

Anticancer properties of *Gratiola officinalis* extracts on colorectal cancer cell lines.

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Abstract: Colorectal carcinoma (CRC) is one of the most common types of cancer worldwide. At the basis of its pathogenesis are mutations that impair several molecular pathways that regulate cell growth, survival, proliferation and migration. Furthermore, cancer cells also exhibit metabolic alterations that increase the amount of energy produced through glycolysis even in aerobic conditions, the so-called “Warburg effect”.

To treat such a heterogeneous disease, many drugs have been developed over the years. However, their efficacy is variable, and their administration may be related to strong side effects, urging the need to find new, complementary approaches. Amongst these, natural compounds present in plants have emerged as promising candidates, having shown antiproliferative and antioxidant activities on cancer cells *in vitro*.

Here, we report that extracts derived from *Gratiola officinalis* have a stronger impact on CRC cells compared to healthy colon ones, altering their viability, proliferation rate and survival. Moreover, these extracts are also able to reverse the Warburg effect on a particular CRC cell line. Taken together, these observations suggest that *Gratiola officinalis* extracts could represent a novel player in the prevention and treatment of colorectal carcinoma.