

**SEROLOGICAL STUDY OF PESTE-DES-PETITS RUMINANTS (PPR) USING COUNTER IMMUNOELECTROPHORESIS IN FAISALABAD**

M. Touseef Tahir, Rehan Ahmad<sup>1</sup>, Sajjad-ur-Rahman, Iftikhar Hussain and M. Ashfaque

*Department of Veterinary Microbiology,*

<sup>1</sup>*Department of Physiology and Pharmacology,*

*University of Agriculture, Faisalabad-38040, Pakistan*

**ABSTRACT**

Antibodies against peste-des-petits ruminants (PPR) in sheep and goats were detected using counter immunoelectrophoresis. Out of 208 sheep and 209 goats serum samples, 27.88 and 31.10 per cent, respectively were positive for the presence of antibodies against PPR. Sex, age and breed wise results were also recorded. The results indicated that PPR is widely distributed in sheep and goats.

**Keywords:** Peste-des-petits, ruminants, sheep, goats, counter immunoelectrophoresis, antibodies

**INTRODUCTION**

Peste-des-petits ruminants (PPR) is an acute, contagious disease of sheep and goats caused by Morbillivirus of Paramyxoviridae family. The disease resembles with rinderpest and is characterized by clinical signs and lesions of respiratory and alimentary systems. PPR was first observed in 1940 in sheep and goats in Ivory Coast (Gargadennec and Lalanne, 1942). The early work by Mornet *et al.* (1956) showed that the virus was related to rinderpest virus. They concluded that it is actually a rinderpest virus with adopted pathogenicity for sheep and goats. In 1965, a syndrome was described in Nigeria among goats, which closely resembled rinderpest and was known by the local name "KATA" and characterized by the high mortality with recovering animals developed prominent labial scabies on the mouth (Whitney *et al.*, 1967). A comparative study of PPR and KATA showed similar intranuclear inclusions in the lymphoid and epithelial cells in both the diseases (Rowland *et al.*, 1971). The natural disease affects both sheep and goats but it is usually more severe in goats. The morbidity rate is 100 per cent and in severe outbreaks with 100 per cent mortality. In milder outbreaks, the mortality rate may not exceed 50 per cent (Losos, 1986). This paper reports the serological study of PPR in sheep and goats using counter immunoelectrophoresis.

**MATERIALS AND METHODS**

Total of 417 blood samples (208 from sheep and 209 from goats) were collected from Faisalabad abattoir

during April to June, 1998. The serum was separated and stored at -20 °C until analyzed. The sex, age and breed of the animals were also recorded.

The antibodies in the serum samples against PPR were detected using known PPR antigen (AVRI Pirbright, England) by counter immunoelectrophoresis (Tahir *et al.*, 1998).

**RESULTS AND DISCUSSION**

Of 208 sheep and 209 goats serum samples, 27.88 and 31.10 per cent, respectively were positive for the presence of antibodies against PPR using counter immunoelectrophoresis.

There was no significant difference between the percentage of male and female carrying antibodies of PPR. Out of 121 male and 87 female sheep samples 27.27 and 28.73 per cent were positive, respectively. While out of 116 male and 93 female goats 31.03 and 31.18 per cent were positive, respectively.

Highest prevalence was recorded among the animals above one year of age followed by those between six months to one year and three to six months of age (Table 1). Losos (1986) reported that the disease is more prevalent in the animals less than one year of age.

Among five breeds of sheep, Salt Range, Lohi, Thalli, Kajli and Kooka, 41.18 (n = 17), 34.78 (n = 92), 21.88 (n = 32), 19.23 (n = 52) and 13.33 (n = 15) per cent serum samples were positive for antibodies to PPR, respectively. While among two breeds of goats, Teddi and Desi, 36.08 (n = 97) and 26.79 (n = 112) per cent were positive, respectively.

**Table 1: Age based seroprevalence of peste-des-petits ruminants among sheep and goats determined by counter immunoelectrophoresis.**

Age Group	Sheep	Goats
3 to 6 month	13.33 (n = 45)	24.70 (n = 85)
6 month to 1 year	30.08 (n = 123)	31.58 (n = 95)
Above 1 year	37.50 (n = 40)	48.28 (n = 29)

The disease has been reported in Pakistan on the basis of clinical signs by Pervez *et al.* (1993) and Athar *et al.* (1995). While Ayaz *et al.* (1997) described the signs, epidemiology and treatment of a highly fatal form of pneumo-enteritis which affected goats of all ages and breeds in Dera Ghazi Khan district of Punjab. Tahir *et al.* (1998) diagnosed PPR in goats by using counter immunoelectrophoresis. Hussain *et al.* (1998) reported an outbreak of peste-des-petits ruminants (PPR) in goats in the area of Rawalpindi city. Sick animals showed serous ocular and nasal discharge, fever up to 106 °F, erosive lesions in mouth, diarrhoea and pneumonia. Mortality rate was 80 %. Results of ELISA and immunocapture ELISA determined that the animals were suffering from PPR. Vaccination using tissue culture rinderpest virus (TCRV, Pirright UK) was successful to curtail the infection in goats in that area.

The results of present study indicated that peste-des-petits ruminants is widely distributed in sheep and goats. But before starting use of vaccination for control, more comprehensive studies regarding isolation of virus and vaccine protection trials should be carried out.

## REFERENCES

- Athar, M., G. Muhammad, F. Azim, A. Shakoor, A. Maqbool and N.I. Choudhry, 1995. An outbreak of peste-des-petits ruminants like disease among goats in Punjab (Pakistan). *Pakistan Vet. J.*, 15 : 140-143.
- Ayaz, M.M., G. Muhammad and S.M.Rehaman, 1997. Pneumo-enteritis syndrome among goats in D.G. Khan. *Pakistan Vet. J.*, 17 :97-101.
- Gargadennec, L. and A. Lalanne, 1942. La peste des petits ruminants. *Bull. Serv. Zootech. Epiz.*, 5 : 16-21.
- Hussain, M., M. Afzal, R. Muneer, M. Ashfaq and E. U. Haq, 1998. An out break of peste-des-petits ruminants in goats in Rawalpindi. *Pakistan Vet. J.*, 18 : 224-226.
- Losos, J.G., 1986. Infectious tropical diseases of domestic animals. Longman Scientific Technical, Canada. pp: 549-558.
- Mornet, P., Y. Gilbert, J. Orue, G.Thiery and S. Mamadou, 1956. La peste-des-petits ruminants en Afrique occidentale francaise. *Rev. Elev. Med. Vet. Pays. Trop.*, 9: 313-335.
- Pervez, K., M. Ashraf, M.S. Khan, M.A. Khan, M.M. Hussain and F. Azim, 1993. A rinderpest like disease in goats in Punjab, Pakistan. *Pakistan J. Livestock Res.*, 1: 1-4.
- Rowland, A.C, G.R. Scott, S. Ramachandran and D.H. Hill, 1971. A comparative study of peste-des-petits ruminants and KATA in West African Dwarf goats. *Trop. Anim. Hlth. Prod.*, 4: 241-247.
- Tahir, M.T., R. Ahmad, I. Hussain and M. Hussain, 1998. Counter Immunoelectrophoresis-A rapid technique for the diagnosis of peste-des-petits ruminants. *Pakistan Vet. J.*, 18: 55-56.
- Whiteny, J.C., G.R. Scott and D.H. Hill, 1967. Preliminary observations on a stomatitis and enteritis of goats in southern Nigeria. *Bull. Epiz. Dis. Afri.*, 15: 31-41.