracts, respectively. The *E. serratus* leaf extracts showed somewhat less potent results for both cell lines, whereas the most potent result was for the aqueous macerated extract against the MCF7 cell line with IC₅₀ of 90.59 µg/mL. The methanol extract of *A. heterophyllus* showed anti-inflammatory activity with an IC₅₀ of 32.94 µg/mL in the Human Red Blood Membrane Stabilization assay. In comparison, the Ibuprofen standard showed an IC₅₀ of 4.92 µg/mL. The same extract also exhibited an IC₅₀ of 4.07 µg/mL in the ABTS assay (2,2'-azino-bis-(3-ethylbenzothiazoline-6-sulfonic acid)) while the ascorbic acid standard showed an IC₅₀ of 0.30 µg/mL. These results indicate that *Artocarpus heterophyllus* leaf extract could be promising as a potential source of anti-cancer compounds; however, more research, including *in-vivo* studies and the identification of the active components, is needed to fully understand the therapeutic potential.

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