EFFECT OF *Dioclea altissima* LECTIN IN CANCER CELLS: CYTOTOXICITY AND PROTEOMIC PROFILE OF PC3M LINE

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INTRODUCTION: Plant lectins have attracted great interest due to their several biological activities mainly the *in vivo* and *in vitro* antitumoral action that, in general, result in inhibition of cell growth and induction of cell death by apoptosis. In the present study, it was investigated the effect of the *Dioclea altissima* (DAL) lectin, a legume alfa-D-mannose-binding lectin on A549 (lung cancer), OVCAR-8 (ovarian cancer) and PC3M (prostate cancer) and normal line PBMC (cell blood tissue).

MATERIALS AND METHODS: DAL was isolated and purified by affinity chromatography on a Sephadex G-50 column and its cytotoxicity was evaluated by MTT assay. RESULTS AND DISCUSSION: DAL was selectively cytotoxic to cancer cells A549, PC3M after 48 and 72 hours of incubation, and OVCAR-8 after 72 hours of treatment with DAL (CI50 values between 23.0 e 55.7 µg/mL). Moreover, it was observed cell agglutination from 24 hours of incubation. Comet assay revealed DAL does not cause direct DNA damage. The line PC3M was selected for proteomic analysis by mass spectrometry (nanoUPLC® nanoESI-MS®) to present the best evidence of sensitivity to DAL. PC3M line was treated with various concentrations of DAL during 24, 48 e 72 hours, it was identified a total of 837 proteins, 140 (24h), 321 (48h) e 376 (72h). CONCLUSION: The study of differential protein expression of the DAL-treated PC3M cells compared to control demonstrated apoptotic effect generated, mainly, via ER stressed-dependent.

Key words: Cancer lines; Cytotoxicity; Lectin; Proteomic Analysis. Supported by: FUNCAP, CAPES, FINEP and UNIFOR.