

Comparative in vitro Anticancer Activity of Two Siddha Formulations: Neeradi Muthu Vallathymezugu and Thamira Kattu Chendooram

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Abstract : Background: Siddha Medicine is one of the Indian traditional medical systems, in which the cancer disease is mentioned as 'putrunoi' which literally means the disease of growth like termite mound. There are number of formulations available for the treatment of cancer disease. Neeradi muthu vallathymezugu (NMV) and thamira kattu chendooram (TKC) are two drugs commonly prescribed by Siddha physicians. These drugs have been clinically reported to be safe and effective when given orally. Though these formulations are in practice for centuries, no efforts have been made to standardize them and explore their anti-cancer potential systematically. Objective: To compare the cytotoxic activity of NMV and TKC with doxorubicin using cancer cell lines. Materials and methods: For this study, ethanol extract of NMV was taken, whereas TKC was used as such. In vitro cytotoxic activity was evaluated by sulphorhodamine (SRB) assay against human hepatic cancer cells (HepG2), human breast cancer cells (MCF-7) and human cervical cancer cells [KeLa]. Doxorubicin was used as the standard. The SRB assay is based on the ability of cellular proteins to bind with sulphorhodamine-B. The number of live cells in drug treated cell lines directly affects the color formation in the assay, which is estimated calorimetrically by measuring the absorbance at 540 nm to calculate the cytotoxicity (inhibitory concentration - IC50 value) of the drug. Results: The IC50 values of NMV, TKC and doxorubicin against HepG2 were 3.08 µg/ml, 20.21 µg/ml and 1.21 µg/ml respectively. In MCF-7, it was 11.75 µg/ml, 17.67 µg/ml and 2.8 µg/ml. In HeLa, the values were 24.76 µg/ml, 73.35 µg/ml and 1.12 µg/ml. Conclusions: The study proves the possible anti-cancer potential of these two formulations. Compared to TKC, NMV showed good cytotoxic effect even at low dose. Human hepatic cancer cells responded well even at very low dose, when compared to other cancer cells. Though, cytotoxic potential of these compounds was found to be less compared to doxorubicin, the isolated lead compound may have the potential to be used as an anticancer drug clinically.

Keywords : Neeradi muthu vallathymezugu (*Hydnocarpus laurifolia*), thamira kattu chendooram, cytotoxicity, in-vitro, Siddha Medicine

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