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The In vitro and in vivo anti-Cryptosporidium and anti-inflammatory effects of Aloe Vera gel in dexamethasone immunosuppressed mice

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Abstract

Cryptosporidiosis has been considered as a serious diarrheal disease, especially in immunodeficient patients, where they failed to clear the infection leading to several consequences of infection (i.e death). The role of cell mediated immunity in clearing the infection was demonstrated by the increased susceptibility of HIV/AIDS patients to infection. To date, no specific treatment has been proven for cryptosporidiosis in immunodeficient patients. The study aimed to evaluate the efficacy of Aloe vera gel for the treatment of cryptosporidiosis in immunocompetent and dexamethasone immunosuppressed mice in comparison to that of nitazoxanide. Mice were orally administrated with Aloe vera gel, in a daily dose of 250 mg/L in drinking water, for 14 consecutive days post infection. Parasitological, molecular and immunological measurements were recorded on the 7th, 14th, 21st and 32nd days post infection. Our in vitro results showed that 250 mg/L of prepared gel achieved the highest parasitic reduction. The body weights of Aloe vera treated mice on the 21st and 32nd day post infection, either in immunocompetent or immunosuppressed groups, were nearly the same as those of their corresponding control groups. Aloe vera gel succeeded in clearing cryptosporidiosis with a percent reduction of 100% in immuno- competent mice and 99.67% in immunosuppressed mice. The anti-inflammatory effect of Aloe vera reduced the levels of IFN-γ, IL-4, -6 and -17. The success of Aloe vera gel, in clearing cryptosporidiosis in immunosuppressed mice, was obvious either from the reduction of Cryptosporidium DNA or the oocysts in stool samples; and from the improvement of histopathological sections.

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Biography

Aya Sobhy Tawfik has Passion about science specifically immunology and the future possibilities it could offer. She has a unique experience in research and scientific writing as she publisher her 2 graduation projects and this project is one of them also has been a former researcher at 57357, National center of oncology and immunology department Cairo university nevertheless, she has a great talent of multi-tasking as for now she is a Master student in immunology, science communicator, tutor for Biology & chemistry for American diploma students, scientific editor and researcher assistant.

