

Study of Benzothiazoles and its Pharmaceutical Importance

Humera Khan, Research Scholar, Mansarovar Global University, Sehore, Bhopal (Madhya Pradesh)
Dr. Deepak Chauhan, Associate Professor, Mansarovar Global University

Abstract: Straightforward and simple benzothiazole nucleus is present in mixes engaged with research pointed towards assessing new items that have fascinating biological activities, for example, antimicrobial, antileishmanial, antitumor, anthelmintic, anti-inflammatory and anticonvulsant. The current examination centers around the benzothiazoles with potential exercises that are presently being adopted. With distinctive biological application for benzothiazole compounds have roused new endeavours in quest of for novel subsidiaries with improved biological action and different applications in drug industry. Attributable to the importance of this system, the point of this examination is to feature perspectives reported on the science, chemistry and biological action of benzothiazoles during the previous few years.

Keywords: Benzothiazole, Pharmaceutical

I. INTRODUCTION:

Benzothiazoles also familiar as BT or benzosulfonazole belongs to the category of organic compounds called as benzothiazoles. Benzothiazoles are fused membered rings, which contains heterocycles bearing thiazoles. Sulphur and nitrogen molecules comprise the center structure of thiazole and numerous pharmacologically and organic compounds¹. Benzothiazoles us a special bicyclic ring framework with various and multiple applications. It is a fragrant heterocyclic compound with the substance recipe C_7H_5NS . Benzothiazoles is a colourless, slightly vicious liquid. In spite of the fact that the parent compound benzothiazole isn't generally utilized, a considerable lot of its derivatives are found in commercial products or in nature. Benzothiazole and its subsidiaries envelop an alluring heterocyclic class showing pragmatic application going from photography, agriculture and medicine. Benzothiazole structure a piece of numerous mixes indicating biological activities such as anticancer, anthelmintic, antimicrobial and anti-diabetic activities.

Benzothiazole being a heterocyclic compound, it discovers use in exploration as a beginning material for the combination of bigger, normally bioactive structures. Its aromaticity makes it moderately steady, despite the fact that as a heterocycle, it has receptive sites which takes into consideration functionalization. As such, benzothiazole has no use in household. But it is widely used for research and in industry.

Benzothiazole has a boiling point $231.0^{\circ}C$ and Melting point $2.0^{\circ}C$. It has solubility of 0.03M. It has density of 1.246 at $20^{\circ}C/4^{\circ}C$. The refractive index of benzothiazole is 1.6379 at $20^{\circ}C$ ².

Definition of Benzothiazole

Benzothiazole can be defined as "a liquid compound C_7H_5NS made by cyclization from ortho- amino-thiophenol and formaldehyde well known as a parent compound of mercaptobenzothiazole and many dyes."

Structure and Characteristics of Benzothiazoles.

Benzothiazole comprise of a 5 – membered 1, 3 – thiazole ring intertwined to a benzene ring.

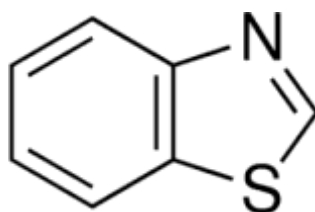


Figure 1: Structure of Benzothiazole

Molecular weight: 135.19 g/mol **IUPAC Name:** 1, 3-benzothiazole **Molecular Formula:** C₇H₅NS **Molecular Weight:** 136.19
Average Mass: 135.186Da
Monoisotopic Mass: 135.014267Da

Benzothiazole is a compound of aromatic heterocyclic in nature. Although it isn't broadly utilized, a significant number of its subordinate are found in nature or business products.

Benzothiazoles and Pharmaceutical Importance

Benzothiazoles are perhaps the main class of natural compounds of restorative significance because of their archived organic and helpful exercises³.

Benzothiazole, a gathering of compounds of xenobiotic containing a ring of benzene combined with a ring of thiazole are utilized worldwide for an assortment of helpful applications. Benzothiazole and their heterocyclic subordinations speak to a significant class of compounds having a wide range of biological activities. The heap range of restorative properties related with benzothiazole related medications has urged the restorative scientists to blend an enormous number of novel helpful specialists

Significant therapeutic exercises related with this class of compounds as announced in this logical writing are antitumour, LTD₄ receptor adversaries, amyloid imaging specialist in Alzheimer's infection (AD)⁴

Derivatives of Benzothiazole have been seriously examined, as the pharmacophore is one of the advantages structures in medical science and medical chemistry. Benzothiazole have arisen as a centre structure for enhanced remedial applications which incorporates anthelmintic, antimicrobial, antidiabetic, anticancer, anticonvulsant, antitubercular, antioxidant, antipsychotic, anti-inflammatory and antifungal exercises. They are likewise utilized in industry as vulcanisation accelerators. Different benzothiazoles, for example 2-aryl benzothiazole got a lot of consideration because of novel structure and its uses as radioactive amyloid envisioning specialists. Benzothiazoles ring is available in different terrestrial natural compound or marine which have helpful organic properties⁵.

Another, in medicinal chemistry and bioorganic, a derivative of benzothiazole i.e., 2-aminobenzothiazole are extensively found with application in drug discovery and advancement for the treatment of inflammation, diabetes, tuberculosis, epilepsy, analgesia viral, ulcer and bacterial contaminations⁶.

II. CONCLUSION

In the past few decades, Benzothiazole has played a crucial role in the field of medicinal chemistry and biochemistry. As mentioned in this article, benzothiazole can be used for multiple uses to cure many diseases. Its derivatives are used to for multiple ailment. Benzothiazole can be a wonder drug and can be used for further treating of many diseases.

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