

Action Of Modified Ruthenium Complex On *Leishmania*

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Introduction: Leishmaniasis is a parasitic disease caused by protozoa of the genus *Leishmania* and its transmission to humans occurs through the bite of infected female sandflies. The current treatment has many complications. Thus, the development of new therapeutic agents which are safer and less costly becomes important. **Objectives:** The objective of this study was to evaluate the effect of five complexes derived from ruthenium (II) on *Leishmania (Leishmania) amazonensis* - LLa - (IFLA/BR/67/PH8), *Leishmania (Viannia) braziliensis* - LVb - (MHOM/BR/75/M2904) and *Leishmania (Leishmania) infantum* - LLi - (CEFR/BR/79/M6445) promastigotes. **Material and Methods:** All complexes were synthesized from the precursor cis [RuCl₂ (dppm)₂] through a reaction in refluxing methanol in the presence of triethylamine. Five new ruthenium complexes containing the ligand 4-butylbenzoate (B), 4-(methylthio)benzoate (C), 3-hydroxy-4-methoxybenzoate (D), benzyl thiosemicarbazone (E) and benzyl semicarbazone (F) were obtained. To assess the cell viability, parasites and macrophages were cultured in the presence of different concentrations of complexes for 24h and their viabilities were determined by MTT assay. The IC₅₀ values were determined by GraphPad Prism 5.0 software. **Results and Discussion:** The B, C and D complexes were more effective against promastigotes and the C and D complexes exhibited the lowest IC₅₀ values, as described below: 0.70µM, 3.28µM and 3.17µM for B complex on LLa, LVb and LLi, respectively; 0.52µM, 0.86µM and 1.75µM for C complex on LLa, LVb and LLi, respectively. The E and F complex was relatively ineffective against parasites. Analysis of selectivity index showed that the B and C complexes are more promising. **Conclusions:** Our results suggesting that these modified ruthenium complexes presented potential as drug for leishmaniasis treatment. Infectivity assays are being developed to evaluate the effect of these complexes in the parasite-host interaction.

Keywords: *Leishmania*, Ruthenium complexes, cytotoxicity.

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