

## REPELLENCY AND TOXICITY EFFECT OF PLANT EXTRACT FROM *Francoeria crispa* (Forssk) AGAINST *Eutetranychus orientalis* (Klein) (Acari: Tetranychidae)

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### ABSTRACT

Laboratory bioassays were conducted to evaluate the activity of plant extract *Francoeria crispa* (Forssk) (Family Compositae) against the citrus brown mite, *Eutetranychus orientalis* (Klein). Ethyl acetate was tested for preparing the crude extract of *F. crispa*. The extract was tested for its toxicity against eggs and adult females of the mite pest *E. orientalis*. Ethyl acetate extract of *F. crispa* was affected the behavior, toxicity and fecundity of females under laboratory conditions. The extract had similar toxic effects on egg stage and adult females of *E. orientalis* (LC<sub>50</sub> = 0.00050 g / ml), respectively. Leaf discs treated with increasing concentrations of ethyl acetate extract of *F. crispa* showed a high percentage of repellency (97.45%), respectively. Treated females with LC<sub>50</sub> concentration of ethyl acetate extract showed a higher remarkable percentage of mortality as well as a reduction in the total number of eggs laid during 7 days. Ten isolated fractions of ethyl acetate crude extract from *F. crispa* were detected. Results clearly indicate that the isolate number (10) was the most toxic isolate on eggs and females of *E. orientalis* (LC<sub>50</sub> =0.00014 and 0.000125 g / ml), respectively.

**Keywords:** Acari, *Eutetranychus orientalis*, *Francoeria crispa*, Plant extract, Tetranychidae,

### INTRODUCTION

In recent years, the plant extracts have received much attention as resources of potentially useful bioactive compounds. Particular emphasis has been placed on their antimicrobial, antifungal, antitumor and insecticidal action as well as on their action on the central nervous system (Gerasimos *et al.*, 1997). Few studies have been done on such plants having acaricidal influences are assumed to be acceptable because they are alterable in nature (Schauer and Schmutter, 1981; Amer *et al.*, 1989; Dimetry *et al.*, 1990; Hussein *et al.*, 2006). Previous work has been done by El-Gengaihi *et al.*, 1999 as well as Dimetry *et al.*, 2000 & 2003 showed the activity of some medicinal plant such as *Glossostemon bruguieri*, *Curcuma longa*, *Nicandra physaloides* and *Dodonaea viscosa* were plant extracts against adult females of the pest *Tetranychus urticae* Koch (Acari: Tetranychidae). Recently, Hussein *et al.*, (2006) demonstrated that extracts of leaves and fruits of the plant *Capparis aegyptica* L. prepared from various solvents were affected the behavior, toxicity and fecundity of *T. urticae* females. Also, Shi *et al.*, (2006) indicated that extracts of an annual herbaceous plant, *Kochia scoparia* (L.) had both contact and systematic toxicity to *T. urticae*, *Tetranychus cinnabrinus* (Boisdaval) and *Tetranychus viennensis* Zacher (all Acari: Tetranychidae). Research has been done by Amer *et al.*, (1993), indicated