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ORIGINAL ARTICLE

Synthesis of novel steroidal oxazolo quinoxaline as antibacterial agents

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Abstract Steroidal [oxazolo(4,5-b)quinoxaline-2-yl-hydrazone] derivative **(7a–9a) (7b–9b)** were prepared by the multi-step reactions of steroid. It is prepared via the reaction of steroidal semicarbazones with 2,3-dichloroquinoxaline at 80 °C in ethanol. The structures of the compounds were evident by IR, ^{1}H NMR and mass spectrometry and their purities were confirmed by elemental analyses. The antibacterial activity of these compounds was evaluated by the disk diffusion assay against two Gram-positive and two Gram-negative bacteria and then the minimum inhibitory concentration (MIC) of compounds was determined. The results showed that compounds **(7a, 7b, 8a, 8b)** are better antibacterial agent as compared with the standard drug amoxicillin.

1. Introduction

Infections such as food poisoning, rheumatic, salmonellosis and diarrhea caused by multidrug-resistant Gram-positive and Gram-negative pathogens such as *Staphylococcus aureus, Streptolococcus Pyogenes, Salmonella typhimurium and Escherichia coli* (Avilffe, 1997). These pathogens are responsible for significant morbidity and mortality in both the hospital (Pfaller et al., 1999) and community settings (Abi-Hanna et al., 2000; Collignon, 1999; Merlino et al., 2000). Million of people in the subtropical regions of the world are infected and 20,000 deaths every year due to these parasitic bacterial infections. Amoxicillin, norfloxacin, ciprofloxacin are the principal drugs of choice in the treatment of bacterial infection since they are effective against extra intestinal and intestinal wall infection (Johnson, 1993), the leading drug, has been shown to be both mutagenic effect in bacteria and carcinogenic to rodents (Alauddin and Smith 1962). These are also showing severe side effects (nausea, metallic taste, dizziness, hypertension, etc.) as well as resistance have been reported (Parihar and Ramana 2004). The ideal treatment for this disease does not, therefore, exist and new agents are required. Oxadiazolines constitute an important class of heterocyclic compounds and widely utilized as a useful synthetic material in drug research (Merlani et al., 2004). The study of quinoxaline and

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