EVALUATION OF RECOMBINANT SERINE PROTEASE INHIBITOR FROM *TRICHINELLA SPIRALIS* FOR IMMUNODIAGNOSIS OF SWINE TRICHINOSIS

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Abstract. Serine protease inhibitors, known as serpins, are mainly expressed in newborn and early-stage *Trichinella spiralis* larvae, suggesting that *T. spiralis* serpin (TsSERP) could be used as antigen for the immunodiagnosis of swine trichinosis. We produced His-tagged recombinant TsSERP (rTsSERP) in *Escherichia coli* and purified it using a Co^{2+}-affinity column. Western blot (WB) and enzyme-linked immunosorbent assay (ELISA) were performed to determine *T. spiralis*-infected swine sera samples ($n = 5$), negative controls ($n = 26$), and other parasite-infected samples ($n = 83$). WB showed that *T. spiralis*-infected sera initially reacted with rTsSERP at day 6 post-infection (dpi), and more strongly in late infection (62 and 84 dpi). However, other parasite-infected sera also elicited cross-reactivity to rTsSERP. On the other hand, indirect ELISA showed that TsSERP was an appropriate antigen for detecting late (>60 dpi) but not early infection. No cross-reaction was observed with other parasite-infected sera. Sensitivity and specificity of TsSERP-ELISA at 62 dpi was 80% and 100%, respectively, and at 84 dpi 100% and 100%, respectively. These preliminary results show that TsSERP-ELISA method is suitable for the diagnosis of swine trichinosis, and could become the standard test for diagnosis of trichinosis in several hosts, including humans.

Keywords: *Trichinella spiralis*, serine protease inhibitor, western blot, enzyme-linked immunosorbent assay, swine/pig

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