1.0 Abstract

In this research work synthesis of *N*-(aryl)-2-((5-(4-nitrobenzyl)-1,3,4-oxadiazol-2-yl)thio)acetamides was carried out in five steps. In the first step, the 2-(4-nitrophenyl)acetic acid (**1**) was reacted with ethanol in the presence of H2SO4 by refluxing for 12 hours, Ethyl 2-(4-nitrophenyl)acetate (**2**) was formed. In second step, the product was reacted with the N2H4 in the presence of MeOH and refluxing for 15 hours, 2-(4-Nitrophenyl)acetohydrazide (**3**) was formed. In third step, the product in the presence of EtOH/CS_2/KOH/ and refluxing for 17 hours converted into5-(4-Nitrobenzyl)-1,3,4-oxadiazole-2-thiol (**4**). In fourth step, 3,4-dimethylamiline (**5a**) or 3,5-dimethylamiline (**5b**) were reacted with the another reagent 2-bromoacetyl bromide (**6**), at pH 9-10 in the presence of aqueous Na_2CO_3 solution with vigorous shaking at RT for 20-30 minutes at room temperature, 2-Bromo-*N*-(3,4-dimethylphenyl)acetamide (**7a**) and 2-Bromo-*N*-(3,5-dimethylphenyl)acetamide (**7b**) were formed respectively. In the fifth step, the products of 3rd and 4th reaction were reacted in the presence of DMF and LiH and stirring for 32-33 hours, two compounds that were *N*-(3,4-Dimethylphenyl)-2-((5-(4-nitrobenzyl)-1,3,4-oxadiazol-2-yl)thio)acetamide(**8a**) and *N*-(3,5-Dimethylphenyl)-2-((5-(4-nitrobenzyl)-1,3,4-oxadiazol-2-yl)thio)acetamide (**8b**) were formed. The structure of these synthesized compounds were characterized by using Proton-Nuclear Magnetic Resonance (^{1}H-NMR) and Carbon 13-Nuclear Magnetic Resonance (^{13}C-NMR). Both of the compounds 8a and 8b exhibited moderate urease inhibitory activity and moderate to good hemolytic activity with the mild cytotoxicity.