

CYTOTOXIC EFFECT OF PEEL AND PERICARP OF SRI LANKAN POMEGRANATE FRUIT "DELUM" (PUNICA GRANATUM L.) AND COMPARISON OF DIFFERENT EXTRACTION METHODS

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Phytochemicals of fruits and vegetables have anti-oxidant, anti-inflammatory and anti-proliferative properties. In Sri Lanka, parts of the native Pomegranate tree, "Delum" (fruit, barks and leaves) are used in ayurvedic medicine as a treatment for cancers. Nevertheless, the scientific basis of these treatments are not yet explored. Anti-proliferative activity was assessed with MTT assay for Human Rhabdomyosarcoma (RD) after 24 h exposure to the Pomegranate fruit peel and pericarp extracts. The cell morphology was recorded comparative to the positive (Cycloheximide) and negative controls (untreated cells). The aqueous extract of Pomegranate peel exhibited significant cytotoxicity ($p < 0.05$) than pericarp, against RD cells. After 24 h incubation

at a 50% viability of RD cells, the required concentration of peel extract (EC₅₀) was exhibited as 7.2 ± 1.0 , 9.2 ± 0.6 , 9.2 ± 0.3 , 10.6 ± 0.8 and 10.7 ± 1.1 for sonication extraction, sonication followed by microwaving, microwave assisted extraction, heating in a 50°C water bath and boiling with electric burner extraction methods respectively. The peel extract obtained by the sonication method exhibited the lowest EC₅₀ value. In contrast, pericarp extracts revealed a higher EC₅₀ values than peel extracts. Therefore, we conclude that Sonication as an extraction method exerted a higher anti-proliferative activity comparative to the other extraction methods.

Keywords: Anti-proliferative activity, MTT assay, Pomegranate fruit