


REVIEW

Rubraxanthone: A Promising Xanthone From Guttiferae Family with Diverse Biological Activities

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ABSTRACT

The transformation of primary metabolites into secondary metabolites is a natural process that results in the formation of secondary metabolites, which are also referred to as natural products. Among the secondary metabolites that are highly isolated from the Guttiferae family, xanthone is one of the most significant ones. Rubraxanthone (1) is a xanthone that was successfully extracted from Guttiferae. The biological synthesis of this prenylated xanthone occurs through the shikimate pathway with L-phenylalanine as the precursor. It has been reported that rubraxanthone possesses a wide range of valuable biological activities, including antibacterial, anticancer and antiplatelet characteristics. This review emphasised the significance of rubraxanthone as a secondary metabolite in Guttiferae, identifying it as a potential compound in pharmaceutical, botany and chemistry with account its biological properties and future research pathway.

1 | Introduction

The plant possesses the capacity to synthesise a diverse range of organic molecules, which can be classified into two broad classes referred to as primary and secondary metabolites. Primary metabolites are crucial for the fundamental processes of the plant, whereas secondary metabolites fulfil more specific purposes such as defence mechanisms or the attraction of pollinators [1]. Basic metabolites are converted to secondary metabolites via different routes from primary metabolism [2]. Secondary metabolite is a bioactive substance produced by an organism's metabolic activities which does not involve directly in growth development [3]. These chemicals are specific to certain taxonomic groups and not necessary for survival [4]. The substances, namely terpenes, phenolic compounds and alkaloids are commonly classified

according to their synthesis pathway within the organism [5, 6]. Frequently, closely related species within a specific evolutionary group include distinct classes of secondary metabolites, which contribute to the advantageous characteristics of numerous medicinal herbs, spices and functional foods [7].

One of the plant families known to be abundant with secondary metabolites is the Guttiferae family. The Guttiferae plant family comprises approximately 36 genera and 1600 species, which are distributed throughout tropical regions, are prevalent in temperate areas and have been utilised as traditional medicine since ancient [8]. This plant family consists of various kinds of plant forms, like trees, bushes and vines that are evergreen throughout the year. Like other plants, Guttiferae have leaves with opposite, entire and stipulate leaves, some of species feature