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Fecal parasitic load due to parenteral administration of Levamisole and antioxidants during PPR vaccination in goats

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Abstract
In the present study, fecal parasitic load of Rohilkhandi goat kids were evaluated due to injectable antioxidants and Levamisole during PPR vaccination. 18 goats were randomly distributed in three groups based on their body weight and age i.e., CON: vaccinated with no treatment; T_1: vaccinated with Levamisole (commercial available) administration; T_2: vaccinated with antioxidants administration (vitamin E and selenium). The study period lasted for 14 days. The data recorded revealed a decrease from day 0 to day 14 in shedding of oocysts per gram and OPG of feces of all animals. However, the variations in and PEG OPG between groups at different time periods were statistically non-significant (p>0.05). It can be stated that both Levamisole and antioxidants supplementation can help in reducing PEG and OPG in feces of animals during PPR vaccination.

Keywords: Goats, PPR, Levamisole, antioxidants, OPG, EPG

Introduction
Goats (Capra hircus aegarius) have been associated with mankind since the domestication of animals. The socio economic importance of goats is greatest in developing nations, where they fulfill socio economic, cultural and recreational needs. Improvement in goat production can lead to immense improvement of socio-economic status of many farmers. In many countries like India, small ruminants' production and health had been hampered by various infectious diseases like PPR (Singh *et al.*, 2009) [5]. PPR is one of the deadly disease which is caused by PPRV i.e., Peste des petitis ruminants virus (van Regenmortel *et al.*, 2000) [8].
Moreover, animals are more commonly found to be infested with various parasites. Parasitic load in animals can not only affect their production but also make routine vaccination procedures ineffective (Kumar *et al.*, 2014) [3]. In this regard, administration of various anthelmintic drugs, immunostimulants and antioxidants can be effective in reducing faecal parasitic load of animals during immunization. Therefore, this study was conducted to see the effect of injectable antioxidants and Levamisole on health status and faecal parasitic load of Rohilkhandi kids during PPR vaccination.

Materials and Methods
In order to conduct this study, the following experiment was conducted in December 2021 at Sheep and Goat Farm, LPM section, IVRI. Bareilly experiences a semi-arid climate which is characterized by a humid climate with annual average temperature of 29^0C.
Before the beginning of trial, weaned Rohilkhandi kids were weighed and examined for any abnormal health condition. A total number of 18 goats were taken and randomly distributed in three treatment groups on basis of average body weight, gender and age which were: CON: PPR vaccinated with no treatment; T_1: PPR vaccinated with Levamisole (commercial available) administration; T_2: PPR vaccinated with antioxidants administration (vitamin E and selenium). First dose of both these was administered on day of PPR vaccination.
All the weaned kids were housed in a well-ventilated shed having concrete floor with grouped feeding arrangement and housed in a way that one group of kids had no access to the manger of other kids (NRC, 2007) [4]. A common manger was kept for two kids of same group. Fresh and clean water was provided thrice a day i.e. morning, afternoon and evening throughout the

experimentation. Proper hygienic conditions and healthy surrounding were maintained in the shed throughout the experimental feeding period. During the research period, health status of goats was monitored regularly.
The experiment was continued for a period of 14 days during which feces was collected from each animal.

Fecal parasitic load
Monthly variations in fecal parasitic load in terms of parasitic eggs per gram (PEG) and oocyst per gram (OPG) were calculated by using the Modified McMaster Technique (Soulsby 2005) [6]. Three gram feces was weighed and soaked in some quantity of saturated salt solution until they are sufficiently soft. Then 42 ml of saturated salt solution is added and poured through a fine sieve. After thorough shaking sample was withdrawn by means of a wide pipette and run into the McMaster's counting chamber, filling all the spaces. The number of parasitic eggs/oocyst within each ruled area, multiplied by 100, represented the number of OPG/PEG of the feces of the sample.
Data was initially processed by Microsoft Excel 2010 and presented as Mean ± S.E., one-way analysis of variance (ANOVA) to test the difference between treatments with Tukey test was used through JMP 9.0.

Results and Discussion
Parasitic eggs shed per gram of feces (PEG) and oocysts shed per gram of feces (OPG)
Mean number of oocysts shed per gram of feces of naturally coccidia infected kids of individual groups during the whole experiment were transformed logarithmically and are presented in Table. 1 and Figure 1. The data recorded revealed a decrease from day 0 to day 14 in shedding of oocysts per gram of feces of all animals. However, the variations in OPG between groups at different time periods were statistically non-significant (p>0.05).
Similarly, variations in number of oocysts shed per gram (OPG) of feces are shown in Table 1 and Figure 1. This table depicted a decrease in OPG of all animals under different treatments for period of sample collection, being lower for 14th day of the trial and higher for the start of the study. However, OPG of animals under different groups at different time periods revealed a non-significant difference (p>0.05). Garga *et al.* (2013) [1] also observed intensity of infection as fecal egg counts ranged from 80 to 280 and 20 to 120 g^{-1} of wet feces before and after start of their trial. However, they fed balanced ration to animals and average eggs/g faeces were reduced from 168 to 81. Hassan *et al.* (2012) [2] also found significant reduction in eggs per gram using triclabendazole along with levamisole in goats. Stelletta *et al.* (2004) [7] evaluated the immunostimulatory effect of levamisole administration on bluetongue (BT) vaccination in sheep. A noteworthy reduction in faecal egg count of helminthes mostly gastrointestinal strongyles was seen along with an early response in BT antibodies was seen in levamisole treated vaccinated sheep. These studies indicate beneficial effect of these drugs to maintain a proper anthelmintic schedule against parasitic infections in goats.

