A REVIEW ON THE ANTIMICROBIAL ACTIVITY OF 1, 2, 4-TRIAZOLE DERIVATIVES

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INTRODUCTION

Nowadays research is concentrated towards the introduction of new and safe therapeutic agents of clinical importance. The heterocycles are enjoying their importance as being the centre of activity. The nitrogen containing heterocycles are found in abundance in most of the medicinal compounds. The success of the imidazole as an important moiety of number of medicinal agents led to the introduction of the triazoles. The triazoles are said to be the isosters of imidazoles in which the carbon atom of imidazole is isostERICally replaced by nitrogen. Triazoles are 5 membered rings, which contain two carbon and three nitrogen atoms. According to the position of nitrogen atoms, the triazoles exist in isomeric forms.

Two structural isomeric triazoles are known, the 1, 2, 3-(1, 2, 5) and the 1, 2, 4-(1, 3, 4), the former being known as osotriazole, and the latter as triazole. Each exists in two disimilar tautomeric forms. The different isomers are characterized by the position of the nascent hydrogen. Thus, 1, 2, 4-triazoles exist in two isomeric forms, i.e., 1H and 4H.

1, 2, 4-Triaizoles shows various biological activities such as antifungal, antibacterial, antitubercular, anticonvulsant, analgesic, anti-inflammatory, antiviral activities. This review article highlights the recent work that has been carried out on 1, 2, 4-triazoles reporting the antimicrobial properties of the triazole moiety.

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Neslihan Demirbas et al. (2008) synthesized some new [1, 2, 4]-triazolo-[3, 4-b], [1, 3, 4]-thiadiazoles and [1, 2, 4]-triazolo-[3, 4-b], [1, 3, 4]-thiadiazines and screened them for antimicrobial activity.

Sarangapani et al. (2007) synthesized some new 4- substituted -5- [(2-benzoxazolyl thio) methyl] -3-mercapto -4H-1, 2, 4-triazoles and screened them for antibacterial activity.

Rajendra Prasad et al. (2006) synthesized some new thiazolidin-4-one substituted 1, 2, 4-Triazoles and screened them for antimicrobial activity.

Udupi et al. (2006) synthesized certain substituted fluoropyrazolo (3, 4-d) pyrimidines and Triazoles and screened them for antimicrobial and anti fungal activity.


Ashok et al. (2008) synthesized some new (E)-1-[2’, 4’-dihydroxy-5’-(3’-aryl-3’-(1H-1, 2, 4-Triazol-1-yl) propanoyl) phenyl]-3-aryl prop-2-en-1-ones and screened them for antifungal activity.

Vijaya Kumar Tirlapur et al. (2008) synthesized some new Triazoles and screened them for antimicrobial and antifungal activity.

Mogilaiah et al. (2007) synthesized certain 4-aryl-1-(2-furyl/2-Thienyl)-1, 2, 4-Triazolo [4, 3-a] [1, 8] Naphthyridines and screened them for antibacterial activity.

Mogilaiah et al. (2009) synthesized some 6-aryl-9-(p-fluorophenyl)-1, 2, 4-Triazolo[4, 3-a] [1,8] Naphthyridines and screened them for antibacterial activity.

Sharma et al. synthesized certain 1, 2, 4-Triazolo-Tetrazolo-and 2-pyrazolyl Quinoxalines and screened them for antibacterial activity.

Shivarama Holla et al. (2009) synthesized some Halogen containing Triazolotriazinoindoles moiety and screened them for antibacterial activity.
Jag Mohan et al. (2005) synthesized some Imidazo-[2, 1-b]-1, 3, 4-Thaidiazolo [2, 3-c] -s-Triazoles and related systems and screened them for antimicrobial activity.

Heng-Shan Dong et al. (2008) synthesized some new (1-aryl-5-methyl-1H-1, 2, 3-triazol-4-yl)-(2,4-dihydroxy-phenyl)-methanones and screened them for antifungal, antiviral, and anti-inflammatory activities.

Gill et al. (2008) synthesized certain difluorobenzimidazole and 1, 2, 3-triazole incorporated chromones and screened them for antimicrobial activity.

Laxmi Devi et al. (2008) synthesized some stereochemistry of N4-Aryl-1, 2, 4-triazoles and screened them for antimicrobial activity.

Vagdevi et al. (2008) synthesized some 3-substituted phenyl-5-(4-pyrrol-1-ylphenyl)-4H-1, 2, 4-triazoles and screened them for antibacterial and antitubercular activities.

Udupi et al. (2005) synthesized some new 3-(pyrazine-2-yl)-6-aryl-5-pyrazinoyl-(6H)-1, 2, 4-triazole of (3, 4-b) (1, 3, 4)-thiadiazolidines and screened them for antibacterial, antifungal, anti-inflammatory and analgesic activities.
Makrandi et al. (2008) synthesized some new 6-(3-chromonyl)-5, 6-dihydro-3-alkyl/aryl-s-triazolo[3, 4-b][1, 3, 4] thiadiazoles and screened them for antibacterial and antifungal activities.

Harshita Rastogi et al. (2008) synthesized some new 5-(4'-chlorophenyl)-3-mercapto-4-[N-(2'-chloroacetyl)] amino-1, 2, 4-triazoles and screened them for antifungal activity.

Jag mohan et al. (2005) synthesized some pyrazolo [3', 4':4, 5]-thiazolo-[3, 2-b]-s-triazoles and screened them for antibacterial and antifungal activities.

Neslihan Demirbas et al. (2005) synthesized some new [1, 2, 4]-triazolo [3, 4-b] [1,3,4]-thiadiazoles and screened them for antimicrobial activity.

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