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Cytotoxic Effects of Green Jackfruit (*Artocarpus heterophyllus*) and Ceylon Olives (*Elaeocarpus serratus*) Fruit Extracts on Cancer Cells

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The present study explores the *in-vitro* cytotoxic properties of Ceylon olives (*Elaeocarpus serratus*) and green jackfruit (*Artocarpus heterophyllus*) extracts due to their therapeutic and nutritional benefits. Several extracts were prepared with dried matured fruit; a hot water extract, a macerated water, and a macerated methanol extract. Cytotoxicity was assessed by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay against two human cancer cell lines; MCF-7 (breast cancer), HepG2 (liver cancer). The findings demonstrated that both extracts had prominent cytotoxic effects in a dose-dependent manner. Green jackfruit showed more activity against the MCF-7 breast cell line and displayed the lowest IC_{50} values as compared to Ceylon olives. Green jackfruit showed the most potent IC_{50} of 0.13 µg/mL, for the hot water extract. The Ceylon olive extract demonstrated higher IC_{50} values for all extracts tested. Out of which it showed the lowest IC_{50} of 30.67 µg/mL, for the macerated water extract against the MCF-7 cell line. Both fruit extracts also showed potent activity against the HepG2 cell line. Green jackfruit (6.19 µg/mL) and Ceylon olives (16.62 µg/mL) macerated water extracts exhibited the highest IC_{50} values. One-way ANOVA analysis was conducted and the MTT assay results showed a significant difference ($p < 0.0001$) when considering the fruit type. Moreover, macerated water extract of Green jackfruit showed the highest anti-inflammatory activity with an IC_{50} of 47.59 µg/mL in the Human Red Blood Membrane Stabilization method, while the Ibuprofen standard showed an IC_{50} of 4.92 µg/mL. Ceylon olives hot water extract exhibited an IC_{50} of 0.03 µg/mL in the ABTS assay (2,2′-azino-bis-(3-ethylbenzothiazoline-6-sulfonic acid)) while Ascorbic acid standard showed an IC_{50} of 0.30 µg/mL This study promotes the investigation of these fruits as sources of novel anticancer drugs and adds to the increasing body of evidence in cancer treatment.

Keywords: *anticancer activity, Artocarpus heterophyllus, Elaeocarpus serratus, HepG2, MCF-7*