Synthesis of some heterocyclic compounds derived from indole as antimicrobial agents

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Abstract:

Recently, indoles are considered interesting heterocyclic compounds due to their wide range of biological activities such as antimicrobial activity. Herein, some new indole derivatives containing heterocyclic moieties were synthesized using 3-chloro-1H-Indole-2-carbaldehyde (1) as a starting material, then allowed to react with compounds containing active methylene under Knoevenagel condensation and afforded the corresponding compounds (2, 3, 9). Also, the compound (1) when allowed to react with hydrazine derivatives gave the corresponding thiosemiccarbazone, semicarbazone, and hydrazone derivatives (4, 5, 6). Reaction of thiosemicarbazone derivatives with □-halognated carbonyl compounds gave the thiazolyl indole derivatives (10, 12a□b). Cyclic chalcones (11a□c) were obtained when compound (10) reacted with different aromatic aldehydes. The structures of all new synthesized compounds were confirmed on the basis of spectral analysis, IR, 1H NMR, 13C NMR, and MS spectroscopy. All synthesized compounds were evaluated for their antimicrobial activity. Compounds (2, 5, 7, 8, 11a, 12a) showed high antibacterial activity and compounds (3, 6, 9, 10, 11a, 12a) showed high antifungal activity.

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