

BIOPHENOLS CHARACTERIZATION OF EXTRA VIRGIN OLIVE OIL EXTRACTS AND IN VITRO TEST ON A MODEL OF COLORECTAL CANCER CELLS

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Extra virgin olive oil (EVOO) is believed to exert beneficial effects against many pathological processes, including the development of colorectal cancer (CRC). It is well known that olive oil contains a variety of biophenols, which are thought to be responsible for this anti-carcinogenic effects [1]. Several studies have shown that the expression of estrogen receptor β (ER β) is significantly reduced in colon cancer cells. To investigate the correlation between the presence of biophenols and the beneficial effects, different EVOOs have been chemical characterized and in vitro tested on a model of human colon cancer cell line HCT8- β 8 [2]. Chemical characterization of extracts was performed by HPLC/DAD/MS techniques [3]; three main categories were identified (Table 1): simple phenols, secoiridoids, and lignans. Consequently, we have evaluated the in vitro effects of the EVOOs extracts (5-75 μ M) and of hydroxytyrosol (OH-Tyr) standard (5-50 μ M) on HCT8- β 8 [4]. Both extracts have showed a biological activity on HCT8- β 8 at the concentration of 25 μ M, whereas OH-Tyr at 5 μ M. Additionally, at the same concentration, EVOO2 has showed an anti-proliferative effect higher than EVOO1 (Table 2). In conclusion EVOOs extracts can inhibit the mitotic activity of colon cancer and it seems correlated to the biophenols concentration.

[1] Pampaloni et al (2014) *World Journal of Gastrointestinal Oncology* 6(8), 289-300.

[2] Martinetti et al., (2005) *Endocrine-Related Cancer* 12 455-46.

[3] Romani et al, (2001) *Chromatographia* 53 279-284.

[4] Bernini et al, ICP 2016 Wien.

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