

## **Ethanollic extract of *Callistemon lanceolatus* as a tool to inhibit the progression of in-vitro P388 cell leukemia**

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### **ABSTRACT**

The genus *Callistemon* is known in folk medicine for its various beneficial biological activities. The ethanol extract of *Callistemon lanceolatus* exhibited moderate cytotoxic activity against the tested P388 cell leukemia cell line. ! 2015 Trade Science Inc. - INDIA

### **INTRODUCTION**

The genus *Callistemon* is known in folk medicine for its various beneficial biological activities. *Callistemon* (commonly named bottle brush) comprises about 34 species belong to the family Myrtaceae, which are widely cultivated and much used as ornamental shrubs in warm countries<sup>[1-7]</sup>. *Callistemon* is a well-known genus. Many phenolic compounds of different species belong to genus *Callistemon* have been identified<sup>[8-11]</sup>. Their volatile oils have good antimicrobial activities<sup>[12]</sup>. The present work is concerning with the evaluation of the anticancer activity of the total ethanolic extract against the P388 cell leukemia.

### **MATERIALS AND METHODS**

#### **Plant material**

*Callistemon lanceolatus* leaves were collected from Zoo Garden, Egypt. Identification of the plant

was confirmed by Dr. Trease Labebe, senior specialized of plant taxonomy, Orman garden, Giza, Egypt as well as by comparison with reference herbarium specimens.

#### **Extraction**

A powdered, air-dried leaf of *C. lanceolatus* (500 g) was exhaustively extracted with hot 80% EtOH (4 × 3 L), under reflux.

#### **Cytotoxic activity against P388 Leukemia cells**

The cell line employed in the present investigation (P388 leukemia cells) was obtained from the American Type Culture Collection (Rockville, MD). This cell line was cultured in Fisher's medium containing 10% horse inactivated serum at 37°C in an atmosphere of 5% CO<sub>2</sub> (100% humidity). The cultured cells were treated in triplicate with various concentrations (0.5-100 µg/ml) of the extracted plant dissolved in 100 µl DMSO followed by shaking. The culture cells were incubated for 18 h at 37°C in a humidified atmosphere of 5% CO<sub>2</sub>. The cell con-

centration was determined by counting the P388 cells in a hemocytometer<sup>[13]</sup>.

## RESULTS AND DISCUSSION:

### Biological assay against P388 leukemia cells

The biological assay of the ethanolic extract of the *Callistemon lanceolatus* showed that it has moderate activity against P388 leukemia cells ( $ED_{50} = 36.82 \mu\text{g/ml}$ ) whereby the results expressed as the dose that inhibits 50% control growth after the incubation period ( $ED_{50}$ ), compounds having  $ED_{50} < 20 \mu\text{g/ml}$  were considered active. That activity may be revealed to its contents of polyphenolic compounds, where phenolic compounds are believed to have chemo preventive and suppressive activities against cancer cells by inhibition of metabolic enzymes involved in the activation of potential carcinogens or arresting the cell cycle<sup>[18]</sup>.

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