

Title Antineoplastic and antioxidant properties of some fruits and vegetables using experimental models of mamma cancer

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Abstract

Consumption of fruits and vegetables associated with reduced risk of chronic diseases. They are rich in several antioxidant phytochemicals such as carotenoids and phenolic compounds that could be responsible for the health benefits. We studied the antineoplastic properties of some fruits and vegetables using *in vivo* and *in vitro* models. On one hand, we studied the effect of 'Ataulfo' mango consumption on chemically-induced mammary carcinogenesis and plasma antioxidant capacity (AC) in rats treated with the carcinogen N-methyl-N-nitrosourea (MNU). Mango was administered in the drinking water (0.02-0.06 g/mL) during both short-term and long-term periods to rats, and plasma antioxidant capacity was measured by ferric reducing/antioxidant power (FRAP) and total oxyradical scavenging capacity assays. On the other hand, we screened using methylthiazolyldiphenyl-tetrazolium bromide assay the antiproliferative activity of aqueous extracts of avocado, black sapote, guava, mango, cactus stems (cooked and raw), papaya, pineapple, four different prickly pear fruit, grapes and tomato on breast cancer cell line MCF-7. β -carotene, gallic acid, total phenolic contents and AC were analyzed in each aqueous extract. Rats treated with MNU had no differences in mammary carcinogenesis (incidence, latency and number of tumors), nor differences in plasma antioxidant capacity. On the other hand, *in vitro* study showed that only the papaya extract had a significant antiproliferative effect and we did not notice a relationship between total phenolic content and AC with antiproliferative effect. These results suggested that each plant food has a unique combination in quantity and quality of phytochemicals which could determine its biological activity.