



Synthesis, Characterization and Biological Activity Study of Metronidazole- Thiadiazole derivatives

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Abstract : In this work the preparation of new compounds that contain both groups (metronidazole and 1,3,4-thiadiazole) have been carried out by the reaction of phenylenediamine with carbon disulfide and hydrazine in presence of potassium hydroxide the obtained compound was treated with chloroacetyl chloride to produce the 1,3,4-thiadiazole derivative, then two equivalent from metronidazole was added to both side of derivative moiety, in order to overcome resistance problem of metronidazole and to increase its spectrum of activity by synthesizing of new derivatives that have antibacterial activity against aerobic bacteria. Full characterization of the synthesized compounds was done by using of spectroscopic analysis such as FT-IR, ¹H-NMR, ¹³C-NMR, mass and elemental microanalysis spectroscopies. The resultsshowed that the final compounds had higher antibacterial activity against gram positive and gram negative bacteria compared with metronidazole.

Keywords : Phenylenediamine,metronidazole, bis 1, 3, 4- thiadiazole, antibacterialactivity.

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