Seasonal variation in toxicity of citral against sporocyst, redia and cercaria larva of *Fasciola gigantia*

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Fasciolosis, a plant-borne zoonotic disease is caused by trematode of the genus *Fasciola*. The definite hosts include many herbivorous mammals including humans. The life cycle of the parasite can be interrupted by killing the intermediate snails or *Fasciola* larva stages (sporocyst, redia and cercaria) in the snail. Human fasciolosis is reported now in different part of world. According to WHO 2.4 million humans are infected with *Fasciola* and a further 180 million are at risk of infection. The fresh water snails are an intermediate host of the *Fasciola* species. Fasciolosis caused immense economic losses such as lower production of meat, milk and wool, reduce weight gain and impaired fertility of infected animals. Citral has been shown to possess larvicidal activity against *Fasciola* and here we test whether, the activity varies by season. *In vitro* toxicity of citral against redia was highest in between the June to August (8h LC$_{50}$ 2.58-2.62 mg/L), whereas against cercaria 8h LC$_{50}$ was in between 3.44 - 2.62 mg/L. Highest in vivo toxicity against redia was noted in between June to August (8h LC$_{50}$ 4.20-5.09 mg/L). The lowest toxicity was observed from November to April. The highest temperature, free carbon dioxide and lowest pH, dissolved oxygen was observed from June to August. The present study conclusively shows that variant a biotic factor can significantly alter the *in vitro* and *in vivo* toxicity of citral against sporocyst redia and cercaria larva.

Biography
Kumari Sunita is presently working as a Women Scientist (UGC), New Delhi. She is doing her research work under the supervisor of Prof D K Singh, Department of Zoology, DDU, Gorakhpur University. She has completed her BSc, MSc and PhD in Zoology from DDU Gorakhpur University. Till date she has 15 research papers and 1 book among them 14 papers are in international journals. Her area of specialization is Parasitology, Biochemistry, Toxicology and Molecular Biology.

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