Table 1: Parasitic eggs shed per gram of feces (PEG) and oocysts shed per gram of feces (OPG) in kids with different experimental treatments

Particulars	CON	T_1	T_2	P value
PEG at day 0	250 ± 131.02	316.67 ± 172.08	133.33 ± 88.19	0.63
PEG at day 14	16.67 ± 16.67	50.00 ± 34.16	0.00 ± 0.00	0.29
OPG at day 0	766.67 ± 261.62	533.33 ± 352.77	400.00 ± 400.00	0.75
OPG at day 14	0.00 ± 0.00	33.33 ± 33.33	50.00 ± 50.00	0.60

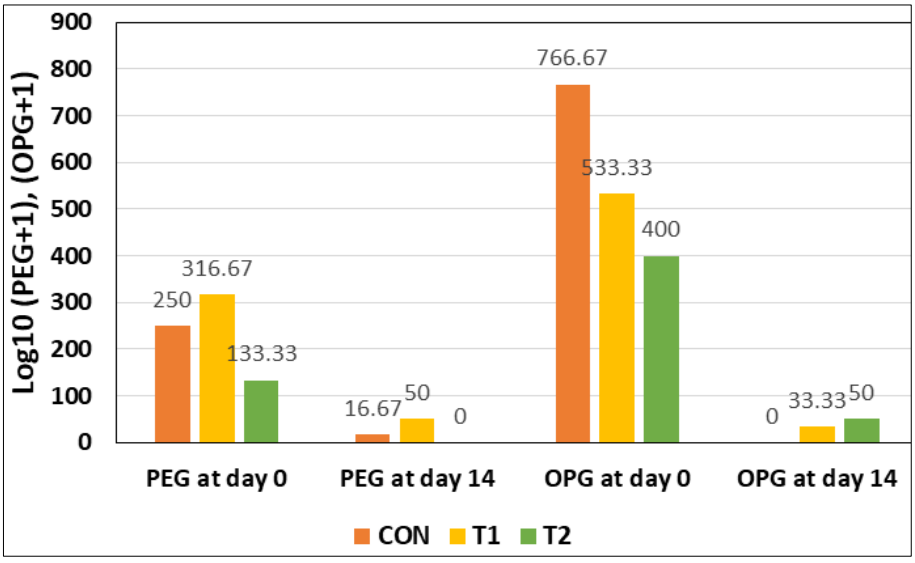

Fig 1: Parasitic eggs shed per gram of feces (PEG) and oocysts shed per gram of feces (OPG)

Conclusion
It can be stated that both Levamisole and antioxidants supplementation can help in reducing PEG and OPG in feces of animals during PPR vaccination.

References
1. Garga MR, Sherasiaa PL, Bhanderia BM, Phondbaa BT, Shelkea SK, Makkarb HP. S Effects of feeding nutritionally balanced rations on animal productivity, feed conversion efficiency, feed nitrogen use efficiency, rumen microbial protein supply, parasitic load, immunity and enteric methane emissions of milking animals under field conditions. Animal Feed Science and Technology. 2013; 179(1-4):24-35.

2. Hassan M, Hoque MA, Islam SA, Khan SA, Hossain MB, Banu Q. Efficacy of anthelmintics against parasitic infections and their treatment effect on the production and blood indices in Black Bengal goats in Bangladesh. Turkish Journal of Veterinary & Animal Sciences. 2012; 36(4):400-8.
3. Kumar V, Tyagi AK, Thakur SS, Kundu SS, Kale VR. Effect of feeding total mixed ration on productive performance and blood biochemical profile in lactating Murrah buffaloes. Indian Journal of Animal Nutrition. 2014; 31(4):329-332.
4. NRC. Nutrient Requirements of Small Ruminants: Sheep, Goats, Cervids and New World Camelids. National Academic Press, Washington DC. 2007.
5. Singh RK, Balamurugan V, Bhanuprakash V, Sen A, Saravanan P, Yadav MP. Possible control and eradication of peste des petits ruminants from India: technical aspects. Vet Ital. 2009 Jul 1; 45(3):449-62.
6. Soulsby E J L. Helminthes Arthropods and Protozoa of Domesticated Animals. pp. 707-19, ELBS 7, Baillere Tindal, London. 2005.
7. Stelletta C, Cuteri V, Bonizzi L, Frangipane di Regalbono A, Orsi F, Nisoli L, Lulla D, Morgante M. Effect of levamisole administration on bluetongue vaccination in sheep. Veterinaria Italiana. 2004 Oct 1; 40(4):635-9.
8. Van Regenmortel MH, Mayo MA, Fauquet CM, Maniloff J. Virus nomenclature: consensus versus chaos. Archives of virology. 2000 Oct 1; 145(10):2227.