

## Anti-Proliferative Properties of Cornus Mass Fruit in Different Human Cancer Cells

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### Abstract

**Introduction:** There is a long standing interest in natural compounds especially those with a high polyphenolic content and high scavenging activity for hazardous free radicals. Cornus mas (CM) fruit is well known for its antioxidant activities; however, its toxicity against human cancers needs to be addressed. Here, we investigated selective anticancer effects of CM on different human cancer cells.

**Materials and Methods:** A hydro-alcoholic extract of CM (HECM) was prepared and total phenolic content (TPC) and total flavonoid content (TFC) were determined by colorimetric assays. Antioxidant activity was assessed with respect to DPPH radical scavenging. MTT assays were used to evaluate the cytotoxicity of different doses of CM (0, 5, 20, 100, 250, 500, 1000 µg/ml) towards A549 (lung non-small cell cancer), MCF-7 (breast adenocarcinoma), SKOV3 (ovarian cancer) and PC-3 (prostate adenocarcinoma) cells.

**Results:** Significant ( $P < 0.05$ ) or very significant ( $P < 0.001$ ) differences were observed in comparison to negative controls at all tested doses (5-1000 µg/ml). In all cancer cells, HECM reduced the cell viability to values below 26%, even at the lowest doses. In all cases, IC50 was obtained at doses below 5µg/ml. The mean growth inhibition was 81.8%, 81.9%, 81.6% and 79.3% in SKOV3, MCF-7, PC-3 and A549 cells, respectively.

**Conclusions:** Altogether, to our best knowledge, this is a first study that evaluated toxicity of a HECM with high antioxidant activity in different human cancer cells in vitro. Our results indicated that a hydro-alcoholic extract of CM possesses high potency to inhibit proliferation of different tumor cells in a dose independent manner, suggesting that an optimal biological dose is more important and relevant than a maximally tolerated one.