



Review

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

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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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