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ARTICLE

Synthesis of Pyrazolines and Pyrazoles Incorporated with Pyran-2-one Moiety and their Antimicrobial Evaluation

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ABSTRACT

In the present paper, we report herein synthesis of 5-aryl-3-(4-chloro-6-methyl-2H-pyran-2-on-3-yl)-1-phenylpyrazoles. All compounds were characterized by spectroscopic methods such as IR, NMR and analytic methods and evaluated for their antibacterial and antifungal activities. It is found that some of these compounds are potent antimicrobial agents.

KEYWORDS

Dehydroacetic acid, Pyran-2-one, Hypervalent iodine, Pyrazoline, Pyrazole

INTRODUCTION

Heterocyclic compounds have gained much importance in medicinal chemistry due to its presence in large number of pharmacologically active moieties. Among the five membered heterocycles containing two heteroatom in its ring structure, pyrazole is one of the most important one. Pyrazoline is dihydropyrazole, a five membered heterocyclic compound containing two nitrogen atoms in adjacent positions and possessing only one endocyclic double bond.

Pyrazolines are very much promising when the biological activities of pyrazolines are taken into consideration. Pyrazolines are known to possess antitubercular [1], anti HIV [2], antiviral [3], antimicrobial [4], cerebroprotective [5], molluscicidal [6], antifungal [7], anti-inflammatory [8], analgesic [9], anticonvulsant [10], anticancer [11] and antioxidant [12] properties, etc. One of the important applications of pyrazoline is the use of pyrazolines as a fluorescent brightening agent [13]. Pyrazolines are also acting as holes transporting material in OLED (organic electroluminescent device).

Furthermore, the oxidative aromatization of 1,3,5-trisubstituted-2-pyrazolines to pyrazoles is of great biological importance due to diverse biological properties of pyrazoles such as analgesic, anti-inflammatory, antipyretic, anti-arrhythmic, muscle relaxant, psychoanaleptic, antidiabetic and antibacterial activities [14,15]. Such a glamour history prompted us to synthesize some new pyrazole derivatives as an urgent need, which can possess biological and medicinal importance.

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Description for college name

Poonam