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Research Note

Seroprevalence of *Toxoplasma gondii* antibodies in pigs, goats, cattle, dogs and cats in peninsular Malaysia

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Abstract. Antibodies to the protozoan parasite, *Toxoplasma gondii* were assayed in sera of 200 goats, 100 pigs, 126 cattle from various states of Malaysia, and 135 dogs and 55 cats around Ipoh region using an indirect fluorescence antibody test (IFAT, cut-off titer 1:200); antibodies were found in 35.5% of goats, 14.5% cats, 9.6% dogs, 7.9% local cattle and 4% yellow cattle but not in pigs. Results indicate that infection is most prevalent in goats.

Toxoplasma gondii can cause severe disease in many species of animals, including embryonic death and resorption, fetal death and mummification, abortion, stillbirth and neonatal death in goats and sheep (OIE, 2004). Little is known of the seroprevalence of *T. gondii* in animals in Malaysia and some surveys were done a long time ago (Singh *et al*., 1967; Chooi, 1989; Rajamanickam *et al.*, 1990). In the present study we conducted a seroprevalence study in peninsular Malaysia. Sera from various animal species for this study was as follows:

Pig serum samples were from Veterinary Research Institute(VRI) Serum Bank consisting of 100 multiparous sows randomly selected from 17 farms in four different states of peninsular Malaysia (Perak, Penang, Johor and Selangor)

i) 55 cat sera and 135 dog sera were collected from the Perak State Veterinary Clinic and four Private Veterinary Clinics in Ipoh, Perak.

ii) 200 goat sera were randomly selected from Serum Bank of VRI, from various states of peninsular Malaysia. (Johor, Kelantan, Melaka, Negeri Sembilan, Pahang, Perak, Pulau Pinang, Selangor, Sabah and Sarawak)

iii) Bovine sera from 50 yellow cattle (imported from China) and 76 local cattle sera (from Negeri Sembilan, Perak, Melaka and Kelantan) randomly selected from the VRI Serum Bank.

All serum samples were tested by indirect fluorescent antibody test (IFAT) using species specific congugates (from VMRD).

Table 1 shows the seroprevalence of all the animals.

Toxoplasma gondii antibodies were detected in 8 (14.55%) of 55 cat samples and there was no difference between male and female cats (4/55). In dogs, percentage of toxoplasmosis in dog was 9.6% and higher

Table 1: Prevalence of Toxoplasmosis in goats, cats, dogs, cattle and pigs

Type of animals	Numbers of examined	Numbers of positive	Percentages of positive (%)
Goats	200	71	35.5
Cats	55	8	14.55
Dogs	135	13	9.6
Cattle	126	8	6.3
Pigs	100	0	0
Total	616	100	65.95

prevalence was seen in young dogs less than 1 year old and more than 3 years.

The overall percentage positive for cattle is 6.3%. Our studies showed higher prevalence compared to previous studies by Singh *et al*. (1967), Rajamanickam *et al.*(1990) and Normaznah *et al.* (2004). The seroprevalence in yellow cattle was 4% compared to 7.9% in local cattle. The seroprevalence rates were different as the samples were from 4 different states suggestive of different exposure of infection. The prevalence rate was higher in local cattle compared to yellow cattle which were imported from China.

However, no antibodies were detected to *T. gondii* in pig serum samples. This maybe due to good farm management which incorporates concrete slatted floor where the pens are kept dry which may reduce the risk of *T. gondii* infection (Dubey & Beattie, 1988). Swine housing and management requires animals to be kept indoors which maybe a major contributor of zero prevalence since cats increased the risk for faecal-oral route transmission.

The overall low seroprevalence in the present study may also be due to high cut-off (1:200) value selected. Most authors have used 1:16 as cut-off for IFAT and there is no validation of this test for the detection of antibodies in latently infected animals (Dubey & Beattie, 1988).

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