Cytotoxicity and Proteomic Analysis of PC3M line treated with *Dioclea altissima* lectin (DAL)

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Many plant lectins show antitumor and anticarcinogenic potential effects *in vivo* and *in vitro* and may cause inhibition of cell growth and induction of apoptotic cell death, usually due to their reversible binding to specific carbohydrates and glycoproteins on cell surfaces. In the present study, it was investigated the effect of the *Dioclea altissima* (DAL) lectin, a legume alpha-D-mannose ligand lectin on PC3M tumor line of prostate carcinoma to evaluate their cytotoxicity and possible changes in cellular proteomics. DAL was isolated and purified by affinity chromatography on a Sephadex G-50 column and its cytotoxicity was evaluated by MTT assay using 200, 100, 50, 25, 12.5, 6.25 e 3.125 µg/mL incubated with 0,1 \( \times 10^6 \) cells/mL for 72 hours. IC\(_{50}\) was 23 µg/mL calculated using Graph Pad Prism 5. For partial proteomic analysis, cells in the density of 0.15 \( \times 10^6 \) cells/mL were treated with 11.5, 23 and 46 µg/mL of DAL for 72 hours, collected from wells, lysed, digested and analyzed by LC-ESI-MS\(^E\). Mass spectrometry identified 209 different proteins of which 21% were unique from all conditions. There was a decrease on amount of proteins identified, as the DAL concentration was increased, reaching zero at the maximum concentration. The results suggest that DAL is cytotoxic to PC3M line and may cause synthesis of unique proteins with 11.5 µg/mL, mostly involved in protein synthesis.

Word Keys: Lectin, Cytotoxicity, Proteomics, PC3M line, LC-ESI-MS

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