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Synthesis of Pyrazole-based Schiff bases of Chitosan: Evaluation of Antimicrobial Activity

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Abstract

In this work, a novel series of Schiff base has been reported by the reaction of Chitosan with different substituted pyrazole-4-carbaldehydes in acidic media. The synthesized compounds were characterized by Fourier-transform infrared spectroscopy (FTIR), thermo gravimetric analysis (TGA), X-ray diffraction (XRD) and ^{13}C NMR techniques. Chitosan and the Schiff bases were compared for their antimicrobial activity against the bacteria; *Staphylococcus aureus*, *Bacillus subtilis*, *Klebsiella pneumonia*, *Escherichia coli* and a fungi, *Candida albicans*. The results indicated stronger inhibitory effect of the Schiff bases on these microorganisms compared to Chitosan and the extent of inhibition varied with the nature of substitution.

Keywords: Chitosan, Chitosan- Schiff base, Pyrazole, Antimicrobial activity.

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