SPECTROSCOPIC STUDIES OF SOME NEW SYNTHESIZED 2(1*H*)-PYRIDINONES AND THEIR NUCLEOSIDES AS POTENTIAL PROBES FOR MONITORING CELL PROLIFERATION AND APOPTOSIS IN HUMAN LEUKEMIA HL-60 CELLS

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New series of substituted 2(1*H*)-pyridinones **(1a-e)** and their nucleosides **(3a-e)** were prepared as potential agents against leukemia. The nucleosides **(2a-e)** were synthesized using two independent methods and their structures were confirmed using FT-IR, 1D, and 2D-NMR techniques. 3-Cyano-4-(thien-2′-yl)-6-(4″-chlorophenyl)-2(1*H*)-pyridinone **(1e)** and its nucleoside (**2e** and **3e**) were found to have the highest activity against proliferation of the human promyelotic leukemia (HL-60) cells. Pyridinone derivatives substituted at position 4 with a 2-thienyl or 2-(trifluoromethyl)phenyl groups were found to exhibit high potency against apoptosis.