



# DIAGNOSIS OF CAPRINE TOXOPLASMOSIS BY LATEX AGGLUTINATION TEST

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## Abstract

A total of 98 blood samples of goats maintained in the Government goat farms of Attapady, Kommeri and KAU and of those brought to the slaughter houses of Thrissur and Ernakulam were screened for the presence of *Toxoplasma* antibodies by Latex agglutination test. The test was performed using the test kit Toxotest MT (Eiken). Positive reaction  $\geq 64$  was detected in 57 samples (58.16 percent) that puts forth the need of public awareness on the risk of acquiring *Toxoplasma* infection.

**Key words:** *Toxoplasma gondii*, goats, Latex agglutination test

Toxoplasmosis is a zoonotic protozoan disease caused by a coccidian parasite, *Toxoplasma gondii*, common and widespread in all warm blooded living beings. Human beings contract the disease by ingesting food or meat contaminated with the infective stages of *T. gondii*. Among domestic animals, *T. gondii* is most pathogenic in goats (Dubey and Beattie, 1988). It also causes economic loss due to abortion and premature birth in goats. The diagnosis of toxoplasmosis in animals depends on the demonstration of specific antibodies by one or more sero diagnostic tests. Latex agglutination test (LAT) has been used in the diagnosis of caprine toxoplasmosis (Samad, 1993; Hashemi-Fesharki, 1996). The present study is a

preliminary attempt made to detect the occurrence of *Toxoplasma* antibodies in goat sera obtained from various regions of Kerala by LAT.

## Materials and Methods

### Collection of samples

Blood samples were collected from bucks, kids, healthy does and does with a history of abortion belonging to the Government Goat farms, Attapady and Kommeri and the Kerala Agricultural University Goat farm and from the slaughter houses at Thrissur and Ernakulam. The sera were separated and stored at  $-20^{\circ}$  C till use.

### Test proper

Latex agglutination test was performed as per the procedure described in the product information of Toxotest-MT (Eiken). The agglutination was done in "U" bottomed 96 well microtitre plates (Tarson). A volume of 0.025 ml of buffer (0.2M 2 amino-2 methyl-1 propanol- Hcl buffer solution) supplied was added to each well. Next 0.025 ml of the test sera serially diluted from 1:16 to 1:2048 was charged to each well followed by 0.025 ml of the sensitive latex suspension (Eiken). The plates were gently shaken and properly mixed.

They were then sealed and allowed to stand for 12 h at room temperature. Positive and negative control sera were also maintained in each plate.

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### Interpretation

An agglutination that spread uniformly through out the well or that which was intense with irregular edges was interpreted as a positive reaction  $\geq 64$  while a small, distinct circular precipitation in the centre indicated a negative reaction.

### Results and Discussion

The results of the presence of *T.gondii* antibodies in goat sera by LAT are furnished in the table. It was found that 57 samples (58.16 percent) out of 98 screened were positive for the antibodies. The maximum percent was obtained from those samples collected from the Government goat farm, Kommeri (65 percent). Access to the nearby reserve forest where there is possibility of wild cats and oocysts in the soil constitute a reasonable factor for the high positive titres in these goats which are usually let out to graze near the wilderness.

The results of the present survey indicate that the presence of *T. gondii* antibodies is in a fairly high order among the goats of Kerala. The favorable environmental conditions for the survival of *T. gondii* oocysts in the soil like high humidity and heavy annual rainfall seen throughout the state also signify the presence of the infection in these animals. This work was beneficial to create awareness among the public on the risk of acquiring Toxoplasma infection from handling goat meat and drinking unpasteurised goat milk. When applied to caprine sera, a positive titre  $\geq 64$  is a true indication of the presence of Toxoplasma antibodies. However, negative samples need repeated evaluation.

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**Table :** Sero prevalence of *Toxoplasma gondii* in goat sera by Latex agglutination test

Location	Number examined	Number positive	Percent positive
Govt. goat farm, Attapady	25	14	56.00
Govt. goat farm, Kommeri	20	13	65.00
KAU goat farm	19	11	57.89
Slaughter house, Thrissur	16	9	56.25
Slaughter house, Ernakulam	18	10	55.55
<b>Total</b>	<b>98</b>	<b>57</b>	<b>58.16</b>

### References

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