

INVESTIGATION OF ANTIOXIDANT AND CYTOTOXIC
PROPERTIES OF THREE TRADITIONAL DECOCTIONS USED
FOR THE TREATMENT OF CANCER IN SRI LANKA

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Abstract

Many plant-based treatments are being recommended for the cancer patients by traditional medical practitioners of Sri Lanka. However these drugs have been very rarely subjected to scientifically controlled investigations to validate their anticancer potential. Three such decoctions D1 (*Terminalia bellerica*, *Terminalia chebula*, *Phyllanthus emblica* and detoxified *Commiphora mukul*), D2 (*Terminalia bellerica*, *Terminalia chebula*, *Phyllanthus emblica*, detoxified *Commiphora mukul*, *Smilax china* and *Nigella sativa*) and D3 (*Munronia Pumila*, *Azadirachta indica*, *Solanum surattense*, *Solanum xanthocarpum*, *Rubia cordifolia*, *Picrorhiza kurroa*, *Trichosanthes cucumerina* and *Pterocarpus santalinus*) were selected to investigate their total polyphenol contents, antioxidant properties and potential anticancer activities. The total phenolic contents of D1 and D2 were ~37 and 30% w/w gallic acid equivalents, where as D3 contains a very low (6%) phenol content. Total free radical scavenging activity (DPPH assay), reducing power and antilipid peroxidation activity (TBARS assay) of each decoction were investigated and these values were compared with ascorbic acid and vitamin E. Decoction D1 and D2 showed higher antioxidant activity and lower EC₅₀ values than that the Decoction D3, suggesting a strong correlation of these activities to the total phenolic content. The MTT assay and LDH assay were used to investigate antiproliferative and cytotoxic activities of these decoctions against the human Rhabdomyosarcoma (RD) cells. The decoctions D1 and D2 showed strong inhibition of cell proliferation against RD cells, where as D3 did not show considerable activity. The chemo preventive and therapeutic potential of the decoctions D1 and D2 can be explained to a certain extent by the results obtained from this study.