1. **Everyday Spice, Cilantro, Exhibits Promising Health Benefits against Lung Cancer**

**Global Integrative Oncology: Use in Cancer Treatment & Patient Management**

**Background**: Lung cancer is the leading cause of cancer death and the second leading cancer in incidence in the U.S. Around 228,820 new cases of lung cancer and 135,720 related deaths are projected to occur in the U.S. in 2020. Among these cases, lung adenocarcinoma is the most common form. Cilantro, from the leaves of the coriander plant, has been used for centuries in the flavoring of food. In recent years, it has been shown to inhibit the growth of breast and prostate cancers. Our lab has also shown it could inhibit the growth of bladder tumors. However, nothing is known about its effect on lung cancer. This study was therefore designed to investigate if cilantro has any direct effect on the growth of lung cancer and its potential molecular mechanisms.

**Methods**: Clonogenic survival assay, cell proliferation, and caspase-3 activity kits were used to evaluate the direct effects of cilantro extract (CE) on cell survival, proliferation, and apoptosis of the widely-studied lung cancer cell line A549. We further investigated possible molecular mechanisms using RT-PCR.

**Results**: The percentage of colonies of A549 cells decreased significantly when treated with CE. This was paralleled with the decrease in the OD value of cancer cells when treated with CE. Furthermore, the relative caspase-3 activity in cancer cells increased significantly in the presence of CE. The anti-tumor effect of CE on A549 cells correlated with decreased pro-proliferative molecules cyclin E and cdk2. The pro-apoptotic effect of CE correlated with decreased anti-apoptotic molecule FLIP.

**Conclusions**: Cilantro inhibits lung adenocarcinoma cells by the inhibition of proliferation and the promotion of apoptosis via the modulation of cyclin E, cdk2 and FLIP. Such a study might be helpful to develop new treatment for lung cancer.

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