عنوان مقاله:

Expansion of a highly sensitive and specific ELISA test for diagnosis of hydatidosis using recombinant EgB8/2 protein

محل انتشار:

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خلاصه مقاله:

Objective(s): Hydatidosis is a zoonotic infection and endemic in Iran. Due to the serological cross-reactivity (of sera) with other parasitic infection, diagnosis of hydatid cyst is considered to be problematic. In this regard, application of recombinant antigens improves serological diagnosis for human hydatidosis. Here, we present an ELISA test based on B8/2 recombinant antigen of Echinococcus granulosus with particular regard to its capability to diagnose human hydatidosis. Materials and Methods: The synthesized E. granulosus B8/2 (EgB8/2) gene was sub-cloned into pET28b (+) plasmid. Nde1 and Hind3 restriction enzymes were used to confirm the recombinant plasmid extraction. Cloning was verified by colony PCR, digestion enzymes, and sequence determination methods. To express rtEgB8/2, strains of Escherichia coli BL21 (DE3) pLysS and Rosetta (DE3) were induced with isopropyl β-D-1-thiogalactopyranoside (IPTG). A Ni-NTA column was used for purification, and the expressed protein was analyzed by SDS-PAGE as well as western blotting. ELISA test was used to identify the antigenicity of produced protein.Results: The presence of EgB8/2 gene fragment in the recombinant plasmid was confirmed. SDS-PAGE showed that the BL21 (DE3) pLysS strain had the highest level of expression and a protein band of 11 kDa was observed in induced bacteria. Western blotting approved the purity of rtEgB8/2 protein, and ELISA test measured sensitivity and specificity as 95% and 97.5%, respectively.Conclusion: E. granulosus metacestode contains a high amount of antigen B protein. These results confirm the reproducibility of high-quality rtEgB8/2 recombinant antigen as a reliable candidate in serological test.

کلمات کلیدی:

Diagnosis, Echinococcus granulosus, ELISA, Hydatidosis, Recombinant EgB8/2 protein