Synthesis and cytotoxic activity of acridine derivatives substituted with benzimidazole, benzoxazole and benzothiazole

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Abstract

Two novel series of 2-(Benzo[d]imidazole/oxazole/thiazole-2-yl))acridine-9(10H)-oneIVa-cand10-(2-((4-(Benzo[d]imidazole/oxazole/thiazole-2-yl)phenyl)amino)-2-oxoethyl)-9-oxo-9,10-dihydroacridine-4-carboxylic acidVIIa-cwere synthesized.The antitumor activity of the prepared compounds was evaluated against human breast cancer (MCF-7), hepatocellular carcinoma (HepG-2) and colon cancer (HCT-116) cell lines using Sulphorhodamine-B (SRB) assay method.Doxorubicin was used as a reference standard. Most of the tested compounds showed potent antitumor activity against HCT-116 cell line with IC50 range equal 4-31μM/mland the compoundVIIcwas the best active one (IC50 = 4.75 μM/ml). VIIashowed the same activity compared to the effect of the reference drug doxorubicin on Hep-2 cell line(IC50 = 3.75 μM/ml). Allof the tested compoundsshowed weak activity against MCF-7 cell line(IC50 = 5.01 μM/ml).

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