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Natural products chemistry and research

Editorial

Natural Products Chemistry– Natural Medicine Terpinoids And Its Objectives

Rakesh Kumar Joshi

M. Sc (Organic Chemistry) Ph.D Senior Lecturer, Department of Education Govertment of Uttrakhand, India, India

Terpenoids, sometimes called isoprenoids, are the most abundant and structurally diverse natural compounds found in a wide range of plants. Several in vitro, preclinical, and clinical studies have established that this class of chemicals has a diverse set of pharmacological activities. The wide range of terpenoid structures and activities has sparked greater interest in their commercial application, resulting in the registration of some with well-established medicinal applications as pharmaceuticals on the market. This chapter examines the classification of terpenoids, including brief descriptions of each group, extraction methods, chemical identification, and their wide range of pharmacological effects and medicinal applications.

Terpenoids from African medicinal plants have both harmful and protective effects.

Terpenoids are the most common type of natural substance, and they can be found in all living organisms. Sesquiterpenoids and diterpenoids from angiosperm species are among the many protective chemicals. Biologically active terpenoids are used in the treatment of cancer, malaria, inflammation, and a number of infectious disorders. Nonetheless, some of the chemicals in this group were hazardous, causing gastrointestinal issues as well as central nervous system indications. Several bioactive terpenoids have been discovered in African medicine, with many of them having organ-protective characteristics while only a few are known to have harmful effects on humans. The effects of the most prevalent terpenoids found in African medicinal plants are discussed in this chapter, including both harmful and beneficial effects.

Plant antioxidants are made up of a wide range of chemicals, including ascorbic acid and tocopherols, polyphenolic compounds, and terpenoids. They serve a variety of roles in both plants and humans (e.g., carotenoids function as accessory pigments for light harvesting and provide photoprotection and pigmentation in plants). The major components of essential oils, monoterpenes and diterpenes, act as allelopathic agents, attractants in plant-plant or plant-pathogen/herbivore interactions, or repellants. Carotenoids are crucial for human health; carotenoids with provitamin A activity are important for vision; other carotenoids have an impact on human immunological function and gap-junctional communication (GJC). Furthermore, fruits and vegetables' health-promoting effects are thought to be due to their antioxidative potential.

Terpene is a natural way to keep insects at bay without the use of harsh chemicals that may cause adverse effects (Franklin et al. 2001). Many pesticides have been developed to kill household pests such as lice and mites (Franklin et al. 2001). In these circumstances, it's critical to ensure that the pesticides don't have any negative effects on humans.

Anti-Plasmodic activity:

Terpenes have been proven to have antiplasmodial properties. With the rise in malarial infections and treatment resistance, terpenes' antiplasmodial action has gotten increased attention (Nogueira and Lopes 2011). The terpene activity is based on the fact that it attaches to the hemin portion of infected erythrocytes and kills the parasite in the same way that the well-known antimalarial medication chloroquine does (Orjih et al. 1981; Kayembe et al. 2012). Hemin is an iron-based protein that is required for the production of plasmodium in erythrocytes. Though hemin-breaking enzymes have yet to be discovered in plasmodium, this could be one of the reasons why parasite lysis is attributed to hemin binding (Ginsburg and Demel 1984). According to another study, the drug-hemin combination attaches to phospholipid layers, disturbing them.

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CONFLICT OF INTEREST

The author has declared that no competing interests exist.

Correspondence to: Rakesh Kumar Joshi, M. Sc (Organic Chemistry) Ph.D Senior Lecturer, Department of Education Govertment of Uttrakhand, India, India, Tel:9399932433; E-mail: rakesh_kumar@wsu.edu

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