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Biological, medicinal and toxicological
significance of *Eucalyptus* leaf essential
oil: a review

Project Submitted for Partial Fulfilment of Requirement of B.
Pharm Degree

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Academic year 2021-2022

ABSTRACT

Eucalyptus is a tall, evergreen tree, native to Australia and Tasmania, successfully introduced worldwide, now extensively cultivated in many other countries including India and Ethiopia. The genus name Eucalyptus comes from the Greek word eucalyptos, meaning "well-covered," and refers to its flowers that, in bud, are covered with a cup-like membrane.

The flowers tend to be grouped into inflorescences (with the exception of *E.globulus* which has single flowers).

There are over 600 species of Eucalypts, most of these species present in Australia.

Essential oil for eucalyptus differs from part to other part of plant, but the most active part was the adult leaves, followed by stems. For example, *E.camaldulensis* essential oil of the flowers of *E.camaldulensis* revealed the presence of 1,8-cineole, α -pinene and spathulenol as the most abundant constituents. The essential oil of the leaves was found to contain *p*-cymene, terpinene, pinene, 1,8-cineole, terpinen-4-ol, α -terpineol, carvacrol and thymol as the major components. The major components of the essential oil of the fruits were aromadendrene, α -pinene, drimenol, and cubenol. When eucalyptus oil was analyzed by GC-MS, it was found that the major constituents of the essential oil were eucalyptol (50.13%), ethanone (25.36%), β -caryophyllene (11.55%), and carvacrol (9.05%).

The other important components were linalool (12.65%), α -terpineol (7.57%) and limonene (4.26%).

Eucalyptus is an important ethnomedicinal plant. It is used as a remedy for sore throat and other bacterial infections of the respiratory and urinary tracts.

Essential oils of the leaves are used in the treatment of lung diseases while the volatile oils are used as expectorants.

Topical ointments containing eucalyptus oil have also been used in traditional Aboriginal medicines to heal wounds and fungal infections.

The essential oil showed some activity on Gram positive and Gram negative bacteria, and also was observed against yeast and fungi.

Other notable compounds include γ -terpinene (17.01%), spathulenol (8.94%), *p*-cymene (8.10%) and *p*-cymen-7-ol (6.39%). Globulol (2.52%) and α -phellandrene (2.20%) among the constituents identified.

The absence of 1,8-cineole and presence of α -phellandrene coupled with low antioxidant activity and high cytotoxic effect of the Eucalyptus oil, so in this case it may not be suitable for medicinal purposes but can be used as insecticidal.