

Therapeutic Outcomes of Isatin and Its Derivatives against Multiple Diseases: Recent Developments in Drug Discovery

ABSTRACT

Isatin (1H indole 2, 3-dione) is a heterocyclic, endogenous lead molecule recognized in humans and different plants. The isatin nucleus and its derivatives are owed the attention of researchers due to their diverse pharmacological activities such as anticancer, anti-TB, antifungal, antimicrobial, antioxidant, anti-inflammatory, anticonvulsant, anti-HIV, and so on. Many research chemists take advantage of the gentle structure of isatins, such as NH at position 1 and carbonyl functions at positions 2 and 3, for designing biologically active analogues via different approaches. Literature surveys based on reported preclinical, clinical, and patented details confirm the multitarget profile of isatin analogues and thus their importance in the field of medicinal chemistry as a potent chemotherapeutic agent. This review represents the recent development of isatin analogues possessing potential pharmacological action in the years 2016–2020. The structure–activity relationship is also discussed to provide a pharmacophoric pattern that may contribute in the future to the design and synthesis of potent and less toxic therapeutics.