IMMUNOASSAY FOR DETECTION OF CYSTICERCOSIS IN PIGS

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MVM 15059 (VPA)

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CERTIFICATE

This is to certify that the thesis entitled **"IMMUNOASSAY FOR DETECTION OF CYSTICERCOSIS IN PIGS"** submitted in partial fulfillment of the requirements for the degree of **MASTER OF VETERINARY SCIENCE** in the discipline of **VETERINARY PARASITOLOGY** to the **Tamil Nadu Veterinary and Animal Sciences University, Chennai-51** is a record of bonafide research work carried out by **ABIRAMI.S., MVM 15059 (VPA)** under my guidance and that no part of this thesis has been submitted for the award of any other degree, diploma, fellowship or other similar titles or prizes.

Date : 09/08/17
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ABSTRACT

Title	:	**IMMUNOASSAY FOR DETECTION OF CYSTICERCOSIS IN PIGS**
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Cysticercosis is a zoonotic disease, caused by the larval stage *Cysticercus cellulosae* of the human cestode *Taenia solium*. During the study, pigs were inspected for the presence of *Cysticercus cellulosae* cysticerci, slaughtered at local pig slaughter houses, organized and unorganized pig farms in and around Chennai. The *C. cellulosae* excretory secretory (E/S) antigen was prepared by *in vitro* cultivation of *C. cellulosae* cysticerci with RPMI 1640 medium and somatic antigen was prepared by homogenization and sonication of the whole cysticerci.

The protein concentration was found to be 7.453 mg/ml and 11.383 mg/ml for the E/S antigen and somatic antigen respectively. The *C. cellulosae* antigens were characterized and analysis of purified E/S antigen revealed protein bands at

20, 25, 55 and 250 kDa with the major protein bands recognized at 55 and 250 kDa. whereas analysis of purified somatic antigen revealed major protein bands at 25, 35, 45 and 250 kDa.

Purified *C. cellulosae* antigens (E/S antigen and somatic antigen) were used in Dot-ELISA and EITB. Screening of sera samples from pigs and human beings by Dot-ELISA using E/S antigen and somatic antigen revealed seropositivity for anti *C. cellulosae* antibodies. Using EITB in pig sera samples with E/S and somatic antigen, immunodominant bands were identified at 20, 55 kDa and 25, 75 kDa respectively.

Overall seropositivity of 175 pig serum samples by E/S antigen based Dot-ELISA and EITB revealed 46 and 93 samples to be positive respectively. Somatic antigen based Dot-ELISA and EITB, showed 29 and 57 samples as positive respectively in pig sera samples. Out of 50 human sera samples, 8 and 19 samples showed positive reaction by E/S antigen based Dot-ELISA and EITB, whereas somatic antigen based Dot-ELISA and EITB showed 5 and 12 samples positive respectively.

The present study assessed the diagnostic efficacy of two different immunoassays using both E/S and somatic antigens. The E/S Ag EITB was more specific in detection of cysticercosis in pigs and human beings. The E/S antigen was found to be a better antigen compared to somatic antigen. With regard to the immunoassays, EITB gave better result compared to Dot-ELISA in diagnosing cysticercosis both in pigs and human beings using both the antigens.

Key words: Pigs, Cysticercosis, antigens, immunoassay