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Antiproliferative anthracycline pink red-like pigments produced by new bacterial soil strains identified as *Streptomyces coelicofavus* and bioactivity of other compounds

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Among 29 soil isolated actinomycetes, five new strains MFB11, MFB20, MFB21, MFB23 and MFB24 showed an intracellular hydrophobic pink red-like pigment production. These pigments present similar physio-chemical characteristics with anthracycline antibiotics of prodigiosin family. Crude extract and prepared fractions were tested by MTT on mice cancer cell line as well on human cancer cell line. The results indicated an important antiproliferative effect of the different strain pigments on the two organism cell types. Human cells were more sensitive to the pigments and presented different antiproliferative effect profiles. FACs analysis of this antiproliferative effect on cancer human cells line showed a cell cycle phase arrests at G1 and S. Nevertheless, negative antibacterial assay, thin-layer chromatography (TLC) and interaction with organic solvents analysis of these pigments revealed their difference from known anthracycline antibiotics. Morphological, biochemical and gene coding 16S RNA sequence analysis allowed identification of the producer strains as *Streptomyces coelicofavus*; known to produce important aminoglycoside antibiotics and other bioactive compounds but not anthracycline red-like pigments. Otherwise, two other strains produced water soluble Gram positive antibiotics and chloroform soluble bioactive compounds with strong and dramatic apoptotic antiproliferative activity as indicated by MTT and their cell cycle phase arrests at G0/G1 and G2.

Biography

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