Reversal of Chemo-Resistance in 5FU Resistant HeLa Cells Using Herbal Formulation Containing Green Tea and Turmeric (Camelia sinensis and Curcuma longa)

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The drawback of chemotherapy for treating cancer is that the cancerous cells acquire drug resistance after constant exposure to the drug, making them impervious to further dose escalation. Most cancers become immune to many chemotherapeutic drugs despite being treated with only one chemo drug. This results in resistant relapses. It was hypothesized that herbal formulation HF1 (under patent by Sri Raghavendra Biotechnologies Pvt Ltd, Bangalore) would reverse resistance, allowing 5FU to treat cancer at non-toxic dosage. 5Fluoro Uracil (5FU) is a commonly administered chemotherapeutic drug and its extensive use results in resistant relapses. The present in vitro study was undertaken to test the efficacy of HF1, comprising of green tea and turmeric (Camelia sinensis and Curcuma longa), in reversing drug resistance in 5FU resistant HeLa cell line. 5FU resistant cells were grown by subjecting HeLa cultures to 5FU gradually. These resistant cells were used in MTT assays to measure cell viability when subjected to only HF1, only 5FU, and both HF1 at IC50 (inhibitory concentration at which 50% cells survive) and 5FU. HPLC Profiling was carried out on HF1, quantifying EGCG and curcumin, the active compounds in green tea and turmeric, which is believed to have brought about the following results. Not only did the addition of HF1 re-sensitize the HeLa 5FU resistant cells, allowing cell death up to 83%, but also showed a synergistic effect by lowering both the IC50 of HF1 and 5FU on the resistant HeLa cells. When this experiment was repeated with Paclitaxel, another common chemotherapeutic drug, on the same resistant HeLa cells, a synergistic effect was also observed, proving the efficacy of HF1.

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