Design, synthesis and anticancer evaluation of novel pyrazole, pyrazolo [3, 4-d] pyrimidine and their glycoside derivatives; Nucleosides.

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Abstract

The chalcone derivatives 3a,b were cyclized upon reaction with thiourea to give the pyrazolo[3,4-d]pyrimidine derivatives 5a,b. Condensation of 5a,b and their hydrazide derivatives 8a,b with cyclic and acyclic glucose gave the condensed S- and N-glycosides 7a,b and 9a,b, respectively. Reaction of 3b with ethyl cyanoacetate followed by reaction with cyclic glucose afforded a mixture of the O- and/or N-glycoside isomers 12 and 13, respectively. The pyrazolo[3,4-c]pyrazole derivative 14 was also obtained from the reaction of 3b with hydrazine hydrate. A number of the synthesized compounds were screened for their antitumor activity against three different tumor cell lines HEPG2 (liver), HCT116 (colon) and MCF-7 (breast) with a docking study against CDK2.

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