Cytotoxic Effect of Phytochemicals in the K562 Human Leukemic Cell Line

Ferreira, I.R.\textsuperscript{1,2}; Melo, P.S.\textsuperscript{1,2}

\textsuperscript{1}Veris Faculdades, Campinas, SP, Brazil; \textsuperscript{2}Faculdade de Ciências Aplicadas, UNICAMP, Limeira, SP, Brazil

Many plants has been documented to be useful in the treatment of several disorders and are important sources to obtain substances as molecular chemical models to the synthesis of a large number of drugs. These compounds, found in nature, show an enormous range of diversity in terms of structure and pharmacologic activities. The K562 cell line of a mieloid chronic leukemia, established from human cells. Thus, were evaluated eight phytomedicine belonging to the class of lignoid (dimethoxymagnolol, grandisin and yangambin), steroidal sapogenins (hecogenin and solasodin) and riparins (I, II and III) in K562 cells. Cell viability was determined by reduction of 3-(4,5-dimethylthiazole-2-yl)-2,5-biphenyl tetrazolium bromide (MTT) and protein tyrosine phosphatase activity (PTP). In the cells treated with steroidal sapogenins was not found values of IC\textsubscript{50} at concentrations of up to 500 µM. In the class of lignoids was not found values of IC\textsubscript{50} at concentrations of up to 250 µM, with the exception of iangambin, which has values around 500 µM. The class of riparins was the most effective of phytochemicals as antitumoral, since it was determined IC\textsubscript{50} values of 125, 27 and 15 (riparin I, II and III, respectively). Previous studies have shown that these phytochemicals were less cytotoxic in normal cells (V79 cells and hepatocytes) than in leukemic cells, showing that these compounds are strong candidates for therapy against cancer. U937 leukaemic cells were more sensitive to these phytochemicals than K562 leukaemic cells, suggesting that there is more specificity to monocytic line.

Key Words: K562 cells, MTT reduction, phytochemicals