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Review

Carbon Nanotropes: A Contemporary Paradigm in Drug Delivery

Avinash C. Tripathi [1], Shubhini A. Saraf [2] and Shailendra K. Saraf [1,*]

[1] Division of Pharmaceutical Chemistry, Faculty of Pharmacy, Babu Banarasi Das Northern India Institute of Technology, BBD City, Faizabad Road, Chinhut, Lucknow 226028, U.P., India; E-Mail: avinisc31@gmail.com

[2] Department of Pharmaceutical Sciences, Babasaheb Bhimrao Ambedkar University, Lucknow 226025, U.P., India; E-Mail: shubhini.saraf@gmail.com

* Author to whom correspondence should be addressed; E-Mail: dirpharmniec@gmail.com; Tel.: +91-522-3911052; Fax: +91-522-3911152.

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Abstract: Discovery of fullerenes and other nanosized carbon allotropes has opened a vast new field of possibilities in nanotechnology and has become one of the most promising research areas. Carbon nanomaterials have drawn interest as carriers of biologically pertinent molecules due to their distinctive physical, chemical and physiological properties. We have assigned the nomenclature "Carbon Nanotropes" to the nanosized carbon allotropes. Carbon nanotropes such as fullerenes, carbon nanotubes (CNTs) and graphenes, have exhibited wide applicability in drug delivery, owing to their small size and biological activity. The nanotherapeutics/diagnostics will allow a deeper understanding of human ills including cancer, neurodegenerative diseases, genetic disorders and various other complications. Recently, nanomaterials with multiple functions, such as drug carrier, MRI, optical imaging, photothermal therapy, *etc.*, have become more and more popular in the domain of cancer and other areas of research. This review is an endeavor to bring together the usefulness of the carbon nanomaterials in the field of drug delivery. The last section of the review encompasses the recent patents granted on carbon nanotropes at United State Patent Trademark Office (USPTO) in the related field.

CARBON NANOTROPES

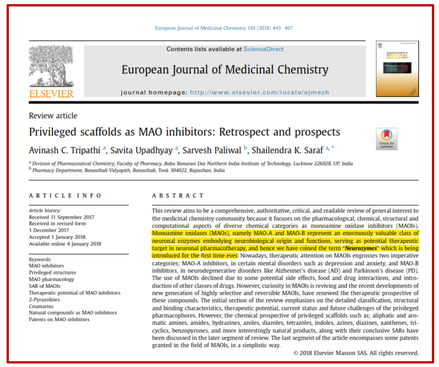
A name given by us to Nanosized Carbon Allotropes

(2015)

NEUROZYMES

A name given by us to Neuronal Enzymes

(2018)



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Review article

Privileged scaffolds as MAO inhibitors: Retrospect and prospects

Avinash C. Tripathi [a], Savita Upadhyay [a], Sarvesh Paliwal [b], Shailendra K. Saraf [a, *]

[a] Division of Pharmaceutical Chemistry, Faculty of Pharmacy, Babu Banarasi Das Northern India Institute of Technology, Lucknow 226028, UP, India

[b] Pharmacy Department, Banasthali Vidyapith, Banasthali, Tonk 304022, Rajasthan, India

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ABSTRACT

This review aims to be a comprehensive, authoritative, critical, and readable review of general interest to the medicinal chemistry community because it focuses on the pharmacological, chemical, structural and computational aspects of diverse chemical categories as monoamine oxidase inhibitors (MAOIs). Monoamine oxidases (MAOs), namely MAO-A and MAO-B represent an enormously valuable class of neuronal enzymes embodying neurobiological origin and function, serving as potential therapeutic target in neuronal pharmacotherapy, and hence we have coined the term **"Neurozymes"** which is being introduced for the first time ever. Nowadays, therapeutic attention on MAOIs engrosses two imperative categories; MAO-A inhibitors, in certain mental disorders such as depression and anxiety, and MAO-B inhibitors, in neurodegenerative disorders like Alzheimer's disease (AD) and Parkinson's disease (PD). The use of MAOIs declined due to some potential side effects, food and drug interactions, and introduction of other classes of drugs. However, curiosity in MAOIs is reviving and the recent developments of new generation of highly selective and reversible MAOIs, have renewed the therapeutic prospective of these compounds. The initial section of the review emphasizes on the detailed classification, structural and binding characteristics, therapeutic potential, current status and future challenges of the privileged pharmacophores. However, the chemical prospective of privileged scaffolds such as; aliphatic and aromatic amines, amides, hydrazines, azoles, diazoles, tetrazoles, indoles, azines, diazines, xanthenes, tricyclics, benzopyrones, and more interestingly natural products, along with their conclusive SARs have been discussed in the later segment of review. The last segment of the article encompasses some patents granted in the field of MAOIs, in a simplistic way.

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