2-THIOCIANYL-1,4-NAPHTHOQUINONE´S TRYPANOCIDAL ACTIVITY RESEARCH AS NEW THERAPEUTIC AGENT FOR CHAGAS DISEASE.

Maciel, I.O.¹; Chain, M.O.¹; Silva, R.S.F.²; De Melo, L.D.B.¹.

¹Laboratório de Genética Molecular, Dep. Biotecnologia, Instituto Federal de Educação, Ciência e Tecnologia, Rio de Janeiro, Brasil; ²Núcleo de Ciências Químicas, Instituto Federal de Educação, Ciência e Tecnologia, Rio de Janeiro, Brasil.

Introduction and Objectives: Chagas disease is a debilitating disease and it still does not have an effective cure at the chronic stage. Benznidazole is the most common medicament used in the treatment, but it is effect only in acute stage. New therapeutic perspectives are needed to guarantee a better life quality for the patients in chronic stage. Some analogues of 1,4 naphthoquinones, such as Lapachol and 2-Bromo-1,4-Naphthoquinone, 2-Hydroxy-1,4-naphthoquinone (Lawzone) have been already proposed as trypanocidal drugs, with different levels of efficacy in vitro trials. Recently, our group synthetized new sulphur compound, the 2-Thiocyanil-1,4-Naphthoquinone, which could have a trypanocidal activity. We carry out in vitro trials to prove the trypanocidal activity of the compound with Lawzone, Lapachol and 2-Bromo-1,4-Naphthoquinone. Materials and methods: Count of epimastigotes number after incubation with Lapachol, Lawzone, 2-Bromo-1,4-Naftoquinone e 2-Thiocyanil-1,4-Naftoquinone at different concentrations. The periodical counts were performed in a flow cytometer (BD Accuri™ C6) after 24 hours, 48 hours, 72 hours and 96 hours after treatment with the drugs, with concomitant incubation with stain cell stability 7-AAD (7-aminoactinomycin D). After incubations, the effective concentrations (EC50) and inhibitory concentration (IC50) will be evaluate for drug concentrations. Moreover, will be performed MTT assays after culture of parasites or host Vero cell line, to take a better looking of the cell viability with the EC50 and IC50 concentrations of the drugs. Results and conclusions: Preliminary results of assays performed in epimastigotes with the drugs Lawzone and 2-Thiocyanil-1,4-Naphthoquinone indicated trypanocidal effect only for 2-Thiocyanil-1,4-naphthoquinone. Lawzone drug didn’t show trypanocidal activity in the concentrations that we used, expected, however more assays will be carry out to investigate these pharmacological effects. We hope to confirm soon the activity of 2-Thiocyanil-1,4-Naphthoquinone and others analogues which are being synthetized, as candidates in treatment of Chagas Disease.

Area: Drugs Actions

Keywords: sulphur compounds, naphthoquinones, Chagas’s disease.

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