Med Chem 2024, Volume 14

Synthesis, analgesic activity of 3-amino 4,5-dimethoxyl-2-methyl quinazolin-4(3H)-one an amino-6-methoxyl-2-methyl of 4H-benzo[d] [1,3]-oxazine-4-one

Osarumwense Peter Osarodion
Olusegun Agagu University of Science and Technology, Nigeria

Introduction: The rapid a d appearance of antibiotic resistant strains t ns today and m nd misuse of antibiotics and more

Quinazolinone ring sy ng system was rewarded as a s a promising m ng molecule because of its br s broad spectrum of biological activities like anti-histaminic, a, anticancer, anti-HIV, anti-inflammatory, analgesic, anti-diabetic, anti-bacterial, antifungal, anti-oxidant, a, anti-tubercular, anti-convulsant.

Objectives: These objectives of this st s study w udy was to e o eliminate the current challenges by syn by synthesizing these novel antibacterial quinazolinone derivatives with a h a high a gh antibacterial potential.

Methods: The condensation of 2-amino-methyl-3,4-dimethoxybenzoate with acetic anhydride yielded the cyclic compound 2-methyl-5-substituted-1,3-benzo-oxazine-4-one which further produced a novel 2,3-disubstituted quinazolin-4 ones via the reaction with hydrazine hydrate. The compounds synthesized were unequivocally confirmed by means of Infrared, Nuclear Magnetic Resonance (1H and 13C), Gas chromatography-mass spectrophotometer and elemental analysis. The synthesized compounds w pounds were screened against various st ous strains of microorganism; Staphylococcus aureus, Bacillus spe s species, Escherichia coli, Klebsiella pne a pneumonia, Serratia marcescens, and candida al da albicans.

Results: Compounds 1 a pounds 1 a pounds 1 and 2 show nd 2 show nd 2 showed significant activity a y against Staphylococcus aureusand Se usand Serratia marcescenswith MI h MIC ranging f ng from 6 – 12 m 6 – 12 m 6 – 12 m 6 12 mg/mL.

Discussion: Compound 1 displayed a singlet signal at: δ 3.78 attributed to methoxyl group and singlet at δ 3.68 which was due to methyl group. Also, 1H NMR spectrum of compound 2 showed a characteristic signal at δ 2.56 (singlet) corresponding to methyl group and duplet at: δ 3.90 for methoxy group. For the IR spectra, Compound 1 was characterized by absence of v NH2and presence of v C-O stretch in 1101cm-1 region of the compound. Compound 2 showed the highest antibacterial activity at 16 mm compared to compound 1 and Ciprofloxicin (CPX) for bacteria, Ketonaxol (PEF). The compounds synthesized had a higher activity than Ciprofloxicin (CPX) for bacteria, Ketonaxol (PEF) for fungus, a standard antibacterial drug.

Conclusion: Compound 2 had a higher antibacterial activity than Compound 1. The compounds synthesized had a higher activity than Ciprofloxicin (CPX) for bacteria, Ketonaxol (PEF) for fungus, a standard antibacterial drug.