

Cytotoxic and antiproliferative effects of *Salvia officinalis* and *Melissa officinalis* in vitro plants extracts

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Background

A large variety of studies illustrates the benefits of the active compounds present in plants from the *Lamiaceae* family on human health. Either if it is about the antioxidant or the antitumor effect, they are viable options as adjuvants to synthetic products in the therapy of various diseases. *Salvia officinalis* (sage) and *Melissa officinalis* (lemon balm) are important representatives of the *Lamiaceae* family.

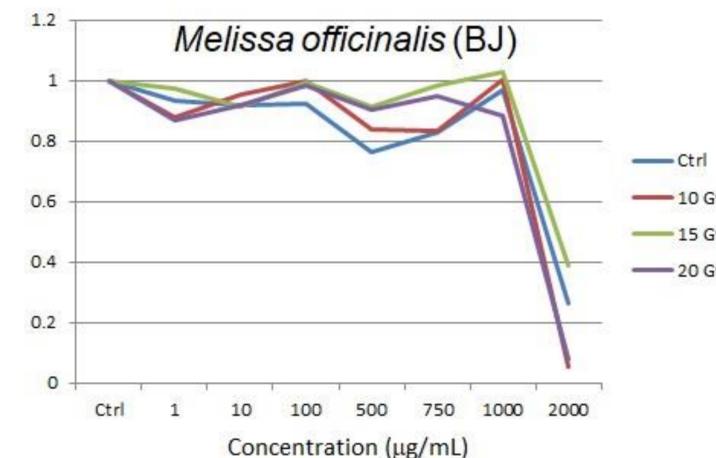
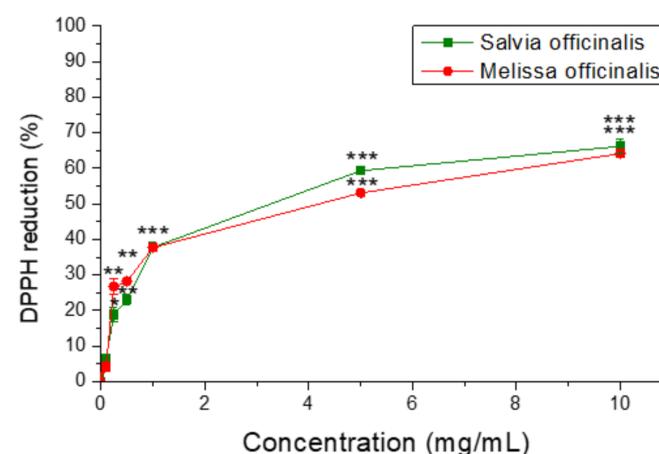
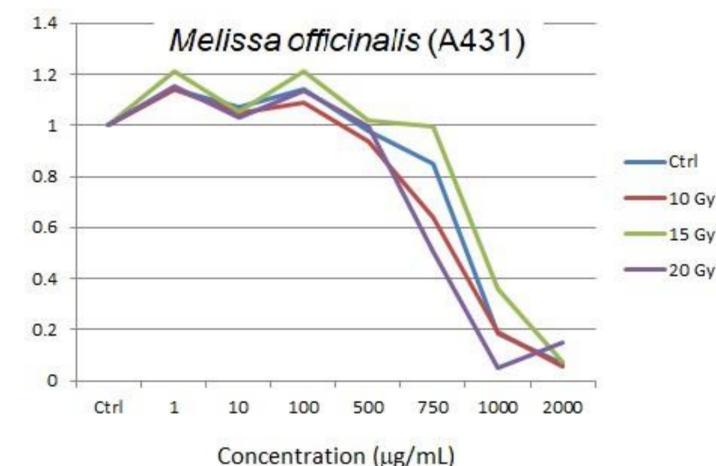
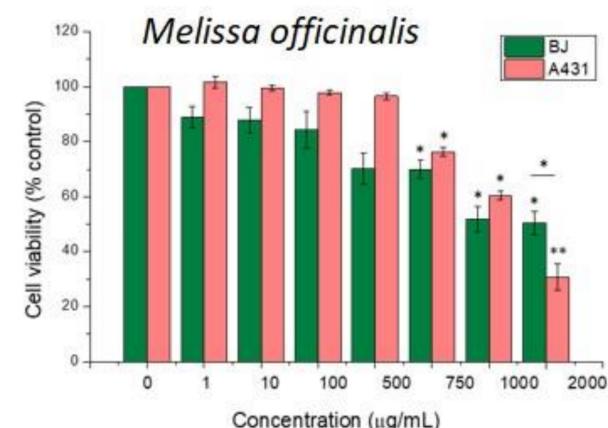
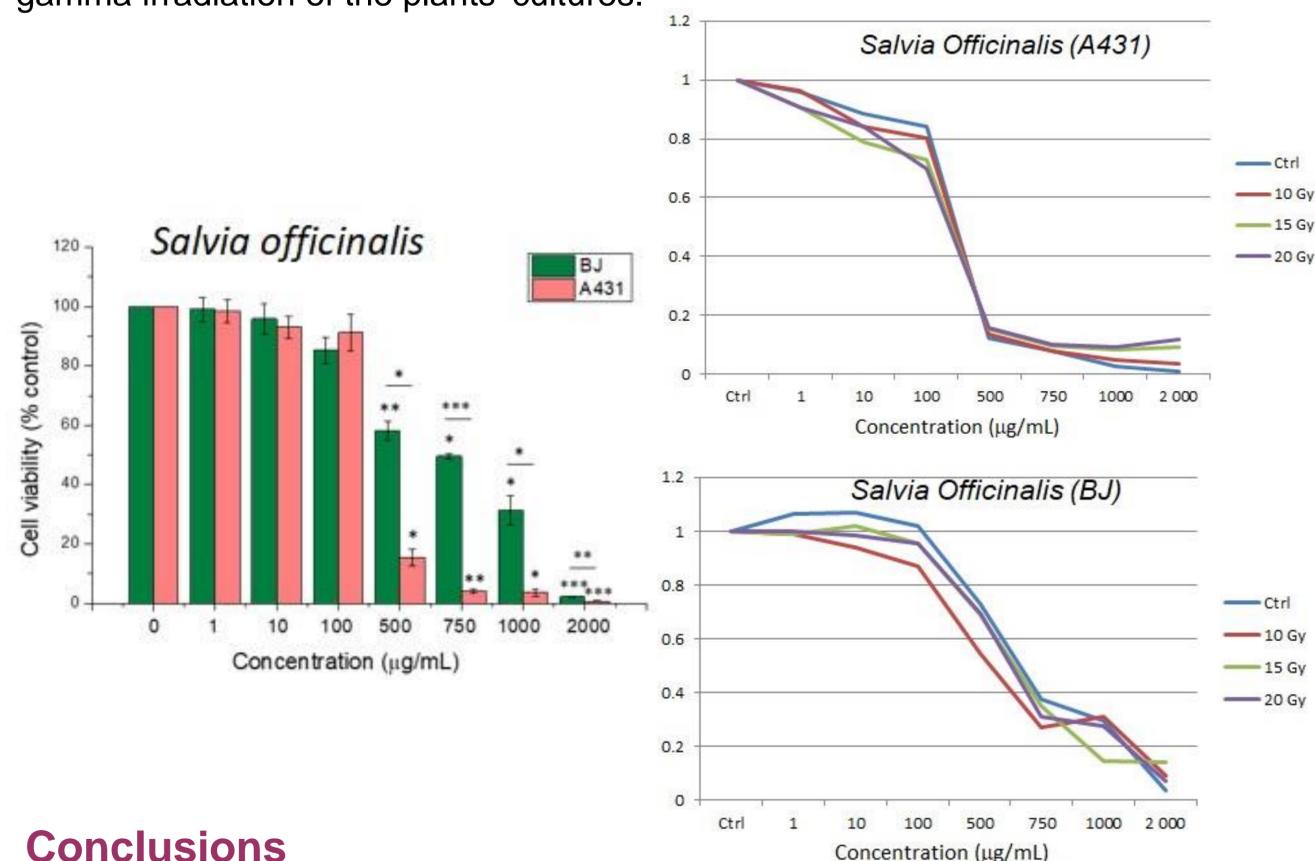
Aim

The purpose of our study is to test the bioactive effects of two *in vitro* plants extracts (*Salvia officinalis* and *Melissa officinalis*) and to improve their biological activity by gamma irradiation of the plants' cultures.

Materials and methods

Both types of *in vitro* plants were exposed to gamma irradiation with doses of 10, 15 and 20 Gy in order to evaluate if this treatment improves the biological effects of the extract compared to the extract from non-irradiated plants. The sage and lemon balm extracts were investigated for their cytotoxic, antiproliferative properties using MTT assay on A431 human epidermoid carcinoma cell line and BJ human normal fibroblasts cell line. For these experiments, the cells were treated for 72h with extract concentrations in the range of 1-2000 µg/mL. Also, we studied the antioxidant property of the extracts using the DPPH assay.

Results



Conclusions

- ✓ Both vegetal extracts exert pronounced cytotoxic, antiproliferative and antioxidant effects against tumoral A431 cells, their viability being affected differently: it decreases down to 30% in the case of *Melissa officinalis* and almost 1% in the case of *Salvia officinalis*.
- ✓ No change with respect to irradiation is observed.
- ✓ The results demonstrate the ability of both plant extracts to selectively inhibit tumor cells growth.