

DNA CLEAVAGE BY A SINGLE TRIAZENE COMPOUND BY PROVABLE HYDROLYTIC MECHANISM

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Drugs that cause DNA cleavage show antitumoral effects for taking the cells apoptosis. The objective of this research was to verify the capacity of cleavage of the plasmidial DNA pBSKII and pUC18 by compound 1,3-*bis*-(*dyphenyl*)triazene-1-*N*-hydroxido (**1**) and its mechanism of action. The test for DNA cleavage was performed at 37 and 50°C in eppendorfs containing: pBSKII and pUC18 plasmids, Pipes (pH 6.5) and Tris.HCl buffers (pHs 7.0, 7.5 e 8.0) and different concentrations of the compound (**1**). After 24 hours of incubation, Agarose Gel Electrophoresis (AGE) was used for to visualize the cleavage. The compound (**1**) cleaves the plasmids DNA in all pHs testeds at 50°C, with transformation of the form I (supercoiled) in forms II (nicked circular) and III (linear), indicating a DNA cleavage non-randomized. For verify the mechanism, has been used Free Radicals Scavengers (FRS): thiourea, glycerol and dimethylsulfoxide. The presence of theses FRS didn't decrease the DNA cleavage for (**1**), indicating the probable hydrolytic mechanism, mimics the natural nucleases. All experiments were realized in triplicate. Thus, the (**1**), a small molecule, was effective for the DNA cleavage by provable hydrolytic mechanism, due to the FRS not interfere. This indicates that it imitates the natural nucleases.

Keywords: DNA cleavage, DNA hydrolysis, triazene.