

***Trypanosoma cruzi* Metabolomics: a NMR approach**

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INTRODUCTION: Chagas disease is considered by World Health Organization (WHO) one of the most concerning tropical diseases. It is estimated that about 8 million people are infected worldwide, mostly in Latin America, by *Trypanosoma cruzi*, a protozoan parasite transmitted by the infected faeces of blood-sucking triatomine insects. Despite the possibility of curing Chagas Disease in the early stages of infection with drugs (i.e Benznidazole and Nifurtimox), their effectiveness is reduced the longer the person is infected. Thus, the search for new ways to understand this disease may represent a new path for establishing a more effective treatment, regardless its phase. Metabolomics and Metabonomics are relatively novel tools for Biochemistry research, and can be associated with traditional analytical techniques for providing new information about the metabolism of the parasite. While Metabolomics is the study of the normal metabolites levels inside the cell, Metabonomics is responsible for describing how outer stimuli can change these levels as a response to the environment. In this job, we show a preliminary study of *T. cruzi* metabolism employing high-resolution NMR.**OBJECTIVES:** Develop NMR methods for metabolic analysis in *T. cruzi*. **MATERIALS AND METHODS:** samples of *T. cruzi* cell extract were submitted to ¹H and ¹³C monodimensional NMR analysis, as well as 2D techniques, such as COSY, HQSC and HMBC. This set of analysis is essential for metabolites identification, and further studies of their variations. **RESULTS AND DISCUSSION:** So far, the main metabolites have been identified, becoming an important reference for future experiments, where the changes in metabolites levels will be evaluated through chemometrics tools, such as PCA and HCA. The resulting dataset will provide information about the response of *T. cruzi* metabolism under a given stimulus, for example, the administration of a drug or a drug candidate, allowing a better understanding of this parasite's behavior and maybe a deeper comprehension of this disease. **CONCLUSIONS:** The first step in our attempt to know better this parasite's metabolism has been given.

Keywords: Metabolomics, Chagas Disease, *Trypanosoma cruzi*, NMR

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