

Thermal Behaviour and Antimicrobial Activity of Novel Series of Benzoylthiourea Derivatives

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Thermal behaviour and antimicrobial activity was investigated for a series of thiourea derivatives. The thermal behaviour of the compounds on heating up to 1000 K in nitrogen atmosphere was examined by thermogravimetry and differential thermal analysis. The compounds decompose in one or two stages. GC-MS combined system was used to identify the products during pyrolytic decompositions. The kinetic analysis of the thermogravimetric data was performed using the Coats-Redfern and Horowitz-Metzger methods. The antibacterial activities of these thiourea derivatives were investigated for three Gram positive (*Enterococcus faecalis*, *Staphylococcus aureus* and *Staphylococcus epidermidis*) and two Gram negative (*Escherichia coli*, *Pseudomonas aeruginosa*) bacteria by employing broth microdilution method and subsequently, inhibitory activity against yeast-like fungi (*Candida albicans*, *Candida krusei*, *Candida glabrata* and *Candida parapsilosis*) was also determined. Only three of the compounds showed antimicrobial activity and that were at a moderate level. None of them exhibited sufficient antifungal activity to become a drug candidate.

Key Words: Thermal analysis, Thiourea, Antimicrobial activity, Benzoylthiourea derivative.

INTRODUCTION

Some thiourea derivatives are selectively analytical reagents, especially for the determination of transition metals in complex interfering matrices^{1,2}. The complexation capacity of some thiourea derivatives has been reported in several papers^{3,4}. N,N-dialkyl-N'-benzoylthioureas have been found to be useful ligands for the potential determination of traces of the transition metals by means of normal phase chromatography^{2,4}. The biological activities of this type of

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