

THE EFFECT OF AMBROSIA MARITIMA (DAMSISSA) ON THE VIABILITY OF LYMNAEA CAILLIAUDI; AN EXPERIMENTAL STUDY.

By

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ABSTRACT

The present work aimed at studying the effect of *Ambrosia maritima* (*Damsissa*) on the viability of *Lymnaea* snails. *Lymnaea* snails used in these trials were acclimatized to laboratory conditions before use in the toxicity test. The snails were exposed to various concentrations (100-3000 mg/l) of dry powdered *Damsissa*, *Ambrosia maritima* was lethal to *Lymnaea* snails at concentration of 3000 mg/L after one day and at 100 mg/l after 14 days.

INTRODUCTION

Molluscicides of plant origin have acquired some popularity in the last few years (Lemma, 1970, DBL, 1986, Mott, 1988). Their advantage over chemical molluscicides, is that they are less toxic, and are a part of the local ecosystem. In Egypt, one of the plants studied for control of snail transmitting diseases particularly schistosomiasis was *Ambrosia maritima* (El Sawy et al 1986). The effect of *Damsissa* is due to the active molluscicidal component mainly Ambrosin and Damsin which occur in leaves, stems and flower tops (Abu Shady & Soin 1953).

In view of the extending problem of human fascioliasis, it was decided to

study the effect of *Ambrosia maritima* on the viability of *Lymnaea cailliaudi*, the snail intermediate host of *Fasciola* sp. in the Nile Delta.

MATERIAL AND METHODS

Lymnaea cailliaudi snails used in the present study were acclimatized to laboratory conditions for 7-9 days before use in the toxicity tests. Their size ranged between 10-13 mm. The snails were exposed to various concentrations of *Ambrosia maritima* (100-3000 mg/l). Ten snails were put in one liter of the dilution tested and each experiment was repeated three times. The herb *Ambrosia maritima* (stems, leaves and flowers) was dried and used as powder. The aqueous solution was left for 24 hrs before transfer of the snails (Sherif et al 1982). Snails were fed during the contact period with tetramine, water wa aerated and excretion collected, during the whole period of the experiment. Aquaria were examined daily and dead snails in each concentration were counted until all snails were dead. Controls were established for every experiment. Death was presumed to have occurred when stimulation with a pin elicited no movement or response in the animal.

