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Remote Sensing & GIS Integration in Veterinary, Agricultural and Health Sciences

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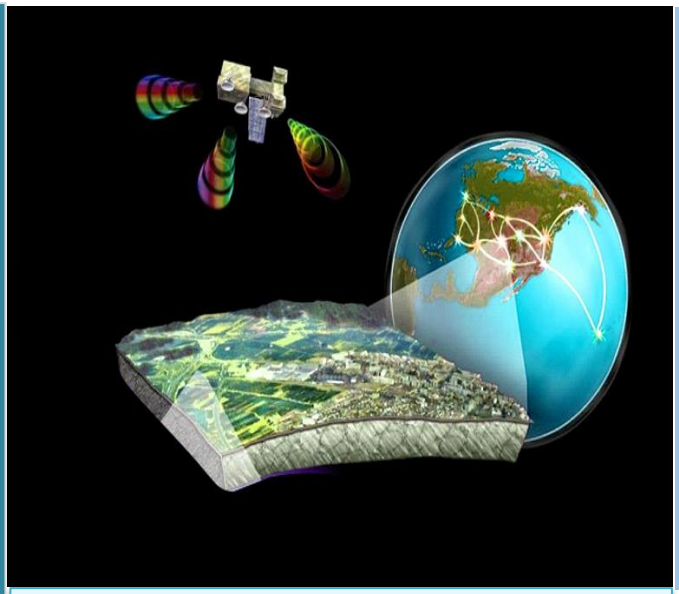
ABSTRACT BOOK



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In-vitro anthelmintic efficacy of essential oils of *citrus medica* L. and *citrus Sinensis* L. against sheep gastrointestinal nematodes

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ABSTRACT:

The management of infections caused by sheep gastrointestinal nematodes (GINs) is a challenging task due to the development of anthelmintic resistance on commercial drugs. The urgency of the situation justifies the search for alternatives, which includes plant essential oils (EOs). This study aimed to evaluate the *in vitro* effect of two EOs, *Citrus medica* L. and *Citrus sinensis* L. by using the egg hatch test (EHT). For both tested EOs, EHT was performed at eight concentrations: 50, 12.5, 3.125, 0.781, 0.195, 0.049, 0.025 and 0.0125 mg/mL. The positive control was thiabendazole at the two lowest concentrations used for tested samples, and the negative controls were 3% (v/v) Tween 80 and distilled water. Both tested samples showed ovicidal potential against sheep GINs with inhibition of egg hatchability varied from 12.3-95.0% and 14.7-86.3% for EOs of *C. medica* and *C. sinensis*, respectively. For the positive control, results varied from 95.0-96.3%, for the 3% Tween 9.0-14.7%, and distilled water 4.0-4.7%. The chemical composition of EOs was determined by GC-MS. The results showed that the main ingredients of *C. medica* EO were limonene (75.58%), β-pinene (11.57%), and γ-terpinene (8.66%), and of *C. sinensis* were limonene (96.13%), trans-limonene oxide (1.31%) and cis-limonene oxide (1.21%). The obtained results suggest that the plant members of genus *Citrus* have an anthelmintic potential that origin from a high percentage of limonene, and may play important role in the future approaches designed for nematode control in animals. Further *in vivo* studies should be performed to confirm these findings.

Keywords: Anthelmintic resistance, Essential oil, *Citrus*, GC-MS, Gastrointestinal nematodes