

Synthesis of some heterocyclic of expected bioactivity via reactions of thiazine derivatives

Wafaa S. Hamama, Mostafa Gouda, Hadwah A. Kamal El-Din and Hanafi Zoorob

Chemistry Department, Faculty of Science, Mansoura University, Egypt

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Background: 2-acetylphenothiazine plays an important role in organic chemistry. The behavior of 2-acetylphenothiazine towards various reagents was carried out. **Aim:** The aim of the present work is to design and synthesize some of heterocyclic nuclei through the reaction of phenothiazine derivatives as scaffold moiety with different reagents. **Materials and Methods:** α,β -Unsaturated ketones containing phenothiazine moiety 4, 5, 7 were synthesized by condensation of 2-acetylphenothiazine with different aryl aldehydes 2, 3, and (DMFDMA). Pyrazole skeletons were also synthesized by 1,3-dipolar cycloaddition reactions of α,β -unsaturated ketones with different nucleophilic reagents. Formylpyrazole derivative 36 was synthesized through the Vilsmeier-Haack reaction of phenylhydrazone 35b. **Results:** Azines derivatives of phenothiazines were synthetically constructed from one-pot multicomponent reactions of 1-(4a, 10a-dihydro-10H-phenothiazine-2-yl) ethan-1-one with various reagents. Newly synthesized compounds were screened as antioxidant agents. The sequence of these reactions that adopted for the synthesis of the designed compounds in this thesis is summarized into two sections. **Conclusion:** studying of the biological activity of the newly synthesized compounds as antioxidants properties were performed.

Keywords: Anti-oxidant; 2-acetylphenothiazine; Aminonicotinonitriles; Pyrazoles; Pyridine

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