Brazilian platform for bioprospecting studies of natural compounds with anticancer potential in pre-clinical phase: First results.

Rosa, M. N.(Barretos Cancer Hospital, Brazil); Longato, G. B. (São Francisco University, Brazil); Evangelista, A. F.(Barretos Cancer Hospital, Brazil); Morais, T. H. (Barretos Cancer Hospital, Brazil); Silva, L.R.V. (Barretos Cancer Hospital, Brazil); Silva, V.A.O. (Barretos Cancer Hospital, Brazil); Ribeiro, R. I. M. de A. (Federal University of São João del-Rei, Brazil); Reis, R. M. V. (Barretos Cancer Hospital, Brazil and University of Minho, Portugal).

BACKGROUND: Kingdom Plantae represents one of the most promising sources for new drugs discovery. The chemotherapeutic agents vincristine, vinblastine, paclitaxel and podophyllotoxin are examples of antitumor potential present in plants. Brazil is the nation that has the highest biodiversity on the planet, and many plant species are used in folk medicine to treatment of different diseases, among them, the cancer. However, most of them have never had their activity scientifically proven. To make the search for new compounds with this activity more tangible, many research centers realize screening with several compounds from plants, using the *in vitro* model with human tumor cell lines.

HYPOTHESIS: In this context, this work intended to evaluate the antitumoral potential of extracts from different Brazilian plant species against breast, cervix and lung human cancer cell lines.

METHODS: Seven breast, 8 cervix and 4 lung cell lines were used in this screening. Cells were plated on 96-well plates and treated with different concentrations of the extracts from 13 species of plants, or with chemotherapeutic used in clinical practice (doxorubicin for breast cancer, or cisplatin for cervix and lung cancers). Seventy-two hours after treatment, cell viability was evaluated by the colorimetric assay based on mitochondrial metabolism, MTS, and absorbance values were read in the microplate reader Varioskan. Then, the half maximal inhibitory concentration (IC_{50}) was calculated and averages of IC_{50} values across each tumor type, for each extract, were calculated

RESULTS: The lowest IC_{50} values for breast cells were from extracts 18 and 19 (both 47 µg/mL); for cervix cells were from extract 7 (16 µg/mL); and for lung cells were from 2, 3 (both 49 µg/mL) and 17 (55 µg/mL). This first screening revealed that some extracts from natural source presented antitumoral potential against different cancer types. Thereby, the perspective will be to test partitions and fractions of these extracts, until to discovery which is the responsible for cytotoxic activity, and realize functional *in vitro* and *in vivo* assays to elucidating their mechanism of action.