Effect of Crude Extract of Marine Sponges *on Saccharomyces cerevisiae* Multidrug Resistance Protein Pdr5p

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INTRODUCTION: ABC transporters constitute a superfamily of transmembrane proteins that act mediating the translocation of several substrates across membrane using the energy of ATP hydrolysis. This mechanism of unrelated substrates efflux (multidrug resistance) has been associated with diseases and it is a problem in chemotherapy efficacy. Recent studies demonstrate that marine sponges can be a great source of new natural products that can act as multidrug resistance inhibitors. In this work, we have evaluated the effect of crude extracts, from different marine sponges, and purified compounds from those extracts, on Pdr5p yeast plasma membrane. **OBJECTIVES**: Finding substances of natural origin, extracted from marine sponges capable of reverting the azole-resistant phenotype mediated efflux pumps. **MATERIAL AND METHODS**: A screening of crude extracts was done using chemosensitization tests as a tool: dish plate containing YPD medium were inoculated with $2{,}5x10^6$ cells/mL in the presence or absence of fluconazole 100µg/mL; paper disks containing 50 µg/mL of each crude extracts were deposited on surface of YPD medium and the plates were incubated at 30°C during 48 hours. All positive crude extracts were purified and isolated compounds were tested in ATPase activity assay using standard reaction medium. The inorganic phosphate released by ATP hydrolysis was measured as described by Fiske & Subbarow (1925). **RESULTS AND DISCUSSION**: Compounds named MaMe1Me-1B- NORBATZELLADINE L (NOR), MaMe1Me-1A1-4- BATZELLADINE D (BATZ) and MaMe1Me-1D- BATZELLADINE L (1D-BATZ) showed IC_{50} values: 3,7 µM, 6,8 µM and 2,4 µM respectively. **CONCLUSIONS**: After preliminary tests, it was demonstrated that those purified compounds, obtained from marine sponges, were able to inhibit Pdr5p activity and could act as inhibitors of multidrug resistance transporters. Further experiments will be conduct in order to check the capability to revert the MDR phenotype in yeast resistant cells.