Expression and Purification of a Multiepitope Protein for Diagnostic Kits of schistosomiasis

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INTRODUCTION: Schistosomiasis consists in a parasitic disease caused by trematodes of the *Schistosoma* genus. It is considered a major public health problem, with 200 million people infected worldwide and it is estimated that in Brazil approximately 25 million people live in risky areas. There are kits based on enzyme immunoassays (EIA) commercially available for the detection of antibodies anti-*Schistosoma*. However, these kits may present some limitations as the use of crude antigens, which can result in cross-reactivity. One strategy to circumvent these limitations is to develop a protein composed of various epitopes. **OBJECTIVES:** This study aimed to develop a technological input through a single recombinant multiepitopo protein from some epitopes of *Schistosoma mansoni* and check their immunoreactivity against the serum of patients with schistosomiasis. **MATERIAL AND METHODS:** First, the ORF encoding the multiepitope protein was synthesized with codons optimized for expression in *Escherichia coli* cells and cloned into the vector pET21a. Protein expression was induced using 1 mM Isopropyl β-D-1 thiogalactopyranoside (IPTG) and evaluated by polyacrylamide gel electrophoresis. The recombinant protein was purified by affinity chromatography using a Ni-Sepharose resin and was performed linked immunosorbent assay (ELISA), indirectly. **RESULTS AND DISCUSSION:** It was found in the gel a band of approximately 24 kDa that probably corresponds to the recombinant protein. Purification was carried out efficiently, so that only the corresponding band was observed. The enzyme-linked immunosorbent assay showed that the protein was strongly recognized by antibodies present in sera of patients with schistosomiasis, showing higher absorbance values when compared to the negative control. **CONCLUSIONS:** The expression and purification of the recombinant protein were performed successfully and enzyme-linked immunosorbent assay showed that the multiepitopo protein technology can be a promising initiative for the diagnosis of Schistosomiasis.

Keywords: multiepitope protein, schistosomiasis, diagnosis

Acknowledgements: UFSJ, CAPES, CNPq, FAPEMIG