



Synthesis of Hydrazides and their Pharmacological Evaluation

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DESCRIPTION

Ever since medicinally useful naturally occurring compounds are known to human beings, man has adventured to unravel the separation, purification, identification and assign proper structures to these compounds. Further, he also tried to copy the important structural parts of these molecules in order to design and develop more useful drugs. A survey of literature revealed that, amongst the naturally occurring compounds, 'Heterocycles' make up an exceedingly important class of medicinally useful compounds. The nature has provided vast number of biologically important compounds like carbohydrates, proteins, amino acids, polymers, steroids, etc. which contain one or more than one heterocyclic rings or chains. In addition to this, organo-sulfur compounds are also occurring in nature in many living and non-living objects and known for their unusual properties. Isolation, identification and application of these organo-sulfur compounds resulted in their useful scientific, technical and industrial growth. This led to the development of organo-sulfur chemistry during the last few decades, at a faster pace than any other branch of organic chemistry.

Organosulfur compounds occur in the bodies of all living creatures in the form of certain essential amino acids (such as cysteine 1, cystine 2 and methionine 3, which are components of proteins), tripeptide glutathione 4, enzymes, coenzymes 5, vitamins 6 and hormones etc. They are also found in diverse locations, including in interstellar space, inside hot acidic volcanoes and deep within the oceans. Mustard gas, or bis (β -chloroethyl) sulfide 7, is a potent chemical warfare agent, whereas other sulfur compounds such as sulfanilamide (a sulfa drug) 8, penicillin 9 and cephalosporin 10 are valued antibiotics. Synthetic organo-sulfur compounds include polysulfones, inert polymers used in astronauts' transparent face shields; polythiophenes, materials possessing the metal-like ability to conduct electricity; agricultural chemicals, insecticides and organic

solvents, such as dimethyl sulfoxide and carbon disulfide; dyes; lubricating oil constituents, food additives and substances used to make rayon. In chemical research, organo-sulfur compounds are valued reagents widely used for synthesizing new compounds.

One of the main objectives of organic and medicinal chemistry is the rational design, synthesis and production of molecules having value as human therapeutic agents. Organic molecules containing five-membered aromatic heterocyclic rings are widely distributed in nature and often play an important role in various biochemical processes. A number of heterocyclic compounds containing nitrogen, sulphur and other hetero atoms find applications in various fields ranging from dyes, drugs, pigments and so on.

Structure Metabolism Relationship (SMR) studies often reveal that incorporation of one or more of these heteroatoms in an aromatic ring influences the chemical and biochemical reactivity of these compounds and therefore alter their metabolism. Thus modern day medicinal chemistry is based on heterocyclic molecules and thus owe to them due to their close association with numerous biological as well as pharmacological activities. In heterocyclic molecules these biological activities are based on following important aspects.

CONCLUSION

Among important heterocyclic molecules, 1,2,4 triazole, 1,3,4-oxadiazole and pyridine occupies a distinct place in drug discovery research. These rings constitute an important group of five membered aromatic heterocycles that are substructures of many drug molecules. The chemistry of triazole was studied in detail and discussed in literature since last 30-40 years. The major reason behind this is the activities exhibited by triazole moiety. Derivatives of triazole are important part of therapeutic agents like fungicidal, insecticidal, antimicrobial and antiasthmatic agents.

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