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Synthesis, Characteristics and Biological Activity of Pyrazolone

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Abstract
The pyrazolone derivative was synthesized by reaction 1-(3, 4, 5 tribromophenyl)-3-pheny pyrazoline -5- one with 4-dimethyl aminobenzadehyde.
The pyrazolone derivative was characterized by elemental analysis, infrared, ^{1}H-NMR and mass spectroscopy. The biological activity was compared with amphotericin B as standard.

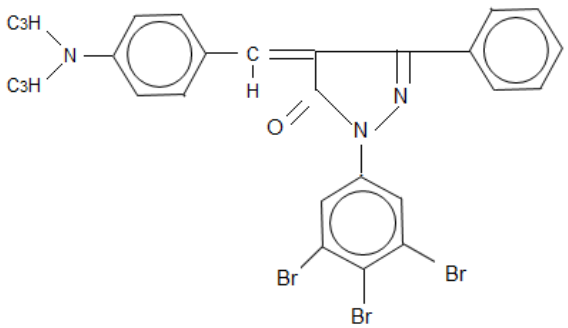
Keywords: 4-Dimethyaminobemzal-dehyde, Elemental Analysis, Biological Activity

Introduction
Many heterocyclic compounds due to specific activity are employed in the treatment of many infectious diseases. Their use in the treatment is attributed to their inherent toxicity to various pathogens. Among wide range of heterocyclic compounds that have been explored for the development of pharmaceutically important molecules, pyrazolines consistitutdue an interesting class of heterocycles due to their synthetic rersatility and effective biological activities such as anticancer [1], antioxidant [2], antibacterial [3], antifungal [4], antidepressant [5-7], anti-inflammatory [8], anticonvulsant [9], antitumor [10], analgesic [11], properties.

Experimental
Chemicals: 4-dimethyl aminobenzadehyde and 3,4,5tribromophenyl pheny pyrazoline.

Instrumentation:
Meting point was measured on gallenkamp electronic melting points apparatus, the elemental analysis was performed on Perkin Elmer 2400. Infrared spectra was recoded using potassium bromide disks on a pye unicam Sp-3-300 infrared spectrophotometer ^{1}H-NMR experiment was run at 300 MHz on an a varian mercury VX-300NMR spectrometer using TMS as internal standard in deuterated dimethyl suphoxide. The mass spectra was recorded on Shimadzu GCMS-Q-P-1000 EX mass spectrameter at 70 ev.

Synthesis of 4-(dimethyl aminobenzadehyde) 1-(3,4,5tribromophenyl)- 3-pheny pyrazoline -5- one
Amixture of 4- (dimethyl aminobenzadehyde) (1,49gm,10mmole) and1-(3,4,5tribromophenyl)- 3-pheny pyrazoline -5-one(4,73gm,10mmole) in around bottom flask (250ml) in 200ml of ethanol and hoursand kept overnight. The solid product was separated by filtration. The solid was recrystallized from ethanol.



Spectroscopic studies of 4-(dimethyl aminobenzadehyde) 1-(3,4,5tribromophenyl)- 3-pheny pyrazoline -5- one. The infrared spectrum of pyrazolone derivative exhibit a strong band at 1739cm^{-1}for carbonyl group and two strong bands at 1556cm^{-1} and 1571cm^{-1}due to v (C=C) and (C=N) respectivey. The v N-N Band at 1449cm^{-1}.the ^{1}H-NMR spectrum of pyrazolone derivative in deuterated DMSO-d_6 Table 2: Showed a singlet signal at 7,99ppm due to HC=C and multiplets at 6,83-7,35 ppm due to phenyl protons. The mass sprctrum of pyrazolone derivative shows the molecular ion peak at m/z 604,19(84%),the base peak at 65,23(100%).

Table 1: Physical characterization of pyrazolone derivative

MP.C° Colour	Solvent yield %	MF (M.wt)	Elemented analysis calcd/found		
			C%	H%	N%
202-204 Brown	Ethanol 84	$C_{15}H_9N_2OBr_3$ 604.125	47.71 47.16	3.00 2.93	6.95 6.73

Table 2: Spectroscopic data for pyrazolone

IR(KBr) νcm^{-1}	1HNMRδ(PPm)
νC=O 1739cm^{-1}	7.99(S, Pyran ring)
νC=C 1556cm^{-1}	7.35 (m, Ar)

Biological activity

The experiment was performed using test bacterial organisms belonging to the gram positive and gram negative groups namely staphylococcus aureus and Escherichia coli respectively as well as candida albicans and aspergillus flavus as tested fungi. Table 3.

Table 3: The inhibition zones (mm) of pyrazoline derivative. The activity of 2.5mg/ml of the sample amphotericin B was used as standred

Compound/ standred	Staphylococcus aureus (+ gram)	Escherichia coli (- gram)	Aspergillus f	Candida albicans
Pyrazoline derivative	15	20	30	19
Amphoterecine B	0	8	27	16

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