

Phytotoxic and lethal impacts of a potential covid-19 drug in a simulated aquatic ecosystem

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Introduction

Pharmaceutical compounds present in the environment can induce adverse toxic consequences on exposed biotic features. Recently, ivermectin (IVT) was envisaged for the therapeutic treatment of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) following a preliminary demonstration in Australia [1]. Surprisingly, recently, IVT residue was detected in the South African surface waters [2]. However, the toxicity impacts of this drug residue on biota are scarce and scanty, and as such, its impacts on the ecosystem could not be ascertained. Hence this study investigated the eco-phytotoxic and lethal impacts of IVT residues at environmentally relevant concentrations (0.01 and 0.1 µg/mL).

Aim

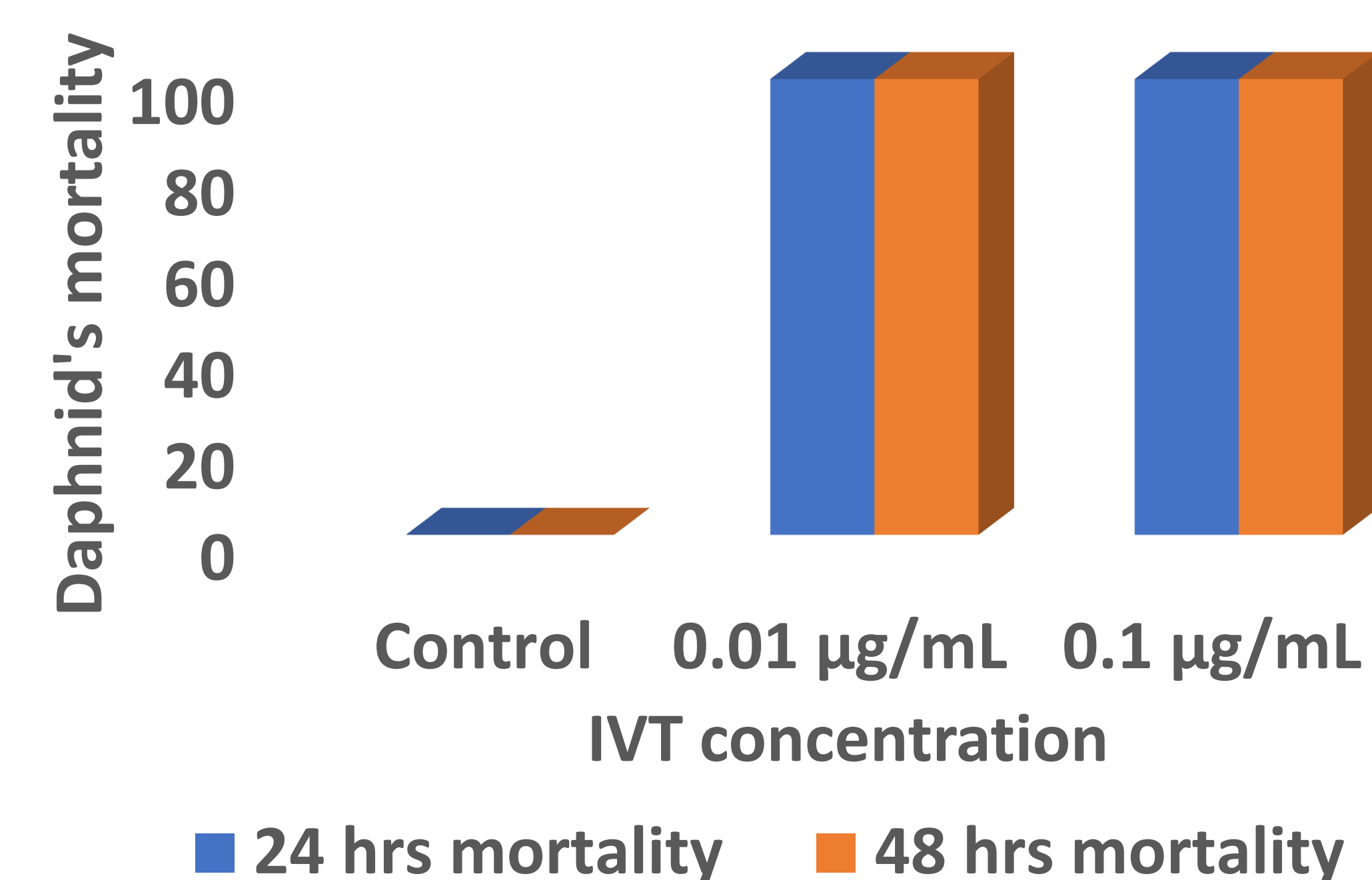
To investigate the ecotoxicity study of IVT using aquatic flora (*Allium cepa*) and fauna (*Daphnia magna*) as bioindicators

