Turkish Journal of Chemistry

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Synthesis and Anticancer Evaluation of Some New Unsymmetrical 3,5-Diaryl-4H-1,2,4-Triazole Derivatives

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Abstract: A series of 4-arylidenamino-4H-1,2,4-triazole derivatives (3-11) were synthesized from the treatment of 4-amino-4H-1,2,4-triazoles (2) with certain aldehydes. Compounds 3-11 were reduced with $NaBH_4$ to afford the corresponding 4-arylmethylenamino-4H-1,2,4-triazoles (12-20). Compounds 1-10 and 12-19 were characterized by elemental analyses and ^1H NMR, ^{13}C NMR, IR and UV spectral data. Compounds 11 and 20 were characterized by ^1H NMR, ^{13}C NMR, IR and mass spectral data. Compounds 14, 16, 17, and 18 were tested for anticancer activities. Compound 17, chosen for its higher anticancer activity in the preliminary tests with the cancer cell lines of MCF7, NCI-H460, and SF-268, exhibited remarkable anticancer potential in screening tests with 60 human cancer cell lines.

Key Words: 4H-1,2,4-Triazoles, 4-Amino-4H-1,2,4-triazoles, 4-Arylidenamino-4H-1,2,4-triazoles, 4-Arylmethylenamino-4H-1,2,4-triazoles, Synthesis, Anticancer activity

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Turk. J. Chem., **30**, (2006), 29-40.
Full text: pdf
Other articles published in the same issue: Turk. J. Chem.,vol.30,iss.1.