EVALUATION OF PARTIALLY PURIFIED SOLUBLE EGG ANTIGENS IN COLLOIDAL GOLD IMMUNOCROMATOGRAPHY ASSAY CARD FOR RAPID DETECTION OF ANTI-SCHISTOSOMA JAPONICUM ANTIBODIES

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Abstract. Schistosomiasis is one of the important parasitic diseases in developing countries and especially remains a threat to public health in China. Many immunodiagnostic kits have shown cross-reactions with other parasitic diseases and need large volumes of serum for the tests. In this study, we evaluated partially purified soluble egg antigen (SEA) in a colloidal gold immunochromatography assay (GICA) card kit for rapid detection of anti-Schistosoma japonicum antibodies using 5 µl of serum. Partially purified SEA from S. japonica was purified by Sephacryl S-300 chromatography. The optional reaction system and detection level of GICA using partially purified SEA were established by improving conjugated concentration and formulation of sample buffer and labeled solution. GICA showed 93.7% sensitivity in detecting schistosomiasis patients, 97.6% specificity in healthy population and patients with other parasitic diseases and a Youden’s index value of 0.91. Cross-reaction with other parasitic diseases, such as paragonimiasis (1 case) and toxoplasmosis (1 case) is significantly lower compared to using crude SEA. Partially purified SEA in GICA is practical for detection of schistosomiasis in the field as it requires a small volume of serum, has high sensitivity, and has low cross-reaction rate.

Keywords: Schistosoma japonicum, gold immunochromatography assay, soluble egg antigen

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