

Original Research Article

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Seroprevalence of Mycoplasmosis in Goats of North West Agroclimatic Zone of Tamil Nadu in Organised and Unorganised Sector

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ABSTRACT

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244 serum samples from unorganized sector and 122 serum samples from organized sector were collected from apparently healthy goats of different age and sex from North Western agroclimatic zone of Tamilnadu (India) and were screened for Mycoplasmal antibodies by employing Indirect Enzyme linked Immunosorbent Assay. Sixty two out of 244 serum samples from unorganized goat farms in five districts were found positive which indicating overall seroprevalence of 25.40. Out of 122 serum samples from organized goat farms 35 samples were positive for Mycoplasma infection with percent positivity of 28.68. The Indirect Enzyme linked Immunosorbent assay for Mycoplasmal antibodies detection was found to be simple, reliable with having high sensitivity and specificity.

Introduction

The goat is an important commodity in many areas of the world, where is kept as a source of meat, milk and fiber. Often described as “poor man’s cow, the goats can survive in areas where cow cannot and, therefore replaces the cow in importance for a large segment of the world’s population. Of the 81.43 million goats in Tamil Nadu, 12.56 million are present in north western agro climatic zone and the state meat production from goats was figured to

43350 tonnes during 2013-14 which was the largest red meat production (DAH, Government of Tamil Nadu Census,2014).. Mycoplasmal infections in goats result in significant losses and morbidity and mortality may reach 100%. Mycoplasmas are smallest fastidious bacteria which can cause diseases in major species of animals. Diagnosing Mycoplasma infection in goat flock by serological assay is the simple method and less time consuming when conventional culture isolation. Hence seroprevalence was

assessed by employing Indirect Enzyme linked immune sorbent assay (iELISA).

Materials and Methods

This study was carried out in Department of Veterinary Preventive Medicine, Veterinary College and Research Institute, Namakkal, Tamil Nadu from August 2015 to April 2019. Sera samples were randomly collected from organized and unorganized goat farms in various district of North Western Agro climatic Zone of Tamil Nadu. Details of the samples collected from goats to detect seroprevalence of *Mycoplasma* are given in Table 1.

Seroprevalence for *Mycoplasma capricolum capripneumoniae* (Mccp) was carried out by using the IDEXX, Switzerland iELISA kit. iELISA protocol was employed as per the manufacturer's procedures. ELISA reading was carried out in BIORAD® ELISA reader at 450 nm wave length. Samples with Percentage of Inhibition less than 55% were considered as negative and samples with Percentage of Inhibition greater than or equal to 55% were considered as positive.

Results and Discussion

Seroprevalence of *Mycoplasma* infection in organized goat farms

Out of 122 serum samples from organized goat farms 35 samples were positive for *Mycoplasma* infection with percent positivity of 28.68. A total of 44, 44 and 34 samples from PGRIAS (Kattuppakkam), Livestock Farm Complex (LFC, VCRI, Namakkal) and MSRS (Mechheri) respectively were tested and the seropositivity was 43.18, 11.76 and 27.7 percent respectively. However, PGRIAS

were exposed to the infection is higher of 43.8 percent and followed by 27.7 in MSRS and 11.76 percent in LFC, VCRI, Namakkal respectively.

Seroprevalence of *Mycoplasma* infection in unorganized goat farms

The samples from unorganized goat farms from Krishnagiri, Dharmapuri, Salem, Namakkal and Perambalur districts of Tamil Nadu were furnished in Table 1. Sixty two out of 244 serum samples from unorganized goat farms in five districts were found positive with percent positivity of 25.40.

The seroprevalence of *Mycoplasma* infection was found to be 26.92, 32.14, 21.42, 26.92 and 14.29 percent in Namakkal, Dharmapuri, Salem, Krishnagiri and Perambalur districts respectively. The seropositivity of *Mycoplasma* infection is higher in Dharmapuri district followed by Namakkal district and lowest in Perambalur district.

Out of 122 serum samples from organized goat farms 35 samples were positive for *Mycoplasma* infection with per cent positivity of 28.68. The goats maintained at PGRIAS, Kattuppakkam were exposed to the infection is higher of 43.8 per cent as the purchase of Boer breed for the farm for upgradation with native breed might have introduced the *Mycoplasma* organism and seroconversion.

The findings of this study are also in accordance with the findings of Swai *et al.*, (2013) Ingle *et al.*, (2000) who found 9.6 per cent prevalence of CCPP in goats in two districts of northern Tanzania by using the same type of cELISA kit and) Ingle *et al.*, (2000) who found and 33.11 prevalence in goats Nagpur District, India.

Table.1 Seroprevalence of *Mycoplasma* infection in organized and unorganized goat farms in North Western zone of Tamil Nadu by ELISA

| Organized sector | | | | Unorganized sector | | | |
|------------------|----------------------|-------------------------|--------------|--------------------|----------------------|-------------------------|--------------|
| Farms | No of samples tested | No. of samples positive | % positive | Districts | No of samples tested | No. of samples positive | % positive |
| LFC | 34 | 4 | 11.76 | Namakkal | 52 | 14 | 26.92 |
| MSRS | 44 | 12 | 27.70 | Dharmapuri | 56 | 18 | 32.14 |
| PGRIAS | 44 | 19 | 43.18 | Salem | 56 | 12 | 21.42 |
| Total | 122 | 35 | 28.68 | Krishnagiri | 52 | 14 | 26.92 |
| | | | | Perambalur | 28 | 04 | 14.29 |
| | | | | Total | 244 | 62 | 25.40 |

Shahzad *et al.*, (2016) reported the seroprevalence of CCPP as 8.52 per cent by employing monoclonal antibody-based competitive enzyme-linked immunosorbent assay (cELISA) for the specific measurement of antibodies to *Mycoplasma capricolum* subsp. *capripneumoniae* (Mccp) bacterium. Hadish *et al.*, (2009) reported 32.66 per cent sero-prevalence of CCPP in goats of Ethiopia. High prevalence of mycoplasma antibodies was also reported by Ashish Roy, *et al.*, (2010) as 42.50% in goats of Gujarth.. Rana *et al.*, (2009) reported 78% sero positivity by employing iELISA.

Out of 244 serum samples from unorganized goat farms 62 samples were positive for *Mycoplasma* infection with per cent positivity of 25.40. Goats from Dharmapuri district have shown higher seropositivity of 32.14 per cent. The present results are in agreement with the study of Larios-Hernández *et al.*, (2017) who found the seroprevalence of *Mycoplasma mycoides* subspecies *mycoides* (Mmm) using a competitive ELISA (c-ELISA) from 556 goats sampled in random was 11.2 per cent seropositivity in Mexico.

In present finding indicates endemicity of infection in North Western Agro climatic Zone of Tamil Nadu and appropriate measures to be taken for regular screening, therapeutic

and prophylactic measures for containment of caprine mycoplasmosis.

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