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REVIEW ARTICLE

Natural Sesquiterpene Lactones in the Prevention and Treatment of Inflammatory Disorders and cancer: A Systematic Study of this Emerging Therapeutic Approach based on Chemical and Pharmacological Aspect

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Abstract: ***Background and Introduction*****:** Sesquiterpene lactones are a class of secondary metabolite that contains sesquiterpenoids and lactone ring as pharmacophore moiety. A large group of bioactive secondary metabolites such as phytopharmaceuticals belong to this category. From the Asteraceae family-based medicinal plants, more than 5,000 sesquiterpene lactones have been reported so far. Sesquiterpene lactone-based pharmacophore moieties hold promise for broad-spectrum biological activities against cancer, inflammation, parasitic, bacterial, fungal, viral infection and other functional disorders. Moreover, these moiety based phytocompounds have been highlighted with a new dimension in the natural drug discovery program worldwide after the 2015 Medicine Nobel Prize achieved by the Artemisinin researchers.

Objective**:** These bitter substances often contain an α, β-unsaturated-γ-lactone as a major structural backbone**,** which in recent studies has been explored to be associated with anti-tumor, cytotoxic, and anti-inflammatory action. Recently, the use of sesquiterpene lactones as phytomedicine has been *increased.* This study will review the prospect of sesquiterpene lactones against inflammation and cancer.

Methods**:** Hence, we emphasized on the different features of this moiety by incorporating its structural diversity on biological activities to explore structure-activity relationships (SAR) against inflammation and cancer.

Results**:** How the dual mode of action such as anti-inflammatory and anti-cancer has been exhibitedby these phytopharmaceuticals will be forecasted in this study. Furthermore, the correlation of anti-inflammatory and anti-cancer activity executed by the sesquiterpene lactones for fruitful phytotherapy will also be revealed in the present review in the milieu of pharmacophore activity relation and pharmacodynamics study as well.

Conclusion**:** So, these metabolites are paramount in phytopharmacological aspects. The present discussion on the future prospect of this moiety based on the reported literature could be a guide for anti-inflammatory and anti-cancer drug discovery programs for the upcoming researchers.

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1. INTRODUCTION

Sesquiterpene lactones (STLs) are the emerging secondary metabolites as important bioactive phytopharmaceuticals belonging to the families such as Asteraceae, Cactaceae, Solanaceae, Araneae, and Euphorbiaceae. However, they are frequently available in the Asteraceae family [1-3]. STLs are usually colorless, bitter, stable compounds possessing lipo-

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