

## The Effect of Thymoquinone and Sorafenib Combination on Hepatocellular Carcinoma Cell Line

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**Abstract :** The use of combination of chemotherapy and natural products to influence the cell death with low doses of chemotherapeutic agents and few side effects has recently emerged as a new method of cancer therapy. Aim: Evaluation the modulatory effect of Thymoquinone on HepG2 cells treated with Sorafenib. Methods: Hepatocellular Carcinoma HepG2 cell line was treated with Sorafenib and TQ individually and in combination. The effect of these treatments on cell viability (MTT assay), apoptosis (Expression of Caspase-3) and oxidative markers (GSH content and extent of lipid peroxidation) was determined. Results: When compared the effect of both agents alone and the combination of the IC50 of Sorafenib and the IC50 TQ, the combination resulted in reduction of cell inhibition and apoptosis and antagonize their actions on GSH content and extent of lipid peroxidation which are increased. This study showed potent anti-tumor activity of both TQ and Sorafenib separately on HepG2 but upon combination surprisingly they interacted and give antagonistic effect. Conclusion: Co-treatment resulted in antagonistic interaction between Sorafenib and Thymoquinone.

**Keywords :** antagonism, hepatocellular carcinoma, sorafenib, thymoquinone

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