SYNTHESIS, CHARACTERIZATION, ANTIMICROBIAL ACTIVITY AND ACUTE TOXICITY TEST OF A NOVEL 4,4'- (4, 5, 6, 7-TETRAHYDRO- [1, 2, 3 -] SELENAD IAZOLO [4, 5 e] PYRIDINE-4, 6-DIYL) BIS(BENZENE-1, 3-DIOL)

Articles in Press, Accepted Manuscript , Available Online from 15 June 2019 XML
Document Type: Original Article
DOI: 10.21608/ejchem.2019.11702.1753

Authors

Nadheerah Falih Neamah [1]; Abdul-Razzak Naaeem Khudair[2]; Shaker.A.N. Al-Jadaan[3]

[1]Pharmacology and Toxicology/College of Pharmacy/Basrah University

[2]Department of Physiology, Pharmacology and Biochemistry/College of Veterinary Medicine/University of Basrah

[3]Department of Pharmaceutical Chemistry/Pharmacy College/University of Basrah

Receive Date: 15 April 2019, Revise Date: 21 May 2019, Accept Date: 15 June 2019

Abstract

Novel selena-diazole compound (T) i.e. 4, 4' - (4 ,5 ,6 ,7- Tetrahydro- [1,2,3-] selenadiazolo [4, 5e] pyridine - 4, 6 - diyl) bis (benzene-1,3-diol) was prepared by reacting 2,4-hydroxy benzaldehyde with acetone in the presence of ammonium acetate through condensation reaction to form 2,6-bis(2,4-dihydroxyphenyl)piperidin-4-one, which on reaction with hydrazinecarboxamide in absolute ethanol in acidic medium gave 2-(2,6-bis(2,4-dihydroxyphenyl)piperidin-4-ylidene) hydrazine-1-carboxamide which converted to T by reaction with selenium dioxide in excellent yield. T was characterized by elemental analysis and spectroscopic data which confirmed the proposed structure.

The median lethal dose (LD50) of T compound was assayed to determine the median toxic dose also the lowest toxic dose. LD50 was found equal to 863.28 mg/kg which indicate that T considered slightly toxic based on Hodge and Sterner scale.

Antimicrobial activity of T at deferent concentrations showed some promising antibacterial activity against Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli, using filter paper disk method. The best minimum inhibitory concentration (MIC) was against Pseudomonas aeruginosa. Also, it has a potent antifungal effect against Candida albicans, Candida krusi, and Candida paras. It can be conclude that T more safe and has a good antibacterial and antifungal activity.

Keywords

selena-diazole; LD50; antibacterial; Antifungal; MIC

Main Subjects

Pharmaceutical Chemistry