



Review

Molecular Insights into Coumarin Analogues as Antimicrobial Agents: Recent Developments in Drug Discovery

Rameshwar S. Cheke ^{1,*}, Harun M. Patel ², Vaishali M. Patil ^{3,*}, Iqrar Ahmad Ansari ², Jaya P. Ambhore ¹, Sachin D. Shinde ⁴, Adel Kadri ^{5,6}, Mejdi Snoussi ^{7,8}, Mohd Adnan ⁷, Prashant S. Kharkar ⁹, Visweswara Rao Pasupuleti ^{10,11,12,*} and Prashant K. Deshmukh ¹³

- ¹ Department of Pharmaceutical Chemistry, Dr. Rajendra Gode College of Pharmacy, Malkapur 443101, India; ambhorejp02@gmail.com
 - ² Department of Pharmaceutical Chemistry, R. C. Patel Institute of Pharmaceutical Education and Research, Shirpur 425405, India; hpatel_38@yahoo.com (H.M.P.); ansariiqrar50@gmail.com (I.A.A.)
 - ³ Department of Pharmaceutical Chemistry, KIET School of Pharmacy, KIET Group of Institutions, Delhi-NCR, Delhi 201206, India
 - ⁴ Department of Pharmacology, Shri. R. D. Bhatt College of Pharmacy, Jalna 431213, India; sdshinde8390@gmail.com
 - ⁵ Faculty of Science of Sfax, Department of Chemistry, University of Sfax, B.P. 1171, Sfax 3000, Tunisia; balakadel@yahoo.fr
 - ⁶ Department of Pharmaceutical Chemistry, Faculty of Science and Arts in Baljuraishi, Albaha University, P.O. Box 1988, Albaha 65527, Saudi Arabia
 - ⁷ Department of Biology, College of Science, University of Hail, Hail P.O. Box 2440, Saudi Arabia; amnejdi@yahoo.fr (M.S.); drmohdadnan@gmail.com (M.A.)
 - ⁸ Laboratory of Genetics, Biodiversity and Valorization of Bio-Resources (LR11ES41), University of Monastir, Higher Institute of Biotechnology of Monastir, Avenue Tahar Haddad, BP74, Monastir 5000, Tunisia
 - ⁹ Department of Pharmaceutical Sciences and Technology, Institute of Chemical Technology, Matunga, Mumbai 400019, India; ps.kharkar@ictmumbai.edu.in
 - ¹⁰ Department of Biomedical Sciences and Therapeutics, Faculty of Medicine & Health Sciences, University Malaysia Sabah, Kota Kinabalu 48800, Malaysia
 - ¹¹ Department of Biochemistry, Faculty of Medicine and Health Sciences, Abdurrab University, Pekanbaru 28291, Indonesia
 - ¹² Centre for International Collaboration and Research, Reva University, Rukmini Knowledge Park, Kattigenahalli, Yelahanka, Bangalore, Karnataka 560064, India
 - ¹³ Department of Pharmaceutics, Dr. Rajendra Gode College of pharmacy, Malkapur 443101, India; pkdesh@rediffmail.com
- * Correspondence: rameshcheke23@gmail.com (R.S.C.); vaishurwise@gmail.com (V.M.P.); pvrao@ums.edu.my (V.R.P.)



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Simple Summary: Coumarins are a large family of benzopyrones, and more than 1300 coumarins have been reported to date. Natural, as well as synthetic, coumarins have demonstrated a diverse activity spectrum. On the other hand, the demands of the current health scenario witnessing morbidity and mortality due to microbial infections and multidrug-resistant bacterial strains, the well-reported phytochemical coumarin can be of interest. Some of the well-reported coumarin analogues as antimicrobial agents include β -lactam derivatives, coumarin-based 1,2,3-triazole compounds, the miconazole analogue, coumarin-substituted pyrazole hybrids, pyranocoumarin, coumarin–sulphonamide hybrids, pyranocoumarins, coumarin–sulphonamide derivatives, chromenylpyrazoles candidates, 3-amidocoumarins analogues, uracil–coumarin hybrids, indolinedione–coumarin hybrids, coumarin–imidazole hybrids, coumarin-fused pyrazolones and methyl thiazole derivatives, coumarin–theophylline hybrids, etc. In the present review, several methods for the synthesis of coumarin derivatives as antimicrobial agents are reported, along with structure–activity relationship (SAR) studies focusing on the developments reported since 2016.

Abstract: A major global health risk has been witnessed with the development of drug-resistant bacteria and multidrug-resistant pathogens linked to significant mortality. Coumarins are heterocyclic compounds belonging to the benzophenone class enriched in different plants. Coumarins and their derivatives have a wide range of biological activity, including antibacterial, anticoagulant,

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