Little attempts have been concerned the diagnostic and protective values of F. giantica glycoproteins. Consequently, the objective of the current study is to identify a novel immunogenic glycoprotein(s) and its assessment in early diagnosis of fasciolosis. Two different glycoproteins designated as (FI & FII) were isolated from whole worm extract of Fasciola gigantica by affinity column chromatography using imibolized glucose agarose and Con-A gels respectively. Each fraction showed only one band. Both bands are of comparable low molecular weight; 26 and 19.5 kDa and of acidic pIs; 6.4 and 6.5 as proved by SDS-PAGE and Isoelectric focusing techniques, respectively. Both fractions showed diagnostic potentials of experimental F. gigantica in rabbits at different intervals of infection using ELISA starting from one week post infection with higher potentials associated with FII. Immunoblot assay confirmed the diagnostic potentials of FI and FII where both bands (26 kDa and 19.5 kDa) were identified with rabbit sera collected at 10 weeks post infection. The FII proved potency in diagnosis of bovine fasciolosis using ELISA which recorded 95% positivity. The glycoproteins isolated in the current study could be considered successful immunodiagnostic candidates of fasciolosis particularly in the prepatent period (one week post infection) where both fractions can detect early immune response in infected rabbits. FI fraction is of choice for diagnosis of fasciolosis during prepatent and patent periods. Further investigations are needed to evaluate the protective value of these potent immunodiagnostic glycoproteins.