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FURAZOLIDONE COMPLEX WITH B-CYCLODEXTRIN (FZD:B-CD) FOR USE IN CANINE CUTANEOUS LEISHMANIASIS

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INTRODUCTION: Canine cutaneous leishmaniasis (CCL) is a significant veterinary problem. Preliminary studies point to the successful use of furazolidone (FZD) as a leishmanicide agent in the treatment of CCL. Cyclodextrins (CDs) are pharmaceutical excipients that have opposite effects on the solubility and permeability of the drugs and can be exploited in an attempt to improve the bioavailability of furazolidone and reduce the toxicity associated with its use, since the drug is rapidly absorbed in the stomach and requires high concentrations for therapeutic effect. **METHODS:** In this work, we studied the complexation of FZD with β-cyclodextrin (β-CD) by kneading and lyophilization methods in an attempt to improve the bioavailability of the drug and reduce its toxicity. FZD:β-CD complexes were characterized by scanning electronic microscopy (SEM), thermogravimetric analysis (TG/DTG), magnetic nuclear ressonance (RMN) and Fourier Transformation spectroscopy (FTIR). Furthermore, FZD:β-CD complexes were tested for their antileishmanial activity against *Leishmania amazonensis* on a microplate assay using resazurin dye. The cytotoxicity of FZD and FZD:β-CD complex has been determined using the fibroblast L929 lineage. **RESULTS:** According results of physical-chemical characterization the complexes were obtained by kneading and freeze-dried methods. The CLIOF complex was considered more potent since it produced a dose of drug required to kill the parasites of 0.123 µg (0.56 µg for CMAL and 0.38 µg for free drug), which suggests an bigger bioavailability to the complexed drug. This may allow the administration of a lower dose of the complexed drug and reduce the adverse reactions observed in the treatment with the free drug. The FZD and FZD:β-CD complex did not cause cytotoxicity on L929 fibroblasts. **CONCLUSION:** The complexation of furazolidone by β-cyclodextrin is a good alternative to enhance the bioavailability of the drug and reduce your tococity. Hence, the results of this research can be taken further into a future *in vivo* study.

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