

***In vitro* and *in vivo* control of sarcoptic mange in rabbits using lemon oil**

Aboelhadid SM*, Lilian N Mahrous,* Shimaa A Hashem**Abdel- Kafy, EM**

*Parasitology Department, Faculty of Veterinary Medicine, Beni Suef University, Egypt.

** Rabbit breeding Research Department, Animal Production Research Institute (APRI), Agriculture Research Center (ARC), Egypt.

The corresponding author:

Shawky Mohamed Aboelhadid

Parasitology department

Faculty of Veterinary Medicine

Beni-Suef University, Beni-Suef 62511, Egypt

E. mail: drshawky2001@yahoo.com

TelFax: +2 082 2327982

Mobile: +2 01013694081

Abstract

The effect of lemon oil (*Citrus limon*) on *Sarcoptes scabiei var cuniculi* was evaluated *in vitro* and *in vivo*. The mite samples were collected from naturally infected rabbits. The lemon oil was prepared in six concentrations by dilution with distilled water (2.5, 5, 10, 20, 50 & 100%). *In vitro* application was done in 5 replicates for each concentration in Petri dishes in the laboratory. The treated mites were observed at 1, 12 and 24hs post application (PA) for lemon oil effect. In addition, oxidative stress profile was evaluated for the treated mite. Dependent on *in vitro* results, 20% lemon oil was used *in vivo* trial. Twenty four naturally infected rabbits were divided into 3 groups 8 in each; 20% lemon oil and deltamethrin treated groups and untreated control one. The infected parts of rabbits were treated topically once a week for 4 successive weeks. *In vitro* application results showed

that lemon oil 10% & 20% diluted in water caused toxicity to 100% after 24h PA. Oxidative stress profile in treated mites revealed that treated mite by 20% lemon oil had significantly ($P<0.05$) highest hydrogen peroxide and malondialdehyde in compared with mite treated by deltamethrin or distilled water. *In vivo* application of 20% lemon oil on naturally infected rabbits, showed complete recovery from clinical signs, absence of mite in microscopic examination from the second week of treatment. In addition, productive performance was significantly better than infected untreated group. Also, the treated tissue showed stoppage of scales formation and hair growth faster than deltamethrin treated rabbits. Consequently, lemon oil has remarkable miticidal activity *in vitro* and *in vivo* applications.

Key words: Rabbits, *Sarcoptes scabiei var cuniculi*, *Citrus lemon*, *in vitro*, *in vivo*, *oxidative profile*.