

Abstract

Evaluation of the Anti-Cancer Activity of Goji Leaves Extracts against HT-29-MTX Colon Cancer Cell Line [†]

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Abstract: This study investigated the anti-proliferative effects of *Lycium chinense* L. leaf extracts obtained using microwave assisted extraction (MAE) and ultrasound-assisted extraction (UAE). The plant material was subjected to a solvent mixture containing 60% ethanol and 40% distilled water, with a plant-to-solvent ratio of 1:10. Both MAE and UAE induced inflammation in a time and concentration-dependent manner on colon cancer HT29-MTX cells, with MAE being more potent. Cell viability decreased with increasing polyphenol concentration, and MAE showed a stronger impact. Oxidative stress was induced in HT29-MTX cancer cells by a concentration of 250 µg/ml polyphenols from these extracts, as evidenced by decreased catalase activity, increased oxidized protein levels, and fluctuations in GSH concentration. Notably, MAE upregulated p53 expression after 24 hours, indicating apoptosis initiation, followed by a slight reduction, possibly related to cancer cell resistance mechanisms. Both extracts exhibited anti-proliferative activity, with MAE being more effective. Overall, the findings highlight the promising potential of MAE extract from Goji leaves in targeting colon cancer cells through its effects on cell viability, inflammation, and oxidative stress. Further investigation is needed to understand the underlying mechanisms fully. These insights provide a basis for exploring Goji extracts' therapeutic applications in cancer treatment and prevention.

Keywords: Goji leaves extracts; colon cells; inflammation; oxidative stress; polyphenols

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3