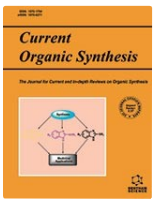

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Mini-Review Article

A Review: Exploring Synthetic Schemes and Structure-activity Relationship (SAR) Studies of Mono-carbonyl Curcumin Analogues for Cytotoxicity Inhibitory Anticancer Activity

Author(s): Shashikant Vasantarao Bhandari*, Pranali Kuthe, Shital Manoj Patil, Om Nagras and Aniket Pardip Sarkate

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Abstract

Introduction: Cancer is the major cause of death globally. Cancer can be treated with naturally occurring Curcumin nuclei. Curcumin has a wide range of biological actions, including anti-inflammatory and anti-cancer properties. Even though it is an effective medicinal entity, it has some limitations such as instability at physiological pH and a weak pharmacokinetic profile due to the β-diketone moiety present in it. To overcome this drawback, research was carried out on monoketone moieties in curcumin, popularly known as mono-carbonyl curcumin.

Objective: The present review focuses on different synthetic schemes and Mono-carbonyl curcumin derivative's Structure-Activity Relationship (SAR) as a cytotoxic inhibitory anticancer agent. The various synthetic schemes published by researchers were compiled.

Methods: Findings of different researchers working on mono-carbonyl curcumin as an anticancer have been reviewed, analyzed and the outcomes were summarized.

Results: The combination of all of these approaches serves as a one-stop solution for mono-carbonyl curcumin synthesis. The important groups on different positions of mono-carbonyl curcumin were discovered by a SAR study focused on cytotoxicity, which could be useful in the designing of its derivatives.

Conclusion: Based on our examination of the literature, we believe that this review will help researchers design and develop powerful mono-carbonyl curcumin derivatives that can be proven essential for anticancer activity.

Keywords: Mono-carbonyl curcumin, structure-activity relationship, cytotoxicity, anticancer activity, synthetic schemes, pharmacokinetic profile.

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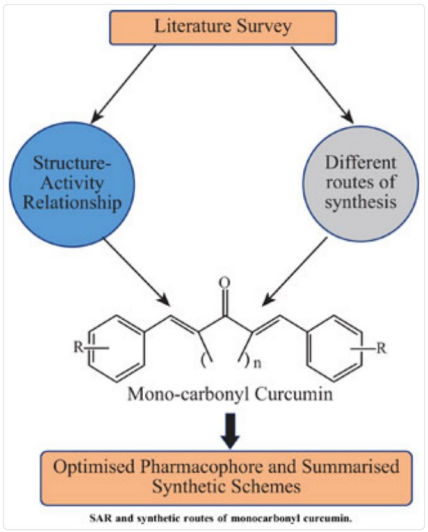
Graphical Abstract



SAR and synthetic routes of monocarbonyl curcumin.

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