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Review Article

COMPARATIVE STUDY ON *COMBRETUM* AND *TERMINALIA* SPECIES OF THE COMBRETACEAE FAMILY

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ABSTRACT

Bioactive natural products continue to play an important role in the discovery of lead compounds for new-drug developments. Although for more than a century, extensive studies have been made on isolation and identification of bioactive substances from marine and terrestrial microorganisms, medicinal plants and animals, Chemistry of natural product is still of great importance as a basic science since natural products have made significant contributions to development of new drugs as well as to progress of basic studies of life sciences. The Combretaceae are a family of flowering plants in the order Myrtales and widespread in the subtropics and tropics. Combretaceae is a large family, which is distributed in approximately 20 genera with 600 species. Among them *Combretum* and *Terminalia* are the largest two with about 370 and 200 species respectively. Both species possess significant biological activities and also used in traditional medicine. This review mainly discussed about the importance of *Combretum* and *Terminalia* species against the different types of diseases.

Keywords: Combretaceae, *Combretum*, *Terminalia.*

INTRODUCTION

Some plants consider as important source of nutrition, medicinal properties and these plants recommended for their therapeutic values. For this reason, importance of medicinal plants increases day by day. For example, 250.000 – 500.000 plant species on the Earth have been studied chemically and pharmacologically for their medicinal properties.[1,2] Among these 75 % of new anticancer drugs marketed between 1981 and 2006 have been derived from plant sources.[3] Various countries of Europe and the US used natural products and it has been estimated that 50 % of the prescription products are either natural products or natural product derivates.[4,5]

Combretum Species

Combretum, the genus of the family Combretaceae comprises about 370 species of trees and shrubs.[6] A review study of thirty-six of *Combretum* species revealed that many of them possess biological activities and they are used in traditional medicine against infections, diabetics, bleeding, malaria, diarrhoea, inflammation, digestive disorder and some *combretum* species are extensively used as diuretic also. Among these *Combretum micranthum* is used in the treatment of wounds, sores, fever, cough and bronchitis. Beside these, it has also antibacterial, antifungal, cytotoxic, antiviral, immune-simulating, antidiabetic and significant hypoglycemic activities. Furthermore, some species of *Combretum* possess antitrypansomal and antihelmintic activities whereas *Combretum molle* has been widely used to treat various diseases such as parasitic, protozoan and other infectious diseases. The plant *Combretum*

erythrophyllum in Southern Africa has medicinal importance to treat abdominal pains, venereal diseases and sexually transmitted diseases. Additionally, it was reported to have anti-inflammatory, mutagenic and spasmolytic activities also. A study on *Combretum dolichopetalum* showed that it was used to relieve stomachache, blood in stools, diarrhoea, crumps and some related gastrointestinal disorders. Moreover, it has gastric antisecretory activity, increasing gastric emptying time, hepatoprotective effect and also acts as a smooth muscle relaxant and spasmolytic agent. Beside these, another species, *Combretum quadrangulare* was also used to treat round and tapeworm infections and has strong trypanocidal, hepatoprotective and very significant inhibitory activities against HIV-1.[7] A recent study showed that *Combretum griffithii* have antiplasmodial and cytotoxic activities.[8] Beside these, some compounds isolated from *Combretum* species also showed antioxidant activities but it was very weak.[9] A study on antioxidant activity of twenty-four South African *Combretum* and *Terminalia* species showed that various solvents extracted antioxidant compounds from the leaves of plants belongs to members of the Combretaceae family. On the other hand, phytochemical analysis of *Combretum roxburghii* reported that its leaf and bark samples contain tannins, saponins and flavoids which have significant antioxidant and cytotoxic activities whereas these activities depend on seasonal variations. [10]

Terminalia Species

Terminalia is a genus of large trees comprising around 100 species distributed in tropical regions of the world.[11] Moreover, the species of *Terminalia* have much biological importance. For example, some studies showed that *Terminalia chebula* is used in the treatment of fevers, cough, asthma, urinary disease, piles and worms whereas it also have significant importance in the treatment of chronic diarrhoea and dysentry, flatulence, vomiting, colic and enlarged spleen and liver.[12] On the other side, *Terminalia arjuna* used as a cardiac tonic from the last three centuries. It is also used in the treatment of coronary artery disease, heart failure and hypercholesterolemia with antibacterial and antimutagenic activities.[13] Some of the selected species from *Terminalia* possess antioxidant activity.[14]

CONCLUSION

Many scientists are still working to search bioactive substances from different *Combretum* and *Terminalia* species which has attracted me much. As such, we have been quite fascinated with these types of research works on several C*ombretum* and *Terminalia* species of the combretaceae family and want to make a comparative study on these.

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