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Treatment with Viscum album potencies induces reduction of MCP-1 and ROS levels in murine melanoma cells.

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Abstract
Melanoma is responsible for most skin cancer deaths. It has a high metastatic potential, complex treatment, and a hopeless prognosis. Viscum album extract (Va) is a complementary treatment in cancer, with in vitro and in vivo cytotoxic effects on different tumor types. However, its high-diluted homeopathic preparations’ effects and mechanisms on cancer cells need further study. Thus, the aim of present work was to investigate cytokine profile and reactive oxygen species (ROS) production of melanoma cells after treatment with ultradiluted VA collected from host tree Abies alba (VaAa) and Quercus robur (VaQr) during Swiss summer. For this, potencies of Va in different homeopathic scales were prepared using mother tincture (MT) from VaAa and VaQr submitted to homeopathic ethanolic maceration and then a subsequent dynamization process. Then, B16F0 melanoma cells cultivated in 24-well plates were treated with MT or 12 dH, 100 ch or 5 lm potencies of VaAa or VaQr in the final concentration of 10% for 24, 48 or 72 hours (n=6 per treatment). After these periods, culture supernatants were collected to assess the levels of monocyte chemoattractant protein-1 (MCP-1), INF-γ, TNF-α, IL-10, IL-12p70 and IL-6 cytokines using the kit BD Cytometric Bead Array (CBA) Mouse Inflammation (BD-Biosciences). The ROS production was quantified by flow cytometry using the kit DCFH-DA according to manufacturer’s instructions. Results demonstrated significant reduction of MCP-1 and ROs levels in B16F10 melanoma cells treated with Va (VaQr, preferentially) at 12 dH or 5 lm potencies when compared to untreated or carboplatin-treated cells. In conclusion, we demonstrated for the first time, the in vitro effects of Va potencies prepared in different homeopathic scales in relation to cytokines and ROs production in cell melanoma cells.

Keywords: Skin cancer, homeopathic preparations, Abies alba, Quercus robur, oxidative stress.