Antiproliferative effects of Tubi-bee propolis in glioblastoma cell lines

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Keywords: propolis, glioblastoma, U251, U343, treatment.

Propolis is resin formed by a complex chemical composition that bees collect from plants. Since ancient times propolis has been used in folk medicine, due to its biological properties, that include antimicrobial, anti-inflammatory, antioxidant, antitumoral and immunomodulatory activities. Glioblastoma (GBM) is the most common human brain tumor. Despite the improvements in GBM standard treatment (surgery followed by radiotherapy with adjuvant chemotherapy with temozolomide (TMZ), a DNA alkylating agent), patients' prognosis is still very adverse. The aim of this work was to evaluate \textit{in vitro} the Tubi-bee propolis effects on human GBM (U251 and U343) and fibroblast (MRC) cell lines. Proliferation, clonogenic capacity and apoptosis were analyzed after treatment with 1mg/mL and 2mg/mL propolis concentrations for different time periods. Data showed an antiproliferative effect of tubi-bee propolis against glioblastoma and fibroblast cells, in a dose- and time dependent manner, although the time-dependence effect was less intense in the fibroblast cell line. Combination of propolis with TMZ caused a synergic effect. Moreover, propolis caused decrease in colony formation glioblastoma cell lines. Propolis treatment had no effects on apoptosis, demonstrating a cytostatic action. Further investigations are needed to elucidate the molecular mechanism of the antitumor effect of propolis and the study of its individual constituents may reveal specific molecules with antiproliferative capacity.