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Synthesis and antibacterial activities of 5-subsituted-4-amino-1,2,4-triazole-3-thiols

Syed Ishtiaq Khan[1], Amin Badshah[2], Asif Hanif Chaudhry[1], Muhammad Aslam[3], Muhammad Saeed Akhtar[4]. Kazi Muhammad Ashfaq[5], Tanveer Akhtar Malik[5]

[1]GARL, GSP, Islamabad.
[2]Department of Chemistry, Quaid-e-Azam University, Islamabad.
[3]Pharmaceutical Research Center, Pakistan Council of Scientific and Industrial Research Laboratories Complex, Karachi-75280, Pakistan.
[4]Qarshi University, 9-Ali Block, Garden Town, Lahore
[5]Drugs Control and Traditional Medicine Division, National Institute of Health, Islamabad.

*Corresponding author: asif_hanif101@yahoo.com

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Abstract

In the current study, 5-subsituted-4-amino-1,2,4-triazole-3-thiols were prepared from substituted benzoic acid thorough multi step reaction sequence by the cyclization of potassium 3-aroyl-odithiocarbazates obtained from hydrazides, in turn prepared form esters. Structure of synthesized compounds was elucidated by using spectroscopic techniques i-e., UV-Visible, FT-IR, ^{1}H and ^{13}C NMR and mass spectrometry. Results obtained show that 4-amino-5-o-tolyl-4H-1,2,4-triazole-3-thiol, 4-amino-5-m-tolyl-4H-1,2,4-triazole-3-thiol and 4-amino-5-p-tolyl-4H-1,2,4-triazole-3-thiol showed antibacter-ial activity.

Keywords: Antibacterial; triazole; antimicrobial

Introduction

Heterocyclic compounds are very important role in our lives: by their utility in the form of medicinal compounds and in the form of modern materials (Pazharskii et al, 1997). Due to excessive use of hetrocyclic compounds as anti-microbial agent, drug resistance produced in microorganism, which can open a new field for the researchers to prepare the mimic of already existing compounds. 1,2,3-triazoles or 1,2,4-triazoles act as a active pharmaceutical agent used as antitumor (Al Soud et al, 2004), muscle relaxtant, anticonvulsant (Küçükgüzel et al, 2004), antifungal (Al Omran et al, 2002), antibacterial (Rehman et al, 2002), molluscicidal (Radwan et al, 2001), antituberculosis (Foroumadi et al, 2003), diuretic (Lewwnstein et al, 1954), anticancer (Hasejawa et al, 1986), insecticidial (Gupta et al, 1979), hypoglycemic (Holla et al, 1987), antiviral (Kumar et al, 2008), anti-inflammatory, antimic-

