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"Purification and evaluation of somatic, excretory-secretory and Cysteine proteinase antigens of Fasciola Hepatica using IgG-ELISA in diagnosing Fascioliasis "

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### Abstract:

Fasciolosis, or liver fluke disease, caused by parasites of the genus Fasciola is emerging as an important disease in man and animals, in the world and Iran, particularly in northern parts. The economical losses in domestic animals are considerable. In the recent decade there were two major outbreaks of human fasciolosis in the Caspian region, northern part of Iran with 7000-10000 infected cases. Since it is impossible to diagnose fasciolosis in acute phase using coprological methods and even in chronic phases its sensitivity is low, evaluating and establishing a reliable and cost-effective test is indispensable and noteworthy. In the present survey, we produced and examined the sensitivity and specificity of liver fluke homogenate (LFH), excretory-secretory (ES) and cysteine proteinase (CP) antigens of F. hepatica using IgG-ELISA test. A 25-27 kilo Dalton coomassie blue-stained band was observed and using of specific inhibitors indicated that this antigen belongs to the class of cysteine proteinase. The sensitivity of LFH, ES and CP antigen in IgG-ELISA was 100% for each, while their specificity was 97.8%, 98.8% and 98.8% respectively. There was a significant difference in mean OD values between cases of proven fasciolosis and other true negative cases, including healthy control individuals and patients with other parasitic diseases. This present report is the first to demonstrate the purification and evaluation of F. hepatica cysteine proteinase antigen by IgG-ELISA test for the diagnosis of fasciolosis in Iran. In conclusion, the IgG-ELISA using ES and CP show high sensitivity and specificity and would be a valuable tool to diagnose human fasciolosis in Iran, particularly in endemic areas.

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