Cytotoxicity Effects of Flavone, Apigenin and Morin on Human Hepatoma Cell Line (Hep G2)

Valdameri G., Winnischofer S. M. B. and Rocha M. E. M.
Departamento de Bioquímica e Biologia Molecular, Setor de Ciências Biológicas, UFPR, Paraná, Brazil.

Hepatocellular carcinoma (HCC) is the fifth most prevalent cancer worldwide. The most effective drug used in the treatment of HCC (namely, doxorubicin) show low incidence of response. Flavonoids consist in a group of common phenolic compounds with significant antioxidant, cardioprotective and antitumor activity, however, its effects in HCC is poorly understood. The aims of this work were to evaluate flavone, apigenin and morin effects on the viability of the Hep G2 cell line and release of cytochrome *c* from mitochondria. Cellular viability was measured by the crystal violet assays using flavonoids at different concentrations (10, 25, 50 and 100 $\mu mol.L^{-1}$) for 24 hours. We observed 50 and 30 percentage reduction in cellular viability when these cells were treated with apigenin (100 $\mu mol.L^{-1}$) and flavone (100 $\mu mol.L^{-1}$), respectively. We also report that treatment of the cells with these flavones (apigenin and flavone) during six days, promotes reduction in cellular viability in a dose and time dependent way, reaching respectively, 90 and 65 percentage reduction with 100 $\mu mol.L^{-1}$ on the 6^{th} day of treatment. The flavonol (morin) have no effect in the cellular viability. In addition, we evaluated cytochrome *c* release by spectrophotometric assays**.** Our data show that treatment of Hep G2 cells with apigenin (100 $\mu mol.L^{-1}$), for 24 hours, promoted the release of cytochrome *c*. Our results showed that among the flavonoids evaluated in this work, only flavones (apigenin and flavone) were able to promotes viability reduction in Hep G2 cells and suggest that apigenin effects occur in part, by release of cytochrome *c*.

Key words: *Flavonoids, cytotoxicity* and *hepatocarcinoma*.

Supported by CNPq.