

Chalcones and Their Biological Applications: A Review of Therapeutic Potential

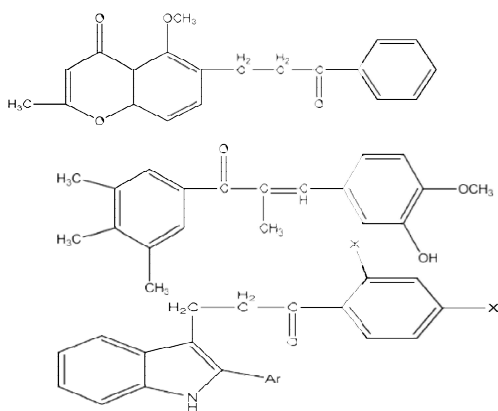
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Abstract: A class of naturally occurring flavonoids known as chalcones has attracted a lot of interest because of its wide range of pharmacological characteristics. Chalcones have a unique chemical structure made up of two aromatic rings joined by a three-carbon α,β -unsaturated carbonyl system. They are thought to be the biogenetic progenitors of flavonoids and isoflavonoids, which are plentiful in plants, and they form the core of many significant biological molecules. Chalcones and their derivatives have drawn a lot of interest in medicinal chemistry because of their structural diversity and bioactivity. Numerous biological activity, such as antioxidant, antibacterial, amoebicidal, antiulcer, antiviral, insecticidal, antiprotozoal, anticancer, cytotoxic, and immunosuppressive properties, are possessed by chalcones. This review provides a comprehensive analysis of the biological applications of chalcones, with a focus on their mechanisms of action and therapeutic implications. Furthermore, it discusses recent advancements in chalcone-based drug development and their potential for clinical translation. Understanding the pharmacological effects of chalcones could pave the way for the development of novel therapeutic agents, making them valuable in addressing various human health challenges.

Keywords: Chalcones, medicinal chemistry, antioxidant, bioactivity, antimicrobial, anticancer

Graphical Abstract



Several chalcones with an indole moiety were created and their antibacterial and antifungal properties were examined.

The α - to methyl compound was found be the most active and tested for the chemotherapy of leukemias.

Heterocyclic substituted chalcones were introduced for the treatment of breast cancer, menopausal disorders and osteoporosis.

