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One health (OH) concept on the assessment of in vivo antiparasitic activity of nerolidol against the growth and survival of zoonotic haemoflagellate protozoa, *Trypanosoma evansi*

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The concept of One Health (OH) emphasizes on how the involvement of multidisciplinary careers can be jointly approached to ensure the safety and health of humans and animals, as well as to maintain the environmental sustainability. Towards the end of this study, the authors demonstrated how the manipulation of bioactive compound namely nerolidol or 3,7,11-trimethyl-1,6,10-dodecatrien-3-ol ($C_{12}H_{26}O$), extracted from the seed of natural planted spice, *Elettaria cardamomum* (cardamom), promisingly can solve the endemicity of vector-borne zoonotic manifestation of trypanosomiasis. By assessing the cell morphological changes and toxicity assessment of blood enzymes and vital organs, nerolidol was compared with Berenil ($C_{18}H_{22}N_8O_3$) on the growth and survival of the animal haemoflagellate protozoa *Trypanosoma evansi*. Groups of male ICR strain mice (6–8 weeks old, 20–25 g body weight) were intraperitoneally (i.p) infected with the parasite at 5.0×10^3 *T. evansi* per mouse and orally given pre-, concurrent- and post-infection treatments with 0.1 ml of nerolidol at 10 $\mu\text{g}/\text{ml}$ per mouse. By using Giemsa stained blood slides and examined under the light and scanning electron microscopes (SEM), there was a positive correlation ($p \leq 0.05$, $n=6$) between the mice survival time and the ability to inhibit the parasites growth in pre-infection treatment group. The mice in this group was also recorded the longest pre-patent (42.19 ± 1.2 days) and survival (264.58 ± 0.6 days) period. The morphological changes of *T. evansi* cells were observed where the undulating membrane was destroyed other than the cell became crescent-shaped and both of the posterior and anterior ends were tapered before the flagellum disintegrated in which lead to death of the cells. Besides, the results for biochemical tests were positively situated in the normal ranged level as well as no abnormalities found on the selected vital organs. This study significantly evidenced that nerolidol could be manipulated for the preservation and welfare of human beings, animals and environment. Thus, it is suggested that the scientists and practitioners from many disciplines needs to initiate to work collaboratively to synthesize and develop the novel solutions towards the trypanosomiasis which was problematize to the policy makers and people who deal with human and veterinary medicine.

Biography

Mohd Shukri Baba has his expertise in parasitology and animal health, as well as enhancing the natural products and endophyte *Streptomyces*-derivative compounds for curing many zoonotic diseases in improving the health and wellbeing of both human and livestock. As a member of Malaysian Society of Parasitology and Tropical Medicine, he was frequently being invited both locally and internationally as a speaker in many relevant conferences focusing on One Health concept which emphasizes on how the involvement of multidisciplinary careers can be synergistically approached to ensure the safety and health of humans and animals, as well as to maintain the environmental sustainability. Besides, he was also on his track of patenting one promising novel compound for antimalarial drug towards zoonotic simian malarial agent, *Plasmodium knowlesi*. Latest, he was appointed as Head of Biomedical Science Degree Program in International Islamic University Malaysia, as well as a main reviewer for Biomedical Science degree profession in Malaysia.

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