PROFIL IMUNOGLOBULIN SERUM MENCIT ANTI-PROTEIN SPESIFIK *Toxocara cati* SEBAGAI DASAR PEMILIHAN MARKER PADA PEMERIKSAAN ANTIBODI

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ABSTRAK

Penelitian ini secara umum bertujuan memperoleh protein spesifik *T. cati* dan mengetahui imunoglobulin spesifik yang dapat digunakan sebagai biomarker pada pembuatan *kit diagnostic* untuk diagnosis toxocariasis melalui pemeriksaan antibodi dengan teknik *indirect*-ELISA. Pada penelitian ini dilakukan isolasi dan karakterisasi protein *T. cati* yang berasal dari material *excretory-secretory* (ES) larva stadium kedua (L2) dorman *T. cati* dengan cara mereaksikan protein murni dengan antibodi poliklonal. Pada tahap I, dilakukan identifikasi protein menggunakan teknik SDS-PAGE dengan. Kedua, karakterisasi protein menggunakan teknik *Western blot*. Ketiga, isolasi protein spesifik. Keempat mempelajari profil imunoglobulin sebagai respon terhadap infeksi *T. cati* pada mencit.

Hasil penelitian menunjukkan bahwa: 1) Telah diketahui 19 macam fraksi protein *T. cati*, antara lain protein dengan BM 137,1; 125,0; 100,2; 84,3; 64,1; 53,8; 47,0; 45,2; 38,3; 34,0; 32,8; 29,4; 27,3; 23,9; 22,1; 20,6; 13,6; dan 9,1 kDa. 2) Pada karakterisasi protein dengan *Western blot* didapatkan protein yang memiliki afinitas kuat terhadap antibodi anti-L2 dorman, yaitu protein L2 dan L2 dorman *T. cati* dengan MR 32,8; 28,5; 18,5 dan 8,8 kDa, sedangkan protein dengan MR 134,5 dan 120,7 tampak memiliki afinitas lemah. Pada *T. cati* dewasa terdapat 11 pita ikatan protein yaitu dengan MR 134,5; 120,7; 100,2; 53,8; 38,3; 32,8; 28,5; 23,9; 18,3; 13,6 dan 8,8 kDa; 3) Ditinjau dari nilai OD pada ELISA, protein murni *Toxocara cati* memiliki antigenisitas yang sama terhadap serum anti-*T. cati* dan anti-*T. canis*, tetapi memiliki antigenisitas yang lebih rendah terhadap cacing lain (*Ancylostoma* spp. dan *D. caninum*); 4) Berdasarkan hasil ELISA-*isotyping*, subkelas Ig G spesifik (dominan) dalam serum mencit yang diinfeksi dengan L2 *T. cati* adalah IgG2β.

Berdasarkan karakter dari protein L2 dan L2 dorman *T. cati* dan daya antigeniknya terhadap antibodi secara spesifik, maka disarankan bahwa protein dengan MR 32,8, 28,5, 18,5 dan 8,8 kDa dapat digunakan sebagai bahan diagnostik terhadap kasus toxocariasis. Untuk meningkatkan nilai spesifisitas hasil pemeriksaan antibodi terhadap anti-*T. cati* dengan teknik ELISA, dapat digunakan subkelas Ig G sebagai antibodi ke-3, yaitu IgG2β.

Key words: diagnosis, toxocariasis, subkelas IgG, protein spesifik, ELISA.

THE PROFILE OF MOUSE SERA IMUNOGLOBULINE AGAINST SPECIFIC PROTEIN OF *Toxocara cati* AS A BASE OF MARKER CHOICE IN THE ANTIBODY EXAMINATION

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ABSTRACT

The objective on this study was to get specifique protein of *T cati* and to investigate specifique immunoglobuline that could be used as biomarker in kit diagnostic to Toxocariasis diagnosis through antibody test by Indirect-ELISA technique.

In this study was done to isolate and characterize *T. cati* protein from *excretory-excretory* (ES) material of Larva II dormant *T. cati* by pure protein that was reactive with polyclonal antibody. In first step, L2 dormant were identified by SDS-PAGE. The second step, protein was characterized by using Western blot. The third step was decided specificity of protein fractions and specific protein was isolated. The fourth was to study immunoglobulin profile as response to *T. cati* infection toward mice.

The result of the study showed that : 1). There were 19 kinds of protein fractions of *T cati* as follow with MR 137,1; 125,0; 100,2; 84,3; 64,1; 53,8; 47,0; 45,2; 38,3; 34,0; 32,8; 29,4; 27,3; 23,9; 22,1; 20,6; 13,6; and 9,1 kDa; 2). Protein characterized by Western Blot were found protein which has strong affinity to anti-L2 dorman antibody of *T cati* , that were L2-protein and L2 dorman of *T cati* with MR 32,8; 28,5; 18,5; and 8,8 kDa, therefore protein with MR 134,5 and 120,7 showed weak affinity. In adult of *T cati* were found 11 bands of protein bounds as follow with MR 134,5; 120,7; 100,2; 53,8; 38,3; 32,8; 28,5; 23,9; 18,3; 13,6 and 8,8 kDa. It's concluded that protein with MR 32,8; 28,5;18,5 and 8,8 kDa have a prospect to improve as material test toward Toxocariasis cases; 3) Evaluated from OD value at ELISA, pure protein of *Toxocara cati* has the same antigenicity with anti-*T. cati* and anti-*T. canis* sera, but having lower antigenicity to other worm (*Ancylostoma* spp. and *D. caninum*); 4) Based on result of ELISA-Isotyping, specific G Ig subclass in white mouse serum infection with L2 *T. cati* is IgG2β.

Based on character from protein L2 and L2 dorman *T. cati* and its the antigenecity against antibody in specifically, hence it is suggested that protein with MR 32,8, 28,5, 18,5 and 8,8 kDa serve the purpose of diagnostic material to case toxocariasis. For the purpose need to be done further research to try proves fourth of the protein as component of diagnostic at case toxocariasis, either at infection early and also continuation. Subclass of Ig G especially IgG2β serve the purpose of third antibody to increase specificity value at antibody examination against anti-*T. cati* with ELISA technique.

Key words: diagnosis, toxocariasis, IgG subclass, specific protein, ELISA technique