

ABSTRACT BOOK

5TH INTERNATIONAL BURSA SCIENTIFIC RESEARCHS CONGRESS

March 01-03, 2024, Bursa, TÜRKİYE

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DESIGN OF POTENTIALLY BIOACTIVE NEW COUMARIN DERIVATIVES AND THEIR APPLICATIONS

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Abstract

Coumarins are bioactive compounds with a heterocyclic structure of both natural and synthetic origin. There is great interest in their synthesis due to their diverse and high biological activities. Many natural and synthetic derivatives of coumarins are used in various fields such as biology, chemistry, physics and medicine in different applications such as food and cosmetic additives, fluorescent emitters, optical brightening agents and laser dyes. Moreover, various biological activities of coumarins such as anticoagulant, antithrombotic, anti-inflammatory, antioxidant, anti-microbial, anti-bacterial, anticancer, anti-Alzheimer, anti-Parkinson and anti-HIV are well known [1],[2].

1,2,3-Triazoles are five-membered heterocyclic structures that contain nitrogen in their structures and are frequently preferred in pharmacological studies. 1,2,3-Triazoles can contain electrophiles and nucleophiles around their core structures, thus paving the way for the formation of various new bioactive molecules. They have high biological activities, just like coumarin compounds [3].

Amino acids are the basic building blocks of proteins and exhibit acceptable biocompatibility in all biological systems. Amino acids are widely used in antimicrobial studies, and studies on amino acids found in antibiotics are gaining importance day by day [4],[5].

Molecular hybridization is a term used for the design and synthesis of new molecules with high biological activity. The combination of the pharmacophore parts of different bioactive substances, gives new compounds with higher biological activity [6].

"Click chemistry" is a term first introduced by Sharpless and his colleagues and used for the combination of bioorganic and organic compounds. It is a synthesis method frequently used by researchers due to its easy reaction conditions, reliable and highly efficient, selective reaction. Thanks to Click chemistry, various bioactive compounds are easily combined and new compounds with high biological activity are obtained [7].

In this study, based on the coumarin motif, new amino acid-linked 1,2,3-triazole-coumarin hybrids with the potential to exhibit higher biological activity were synthesized by Click chemistry and antioxidant activity test was performed.

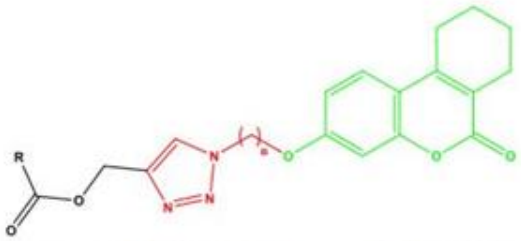


Figure : Coumarin triazole hybrid structures synthesized in this study

Keywords: Heterocyclic compound, Coumarin, 1,2,3-Triazoles, Amino acids, Click Chemistry

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