Anticarcinogenic Potential of Nutraceutical Supplement Soybean Based Quantified with High Rates of Genistein and Daidzein

de Souza Melo, Rayane

Okabe, Carla

Cancer is characterized by uncontrolled growth of cells and this disease prevention has taken an important dimension in the field of science, since it has recently been appointed as a major cause of human mortality worldwide. The World Health Organization (WHO) has projected 27 million new cancer cases for 2030, and 17 million deaths from this disease. Developing countries will be most affected, including Brazil. Experts says that the trend of cancer therapy is that in a few years, chemotherapy will decrease in favor of new more specific and less toxic alternatives, probably using vegetal origin compounds, which action mechanisms have been studied and clinically confirmed by many tests. Some studies with isolated genistein in high concentrations demonstrated significant anti-proliferation activity, despite evident side effects in normal cells, but agonist effect to cancer in low concentrations. In order to find out its action mechanisms in tumor cells, we used genistein and daidzein as a complement within nutraceutical supplement. We also conducted cytotoxicity tests to verify toxicity ability towards normal cells. Soybean phytochemicals were qualitatively analyzed by using high-performance liquid chromatography (HPLC) that were identified by eluted peaks. Cytotoxicity tests were conducted by using four lineages of cancer cells (PC-3, MCF-7, HT-29 and 786-0) and a lineage of non-neoplastic cells (NIH/3T3) to validate that the proposed compound had no agonist effect to cancer in neoplastic cells. It also showed no toxicity in non-neoplastic cells in low concentrations. These findings have led us to conclude this is an important condition in cancer prevention.

Awards Won: