

# Insecticidal Activity of Essential Oils from *Cistus albidus* (L.) against *Callosobruchus maculatus* (fab.)

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## Introduction

*Cistus albidus* is a species belonging to the *Cistaceae* family. It is named by the local population as *Touzzala*. An ethnobotanical study in the region of Tlemcen showed that leaves of *C. albidus* in decoction, are used for prevention and treatment of renal disorders. The study reports for the first time the chemical composition and the insecticidal activity of the essential oil hydro-distilled from the aerial part of the plant growing in Algeria.

## Materials and Methods

Hydrodistillation

CPG and CPG/SM

Insecticidal Activity

## Results and Discussion

### I. Chemical characterization of the Essential Oils

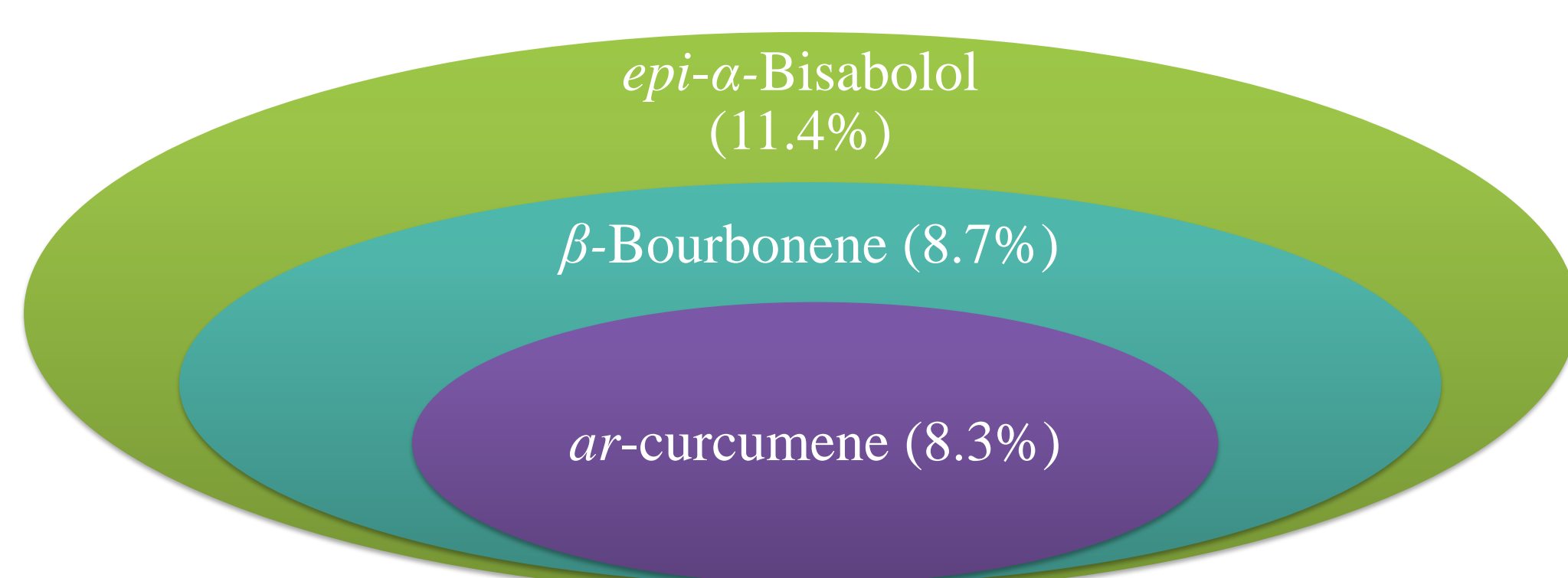


Fig.1: Main compounds of *C. albidus* Essential Oils

### II. Insecticidal Activity of The Essential Oils

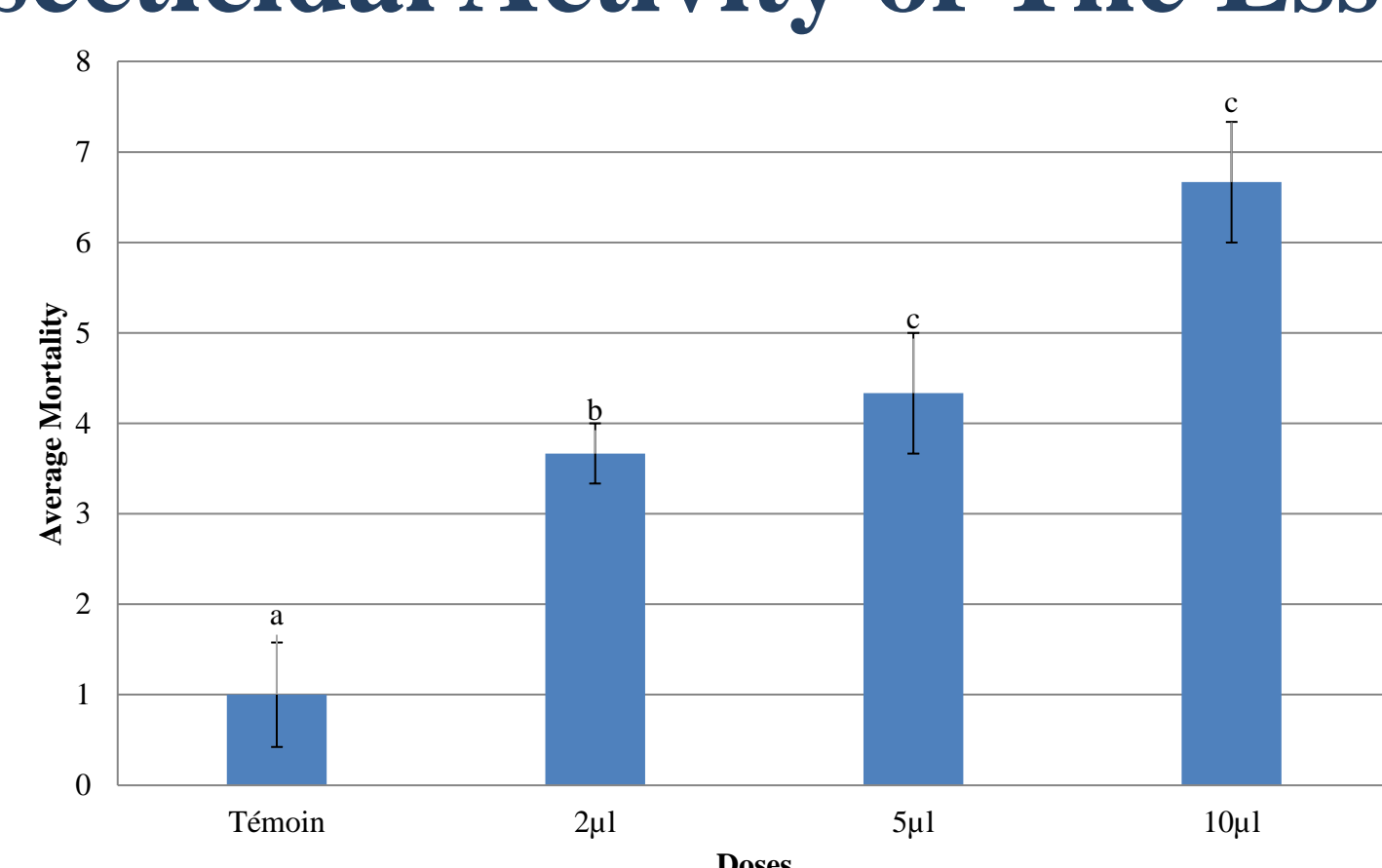


Fig.2: Average mortality of *C. maculatus* in function of *C. albidus*'s doses after 24h

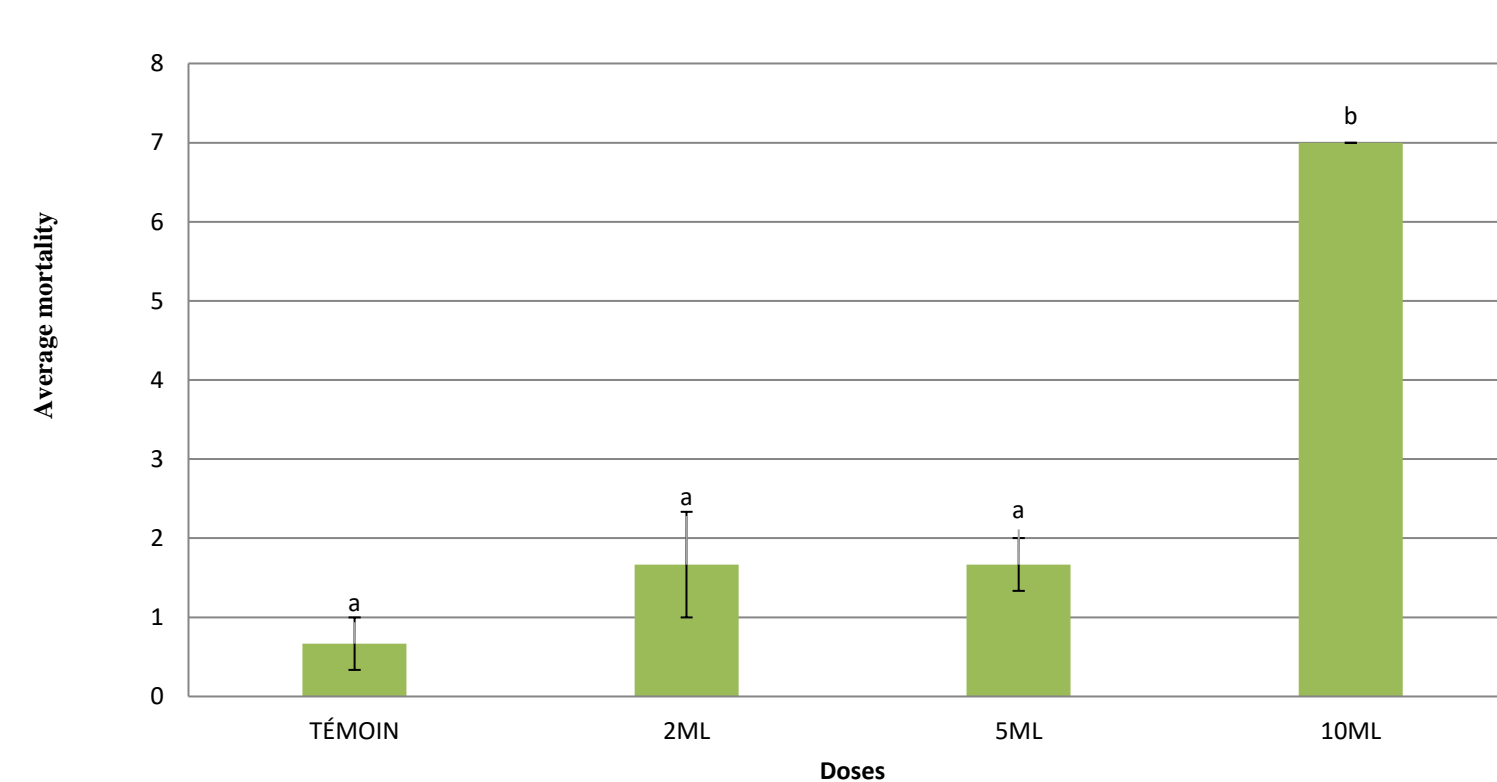


Fig.3: Average mortality of *C. maculatus* in function of the chemical insecticidal's (Decis, 25 EC) doses after 24h .

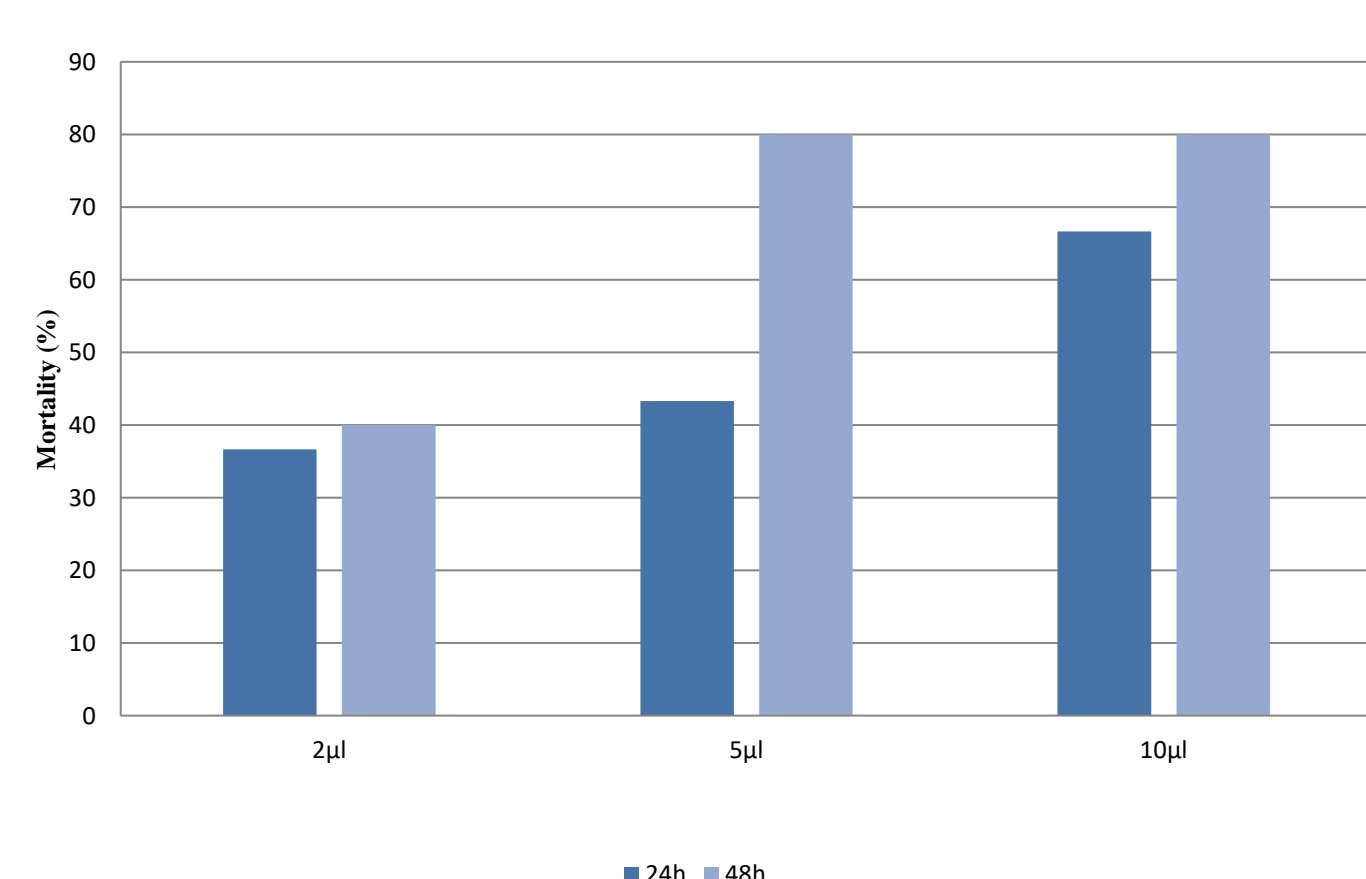


Fig.4 : Evaluation of the % Mortality of *C. maculatus* in function of *C. albidus*'s doses after 24h and 48h.

