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The Cancer Control Challenge:
Better Understanding It to Better Face It

ANALYSIS OF THE ANTIPROLIFERATIVE ACTIVITY OF AN ESSENTIAL OIL (OEPV) IN PRIMARY AND METASTATIC GASTRIC CANCER CELL LINES

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Introduction: Gastric cancer (GC) is one of the most common cancers in the northern region of Brazil, the second most common in men and the fifth most common in women, according to the National Cancer Institute (INCA). In addition, its symptoms are non-specific in the early stages of the disease, which contributes to late diagnosis, poor prognosis, and resistance to conventional chemotherapy. In this context, Natural Products (NPs) are a promising pharmacological alternative, due to the chemical structural diversity of their bioactives. Among the NPs, essential oils have crucial biochemical advantages for the chemical remodeling of compounds, increasing efficiency and broadening therapeutic proposals. Specifically, the oils of the Piperaceae family, which are sources of phytochemicals, stand out for their high antineoplastic potential. **Objectives:** The aim of this study was to evaluate the antiproliferative action of OEPV oil on primary (ACP03) and metastatic (AGP01) gastric cancer cell lines. **Methods:** The method used the succinimidyl ester of carboxyfluorescein diacetate (CFSE), whose intensity changes according to cell duplication, which makes it a parameter for identifying cell generations according to the variation in fluorescence intensity. To carry out the work, 70^3 cells/well were seeded with the CFSE incorporation, with the exception of the white group, and incubated for 24 hours in an oven at 37ºC with 5% CO2. Subsequently, treatment was carried out with OEPV at concentrations of 6µg and 12µg, which was kept in the incubator for 72 hours. Finally, cytometry analysis was performed after harvesting the cells and washing them with PBS 1x followed by resuspension in PBS 1X. In addition, for the calibration of the equipment (FacsVerse BD®), groups with minimum and maximum fluorescence were used, i.e., unlabeled groups and groups labeled immediately at the time of analysis, respectively. **Results:** The results showed that there was a decrease in proliferation in both strains after treatment with OEPV oil. The AGP01 strain showed a significance of $p<0.01$ at concentrations of 6µg and 12µg. For ACP03, the significance was $p<0.05$ at both concentrations. **Conclusion:** Thus, the data from this

study point to the oil's antiproliferative activity as a potential substance for use in anticancer therapies. This study achieved its objective in terms of quantifying and evaluating the ability of phytochemicals to reduce cell division in GC cells.

Keywords: Stomach neoplasms; Biological products.