

The Tribe Caesalpinieae (Fabaceae): An Updated Review on Pharmacological Aspects

El-Nashar HAS, Eldahshan O and Singab AN*

Department of Pharmacognosy, Faculty of Pharmacy, Ain-Shams University, Cairo, Abassia, 11566, Egypt

Abstract

Caesalpinieae tribe is one of the largest archaic tribes of subfamily Caesalpinioideae, family Fabaceae. Caesalpinieae tribe includes 9 subtribes that have more than 47 genera, including several valuable medicinal plants. Extracts of different plants of Caesalpinieae tribe were reported to possess a wide range of pharmacological activities, including anti-oxidant, anti-bacterial, anti-inflammatory, cytotoxic, anti-diabetic, antifungal, hepatoprotective, gastroprotective, analgesic, anti-arthritis, anti-filarial, antimalarial, anthelmintic, amoebicidal, diuretic, anti-psoriatic, anti-estrogenic, anti-fertility, wound-healing, anxiolytic, cardioprotective, immunomodulatory, anti-HIV activities. Thus, Caesalpinieae tribe includes several plants with a potential for exploitation as a source for plant-based pharmaceutical products. The present review could form a sound basis for further investigation in the potential discovery of new natural bioactive compounds and provide preliminary information for future research.

Keywords: Caesalpinieae; Tribe; Caesalpinioideae; Medicinal plants; Review; Pharmacological activities

Abbreviations

DPPH: 2, 2-Diphenyl-1-Picrylhydrazyl ROS: Reactive Oxygen Species

ABTS: 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid)
NO: Nitric Oxide

AST: Aspartate Aminotransferase ALT: Alanine Aminotransferase

ALP: Alkaline Phosphatase

Introduction

Medicinal plants as potential source of therapeutic aids have attained a significant role internationally for both human and animals, not only in diseased conditions but also as a potential material for maintaining health. There is currently a renewed interest in traditional medicine and an increased demand for drugs from plant sources. The revival of interest in plants derived medicines is mainly due to the current widespread belief that "Green medicine" is safe and more depend alone than costly synthetic drugs, many of which have serious side effects [1].

Caesalpinieae is one of the largest archaic tribes of subfamily Caesalpinioideae that belong to family Fabaceae, the members of tribe Caesalpinieae have been divided into eight to nine informal generic groups as Table 1 the Gleditsia group (2 genera), the Acrocarpus group (monogeneric), the Sclerolobium group (3 genera), the Peltophorum group (16 genera), the Caesalpinia group (12 genera), the Poeppigia group (monogeneric), Pterogyne group (monogeneric), Dimorphandra group (10 genera) and a ninth informal group, the monogeneric Orphanodendron group which was added recently [2,3]. Caesalpinieae tribe includes about 47 genera and 430-440 species [4]. Several species in this tribe are well-known tropical ornamentals such as Flamboyant (*Delonix regia*) and Barbados Pride (*Caesalpinia pulcherrima*). The most popular ornamental and medicinal genera of this tribe are placed in *Caesalpinia* and *Peltophorum* [5].

Pharmacological Activities

Caesalpinieae medicinal plants, their extracts and their isolated

I. Gleditsia group	II. Acrocarpus group	III. Sclerolobium group
<ul style="list-style-type: none"> <i>Gymnocladus</i> <i>Gleditsia</i> 	<ul style="list-style-type: none"> <i>Acrocarpus</i> 	<ul style="list-style-type: none"> <i>Sclerolobium</i> <i>Diptychondra</i> <i>Tachigali</i>
V. Peltophorum group	IV. Caesalpinia group	V. Poeppigia group
<ul style="list-style-type: none"> <i>Vouacapoua</i> <i>Bastesia</i> <i>Melanoxylon</i> <i>Recordoxylon</i> <i>Arapatiella</i> <i>Campsiandra</i> <i>Bussea</i> <i>Peltophorum</i> <i>Schizolobium</i> <i>Moldenhawera</i> <i>Contzattia</i> <i>Parkinsonia</i> <i>Delonix</i> <i>Colvillea</i> <i>Lemuropisum</i> <i>Jacqueshuberia</i> 	<ul style="list-style-type: none"> <i>Caesalpinia</i> <i>Pterolobium</i> <i>Moullava</i> <i>Haematoxylum</i> <i>Stuhlmannia</i> <i>Stahli</i> <i>Zuccagnia</i> <i>Cenostigma</i> <i>Balsmocarpum</i> <i>Hoffmannseggia</i> <i>Stenodrepanum</i> <i>lophcarpinia</i> 	<ul style="list-style-type: none"> <i>Poeppigia</i>
VI. Pterogyne group	VIII. Dimorphandra group	VIX. Orphanodendron group
<ul style="list-style-type: none"> <i>Pterogyne</i> 	<ul style="list-style-type: none"> <i>Erythrophleum</i> <i>Pachyelasma</i> <i>Sympetalandra</i> <i>Mora</i> <i>Dimorphandra</i> <i>Arcoa</i> <i>Burkea</i> <i>Tetrapetrocarpon</i> <i>Childlowia</i> <i>Stachyothyrsus</i> 	<ul style="list-style-type: none"> <i>Orphanodendron</i>

Table1: List of genera arranged in the groups of caesalpinieae tribe [3].

*Corresponding author: Singab AN, Department of Pharmacognosy, Faculty of Pharmacy, Ain Shams University, Abassia, 11566, Cairo, Egypt. Tel: 20224051120; Fax: 20224051107; E-mail: dean@pharma.asu.edu.eg; abdelnasser.sengab@pharma.asu.edu.eg

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compounds have demonstrated to have spectrum of biological activities as demonstrated in Table 2 [6-101].

Conclusion and Discussion

The present review summarizes documented pharmacological properties of different extracts of the plants that fall under Caesalpinieae tribe. The most popular medicinal plants in this tribe are mainly found in 3 genera: *Caesalpinia*, *Peltophorum* and *Delonix*. Further clinical and pathological studies are required to investigate the active potential of bioactive compounds of the medicinal plants of this tribe. Furthermore, there is a scope for research to establish lead compounds from these plants for drug development. This information will be helpful for pharmacognosists, ethnobotanists, botanists and pharmacologists.

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