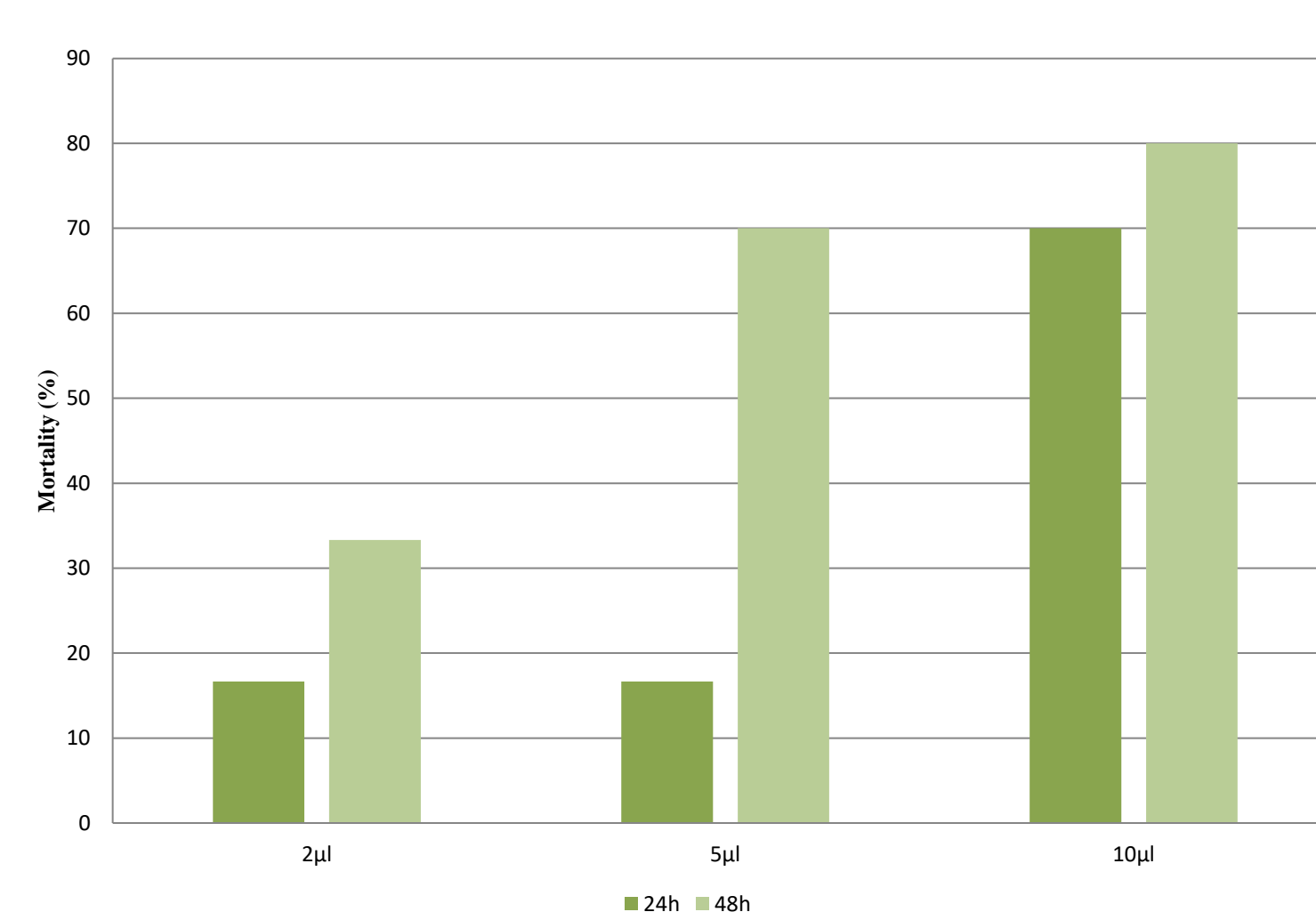


Fig.5: % Mortality of *C. maculatus* in function of the chemical insecticidal's (Decis, 25 EC) doses after 24h and 48h.

	LD <sub>50</sub> (μL/10g of seeds)	LD <sub>90</sub> (μL/10g of seeds)
<i>C. albidus</i>	5	12
Chemical insecticide (Decis, 25EC)	9	33

Tableau 01: Values of LD<sub>50</sub> et LD<sub>90</sub> (μL/10g of seeds)

The results indicate that the insect mortality rate increases with concentration. The toxicity of essential oils of *C. albidus*, at doses less than 10μL, is greater than that of the chemical insecticide (Fig.2, Fig.3). In another hand, the percentage of adult's mortality of *C. maculatus* increases from day to day (from 24 hours to 48 hours) (Fig.4, Fig.5) essentially for the oils. As we see, the results obtained previously, showed that the essential oils of the plant exhibit insecticidal activity against adults of *C. maculatus*. These results were confirmed by the values of the LD<sub>50</sub> and LD<sub>90</sub> calculated. The essential oils of *C. albidus* manifests the best insecticidal activity, in fact, the LD<sub>50</sub> and LD<sub>90</sub> are lower than those of the chemical insecticide (Table 01).

## Conclusion

This study indicates the toxic effect of essential oils extracted from *C. albidus* against *C. maculatus*, recognized as a harmful insect against stored food.

The essential oils showed impressive insecticidal activity greater than the chemical insecticide (Decis, 25 EC).

This work could be continued with the aim of investing these essential oils for practical use in the protection of stored foodstuffs.

