

Effect of extracts of jaboticaba (*Myrciaria jaboticaba*) and jamun berry (*Syzygium cumini*) on human colon adenocarcinoma cells (HT-29)

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Colon cancer is the third most prevalent being a multifactorial disease. Use of functional foods with chemopreventive compounds seems to contribute in this process with antioxidant and anti-angiogenic mechanisms of action. Jaboticaba (JB) and jamun berry (JME) stand out among the Myrtaceae's fruits, due to its high bioactive potential and high content of anthocyanins that act in reducing the risk of cancer development. The objective of this work was to evaluate the antioxidant activity and elucidate the effect extracts obtained from the fruit peels from jaboticaba and jamun berry on cell proliferation, cell cycle and apoptosis on human colon adenocarcinoma (HT-29) cell line. The antioxidant activity was measured by the DPPH, FRAP, ABTS and ORAC assays, Cell viability, cell cycle and apoptosis analyzes were performed using the MTT method and flow cytometry, respectively. JB dehydrated powder presented the highest total anthocyanin content (802.9 mg/100g) compared with JME extract (575.2 mg/100 g). Cyanidin-3-O-glycoside was the most abundant(789.48mg/100g), while in JME petunidine-3,5-O-diglycoside (208.26mg/100g) and delphinidine-3-O-diglycoside(206.26/100g) presented high values. JB extract exhibited high values of antioxidant activity compared with JME in all evaluated assays. Cell viability analysis revealed an average reduction of 60% when incubated with JB and 30% with JME. JB (500 e 1000µg/mL) and JME (1000µg/mL) promoted an increase in the percentage of cells in the G0/G1 and S phases, followed by a reduction of cells in the G2 / M phase. In addition, JB caused a two-fold increase early

apoptosis cells, whereas JME did not promote modifications in the apoptosis process. Thus, the data showed that JB presented the highest antiproliferative effect, besides promoting cell cycle arrest and induction of apoptosis. These results open a series of perspectives on the use jabuticaba in the prevention and treatment of colon cancer.

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