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In vitro cytotoxic effect of combination of Triphala Churna and Ocimum Santum decoction on human hepatoma (HepG2) cells

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Background: A decoction (hot-water extract) comprised of Triphal Churna and *Ocimum sanctum* (leaf) has been reported to prevent chemically-induced hepato-carcinogenic changes in rats and to exert significant cytotoxic effects on human hepatoma (HepG2) cells. However, the decoction used in previous studies to determine cytotoxicity was not standardized. Further, during preparation of pharmaceuticals for clinical use, it is more convenient to use an ethanolic extract. Therefore this study was carried out to develop standardized aqueous and ethanolic extracts of the plant mixture Triphal Churna and *Ocimum sanctum* (leaf) used in the preparation of the original decoction and compare the cytotoxic effects of these two extracts by evaluating cytotoxicity to the human hepatoma (HepG2) cell line.

Methods: Aqueous and ethanolic extracts have been standardized by evaluating organoleptic characters, physicochemical properties, qualitative and quantitative analysis of chemical constituents and analysis of High Performance Liquid Chromatography (HPLC) and Thin Layer Chromatography (TLC) profiles. Cytotoxic potentials of the above standardized extracts were compared by evaluating their effects on the survival and overall cell activity of HepG2 cells by use of the 3-(4,5-dimethylthiazol-2yl)-2,5-biphenyl tetrazolium bromide (MTT) and Sulphorhodamine B (SRB) assays.

Results: Results from MTT and SRB assays demonstrated that both extracts exerted strong dose-dependent *in vitro* cytotoxicity to HepG2 cells. The standardized aqueous extract showed a marginally (though significantly, $p<0.05$) higher cytotoxic potential than the ethanolic extract.

Conclusion: It may be concluded that results obtained in the present study could be used as a diagnostic tool for the correct identification of these aqueous or ethanolic extracts and would be useful for the preparation of a standardized pharmaceutical product that may be used in the future for clinical therapy of hepatocellular carcinoma.

Biography

Gunji Venkateswarlu is presently working as an Assistant Professor in Narasaropeta Institute Of Pharmaceutical Sciences, Narasaraopeta, Guntur. He has completed his MPharm in 2012. Previously, he worked as a Lecturer in Dr Samuels George College of Pharmaceutical Sciences, Markapuram, Prakasam district. He has published more than 10 papers in reputed journals.

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