Antiproliferative effect of Cuban propolis in human colon carcinoma cells is associated with its composition

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Propolis have been considered as folk remedies against different diseases due to its antimicrobial, antioxidant, regenerative, immune-stimulant and antitumoral properties (Marcucci, M, 1995). Currently, several studies have reported that the main type of Cuban propolis (CP) is characterized by the presence of nemorosone, a polycyclic polyprenylated acylphloroglucinol (Cuesta-Rubio, O, et al., 2007) that is able to interfere with the proliferation of different neoplastic cells (Diaz-Carballo, D, et al., 2008). The present study evaluates the influence of different CP extracts and its main phytocomponent (nemorosone) on human colon carcinoma cells (LoVo), doxorubicinresistant cells (LoVo/DOX) and oxaliplatin-resistant cells (LoVo/OX). Quantification of nemorosone content in CP extracts was performed by HPLC-ESI/MS. Antiproliferative activity after treatment of 24, 48 and 72 hours was determined by the MTT assay and apoptosis/necrosis induction was investigated by flow cytofluorimetry. Data show that nemorosone and CP extracts, in close association with their nemorosone content, inhibit proliferation of all three cell lines (LoVo, LoVo/DOX and LoVo/OX) in a concentration- and time-dependent manner, through of the apoptosis induction. Our findings provide a new evidence for developing strategies against colon carcinoma cells resistant to conventional chemotherapeutic agents using Cuban propolis or its main component nemorosone. Further studies are in progress to elucidate the mechanisms by which CP and nemorosone exploit their antiproliferative effects on LoVo, LoVo/DOX, LoVo/OX.

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Cuesta-Rubio, O, et al. 2007. J Agric Food Chem, 55, 7502-9.

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