

EVALUATION OF ANTICANCER ACTIVITY OF ENDOPHYTIC FUNGI FROM *Handroanthus impetiginosus* EXTRACTS

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Abstract: Both the extract and some isolated compounds from *Handroanthus impetiginosus* have been proved to exhibit medicinal properties [1]. The aim of this work is to check antitumoral activity of endophytic fungi from *H. impetiginosus* fermentation extracts, in order to prospect, in a rational manner, bioactive metabolites. Firstly, ethyl acetate extracts of three fungi fermentation were tested against MCF-7 (human breast adenocarcinoma), HepG2 (liver hepatocellular carcinoma) and A549 (human lung carcinoma) cells lines, by MTS assay [2]. The cell viability was measured by colorimetric assay using CellTiter96TM by Promega^R. The compound [3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium] is bioreduced by dehydrogenase enzymes in metabolically active cells into a formazan product. The quantity of formazan product, measured by the amount of absorbance at 490 nm, is directly proportional to the number of living cells in the culture. Two of the three extracts inhibited both the cancer cells. The fungus that exhibited the best result was fermented on a larger scale. The extract of the second fermentation was submitted to a pre-coated cartridge of silica gel (Waters Sep-Pak^Rvac-10g). The activity of the crude extract and three of its fractions was checked against the cancer cells above mentioned. The IC₅₀ values are shown in the table 1. According to the results, the research for active compounds was directed towards the more successful fraction. The antiproliferative effect of the extract from the second fermentation was lesser than the one from first fermentation. Up to now, p-hydroxybenzaldehyde is the only identified molecule by NMR techniques. Further studies are being carried out in order to detect others compounds.

Table 1 – Crude extract and fractions IC₅₀ against cancer cells lines

sample	IC ₅₀ (µg.mL ⁻¹)		
	MCF-7	HepG2	A549
F3	10,28±5,22	9,75±1,31	12,89±2,08
F5	34,70±2,34	34,45±1,80	85,86±0,98
crude extract	18,84±1,69	18,55±1,67	26,90±1,86
cisplatin	21,12±1,56	27,15±1,73	7,15±1,56

References:

- [1] Castellanos, J. R. G., Prieto, J. M., Heinrich, M. 2009. Red Lapacho (*Tabebuia impetiginosa*) – A global ethnopharmacological commodity?. J. Ethnopharmacol. 121:1-13.
- [2] Barltrop, J. A., Owen, T. C., Cory, A. H., Cory, J. G. 1991. 5-(3-carboxymethoxyphenyl)-2-(4,5-dimethylthiazolyl)-3-(4-sulfophenyl) tetrazolium and related analogs of 3-(4,5-dimethylthiazolyl)-2,5-diphenyltetrazolium bromide (MTT) reducing to purple water-soluble formazans as cell-viability indicators. Bioorg. & Med. Chem. Let. 1:611-614.



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