RESULTS

Table (1) and figure (1) and (2) present the cumulative death rate of

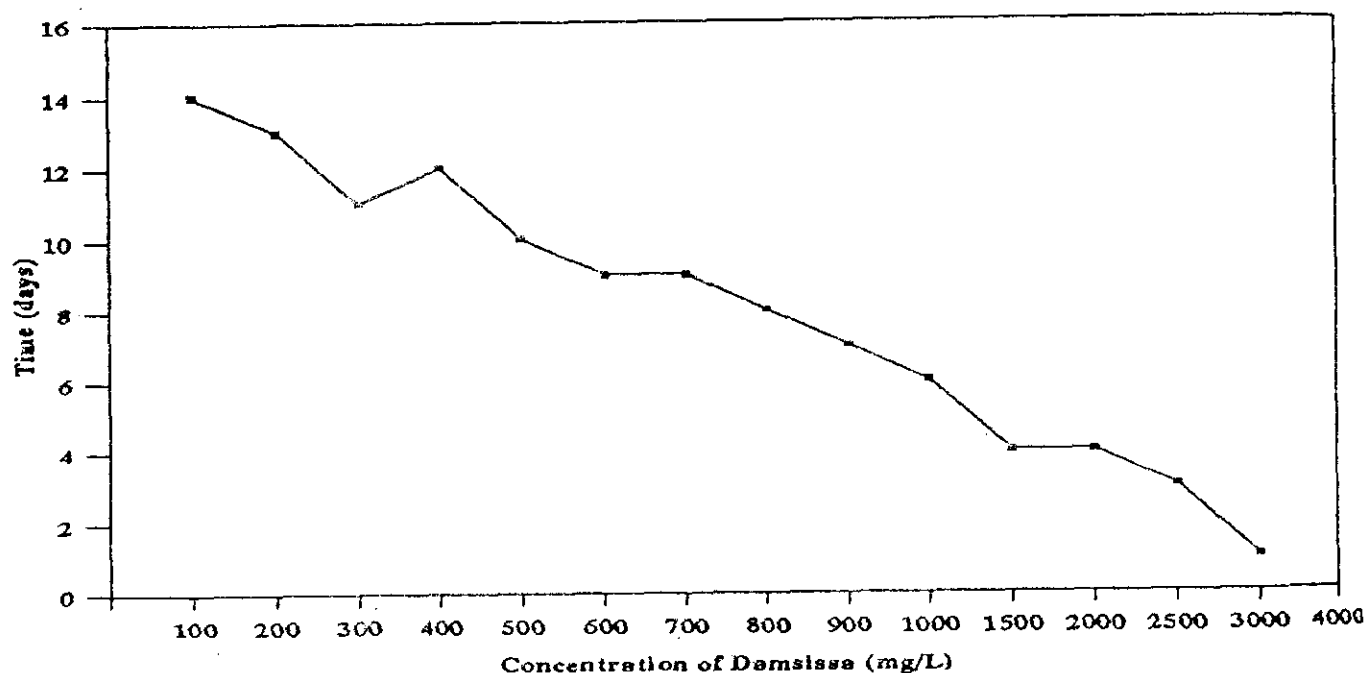


Fig. (1) : Relation between time and concentration of *Damsissa* needed to reach 100% death of *Lymnaea cailliaudi* snails.

Table (1): Cumulative death rate of *Lymnaea cailliaudi* snails treated with different concentrations of *Damsissa*.

Conc. in mgs/l	1 day	2 days	3 days	4 days	5 days	6 days	7 days	8 days	9 days	10 days	11 days	12 days	13 days	14 days
100	0	0	0	0	0	0	0	13.3	20	23.3	56.6	80	86.6	100
200	0	0	0	0	0	0	10	23.3	40	60	63.3	83.3	100	
300	0	0	0	0	13	20	40	70	86.6	90	100			
400	0	0	0	13	20	26	40	53.3	63.3	76.6	93.3	100		
500	0	0	10	13	20	33.3	53.3	73.3	90	100				
600	0	13	23.3	33.3	53	73	86.6	93.3	100					
700	16.6	23.3	40	46.6	60	66.6	93.3	96.6	100					
800	23.3	26.6	46.6	60	70	86.6	96.6	100						
900	33.3	40	50	63.3	80	93.3	100							
1000	53.3	63.3	73.3	93.3	93.3	100								
1500	63.3	73.3	90	100										
2000	73.3	80	93	100										
2500	83.3	93.3	100											
3000	100													

* 30 snails were used in each experiment.

Lymnaea cailliaudi snails treated with different concentrations of *Damsissa* by time. The death rate increased with the increase of concentration of *Damsissa* and exposure time. It reached 100% after 14 days at a concentration of 100 mg/l, while at a concentration of 3000 mg/l a 100% death rate was attained after one day only.

DISCUSSION

In the present work the effect of *Ambrosia maritima* on *Lymnaea cailliaudi* snails was investigated in the laboratory. *Damsissa* proved lethal to snails intermediate host of *Fasciola*. The death rate attained 100% after 14 days when the concentration of the dried plant was 100 mg/l. At a concentration of 3000 mg/l, one day was needed to ensure death of all snails. These results were in concordance with those of Selim et al (1987), who reported that *Ambrosia maritima* caused 67.5% mortality of *Lymnaea* snails at the concentration of 2000 mg/l for 24 hours. Sherif and El-Sawy (1962) reported 100% mortality of *Lymnaea* snails kept in concentration of 1000 mg/l for 10 hours. In the field lower concentrations were reported effective. El-Magdoub et al (1980) found that 70 ppm of dry *Damsissa*, in the field lead to death of all *Lymnaea* snails, four days after application. Vasiliade and Diaw (1982) showed that 375-400 mg/l dry *Ambrosia maritima* killed at least 90% of adult *Lymnaea natalensis* in natural pond in Senegal. In Abis area lower dosages were reported effective (El Sawy et al 1987).

Further studies on the effect of *Ambrosia maritima* on infected *Lymnaea* snails are recommended.

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