

Gel filtration fraction from *Taenia saginata*: immunoproteomic approach and applicability on neurocysticercosis diagnosis

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Neurocysticercosis (NC) is a parasitic disease that affects the central nervous system and is caused by *Taenia solium* metacestodes. Due to the seriousness of the clinical picture on NC there is a need to improve diagnosis through the search of new and alternative antigenic sources. The aim of this study was to obtain the gel filtration fraction (GFF) through fractionation of the total saline extract (SE) from *Taenia saginata* metacestodes by gel filtration chromatography and to identify proteins potentially applicable in the immunodiagnosis of NC. SE and GFF proteic profiles were characterized by gel electrophoresis, and the diagnostic performance was verified by testing 160 serum samples from patients with NC (G1; n=45), other parasitic diseases (G2; n=65) and healthy individuals (G3; n=50), through enzyme linked immunosorbent assay (ELISA) and immunoblotting. The diagnostic parameters were calculated: sensitivity (Se), specificity (Sp), area under ROC curve (AUC) and likelihood ratios (LR + and LR -). Polypeptides of interest in the diagnosis of human NC present at GFF were analyzed by mass spectrometry and B-cell epitopes were predicted. For GFF, proteins with molecular weight varying from 64-68 kDa were visualized, with more intensity. GFF achieved the best diagnostic parameters when comparing to SE (Se: 93.3% x 84.4%; Sp: 93% x 86%; AUC: 0.990 x 0.928; LR+: 13.42 x 6.07 and LR: 0.07 x 0.18, respectively). For SE when testing a pool of sera from G1 in immunoblotting, the following immunodominant proteins were recognized: 24, 64-68, 70, 80, 86, 100 and > 140 kDa, while for GFF the following bands: 12-14, 25, 39-42, 52, 64-68 and > 140 kDa were recognized. There was no recognition of bands related to NC diagnosis when testing the pool of sera from G3 for both antigens. Two proteins were identified on GFF: enolase [*Taenia multiceps*] and calreticulin [*T. solium*], these proteins presented respectively, 18 and 10 predicted epitopes. It can be concluded that important proteins were obtained by gel filtration chromatography and further identified being potentially applicable on the immunodiagnosis of NC.

Keywords: gel filtration fraction, immunodiagnosis, neurocysticercosis, proteomic, *Taenia saginata*.