Materials and Methods

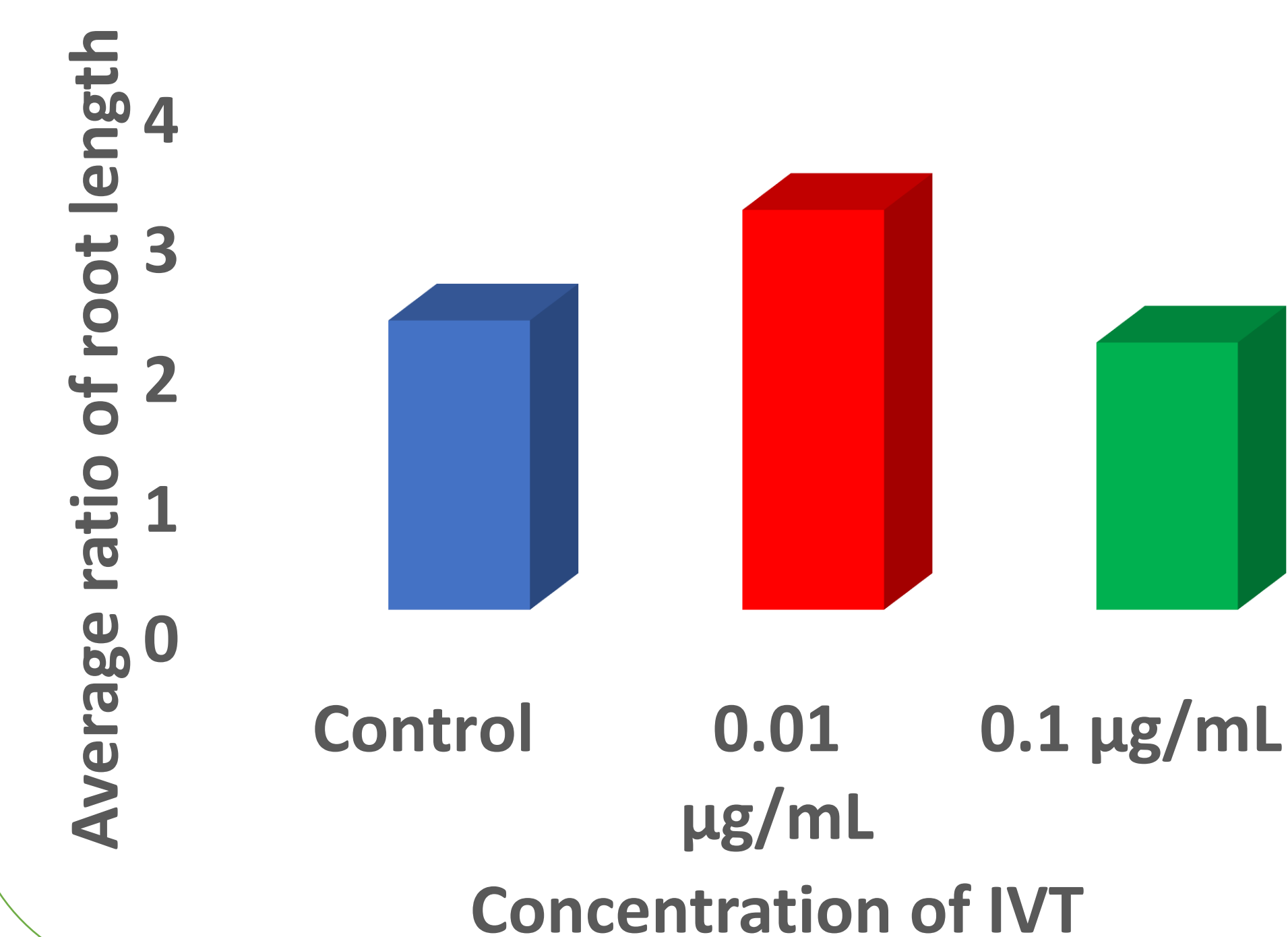
The two bioindicators were exposed to IVT test solutions for 48 hrs. The ratio of the root length of *A. cepa* after and before exposure to test solutions ($^{RLAE}/_{RLBE}$) was used as indices for phytotoxicity, while LD50 was calculated for *D. magna* assay.

Results

Daphnia magna mortality test



Allium cepa assay



Discussion

- D. magna* test revealed a mortality rate of 100 % in IVT, while those in the control were 100 % mobile.
- This result indicates that IVT had no significant inhibitory (phytotoxic) effect on the growth of *A. cepa*.

References

- Wamae CN (2020). *Am. J Trop. Med. Hyg.* 103 (1):10-11
- Omotola and Olatunji (2020). *Heliyon.* 6 (12) e05787

Acknowledgment

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