



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(10): 1145-1147
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www.thepharmajournal.com
Received: 26-08-2022
Accepted: 27-09-2022

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Studies on preputial microflora of Boer bucks

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Abstract

The research investigation was carried out to study the, preputial micro flora. Seven Boer kids were purchased at the age of 4-5 months were kept under a semi-intensive system. The micro floras isolated from the preputial cavity from the Boer bucks were *Bacillus* spp. *Staphylococcus* and *E. coli*.

Keywords: Preputial microflora, Boer bucks, *Bacillus*

Introduction

The onset of the breeding season may vary depending on feed supply and climatic conditions. Boer goats can reach puberty at 6 months and at 18 kg body weight. Bucks reach sexual maturity at about 40% of their ultimate mature size but they begin sexual behaviors at an earlier age. This means most bucks are fertile at about 16 to 20 kg body weight (Chemineau *et al.*, 1992) ^[1]. The most common contaminant mostly the bacterial population of *E. coli*, *Bacillus* sp., *Pseudomonas* sp., *Staphylococcus* sp., and their increasing load may affect the motility and viability of sperms in the semen (Gupta and Sinha, 2001) ^[2]. The main source of bacteria present in the healthy animals seems to be the prepuce, and the smegma that is mixed with the semen during the ejaculation (Hare, 1985) ^[3]. Other sources of contamination include inflammatory foci in the genital tract, the skin of animals, faulty method of semen collection and equipment cleaning, hygienic status of animal handlers and laboratory personnel (Kendrick *et al.*, 1975) ^[4].

Materials and Methods

Preputial microflora in Boer kids: The Boer kids were restrained properly and the hairs around prepuce were cut in order to prevent contamination. Another person with sterile glove hand uncovered the entry of preputial cavity. Contact and friction of swab (M/s HiMedia Laboratories Pvt. Ltd. Mumbai) to mucosa was provided directly into the cavity without touching other parts of skin. Then, the swab was put in a sterile container and transported to the Department of Veterinary Microbiology Veterinary College, Bidar immediately for processing.

The preputial swab sample were inoculated to nutrient broth (M/s HiMedia Laboratories Pvt. Ltd. Mumbai), nutrient agar (M/s HiMedia Laboratories Pvt. Ltd. Mumbai), Nutrient broth culture tubes were incubated at 37 °C for 24-48 hrs aerobically and transferred to agar petri dishes and were incubated at 37 °C for 24 - 48hrs aerobically. Growing colonies were examined with Gram's staining method.

Gram staining procedure

1. Placing a smear or thin film of specimen on a glass slide.
2. Fixing the dried smear onto the slide, usually with heat, to make the microorganisms stick to the glass.
3. Staining the slide as flood the crystal violet for one minute.
4. Excess dye was poured off and washed gently in tap water and drained the slide against a paper towel.
5. The smear was exposed to Gram's iodine for one minute by washing with iodine, then adding more iodine and leaving it to on the smear until the minute is over.
6. Washed with tap water and drain carefully.
7. Washed with 95% alcohol for 30 second.
8. Washed with tap water at the end of the 30 second to stop the decolorization and drain.
9. Counterstained with 0.25% safranin for 30 second.
10. Washed, drained, blotted and examined under oil immersion.

Results and Discussion

Preputial micro flora in Boer male kids

The preputial swabs of Boer kids, nutrient broth before inoculation of preputial culture and nutrient broth after inoculation of preputial culture after 24 hours are depicted. The isolates of presumptive *Bacilli* spp. produced thick grayish white or cream-colored large, rough, whip like growth on nutrient agar, colony with uneven surface on nutrient agar. Under microscope it was observed as large rod shaped Gram-positive bacteria arranged in single or chain form (Plate 2 &3). *Staphylococcus* spp. were Gram positive cocci produced round, smooth, shiny, opaque, white to golden yellow colored colony on agar (Plate 4). and arranged in grapes like cluster (Plate 5). The rod shaped Gram-negative organisms *E. coli*, which produced smooth, circular, white to grayish white colonies on nutrient agar, arranged single, pairs or in short chain (Plate 6 & 7).

The micro flora isolated from the preputial cavity at the age of 8th and 9th months were *Bacillus* (42.86%) followed equally by *Staphylococcus* (28.57%) while *Bacillus* (57.14%) followed by *E. coli* (42.86%) and *Staphylococcus* (0%) in 10th months of age in Boer male kids. The *E. coli* (57.14%) followed by *Staphylococcus* (28.57%) and then followed by *Bacillus* (14.28%) at 11th months while *Staphylococcus* (57.14%) followed by *Bacillus* (28.57%) and *E. coli* (14.28%) at 12th months of age in Boer kids (Figure 5 and Table 1). The chi-square test indicated no significant difference in the incidence of *Bacillus*, *Staphylococcus* and *E. coli* within the months in which samples were collected.

Preputial micro flora in Boer bucks

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Similarly, Al-Delemi *et al.* (2009) [5] found that 66.66% of the total cultures of the preputial cavity were bacteriological positive. Nine different microorganisms were isolated from the preputial cavity of Iraqi bulls, rams and bucks, *E.coli*, *Streptococcus* Spp. and *Staphylococcus aureus* were the most prevalent showed an incidence (36.69, 20.13 and 19.42) percentage respectively. While *Pseudomonas aeruginosa*, *Corynebacterium pyogenes* (*Actinomyces pyogenes*), *Klebsiella pneumonia*, *Proteus mirabilis*, *Pasteurella* Spp. and *Bacillus* Spp. were next in the order of isolates with an incidence (6.47, 5.03, 3.59, 3.59, 2.87, 2.15) % respectively. The bacterial isolates were higher in the bulls than in the rams and bucks.

Zaid and Al-Zubaidy (2009) [6] also isolated four bacterial types before mating such as *Staphylococcus aureus*, *Streptococcus pyogenes*, *Proteus mirabilis* and *Brucella abortus*. Seven bacterial types were isolated after mating which were *Staphylococcus aureus*, *Streptococcus pyogenes*, *Proteus mirabilis*, *Brucella abortus*, *Pseudomonas aeruginosa*, *Escherichia coli* and *Listeria monocytogenes*. There was a clear effect of the mating on the bacterial pollution of the external genitalia of the endogenous rams.

Table 1: Preputial microflora in Boer kids

Organisms	Preputial microflora in Boer buck					Mean
	1 st month	2 nd month	3 rd month	4 th month	5 th month	
Bacillus (%)	42.86	42.86	57.14	14.28	28.57	37.14
Staphylococcus (%)	28.57	28.57	0	28.57	57.15	28.57
E. coli (%)	28.57	28.57	42.86	57.15	14.28	34.28

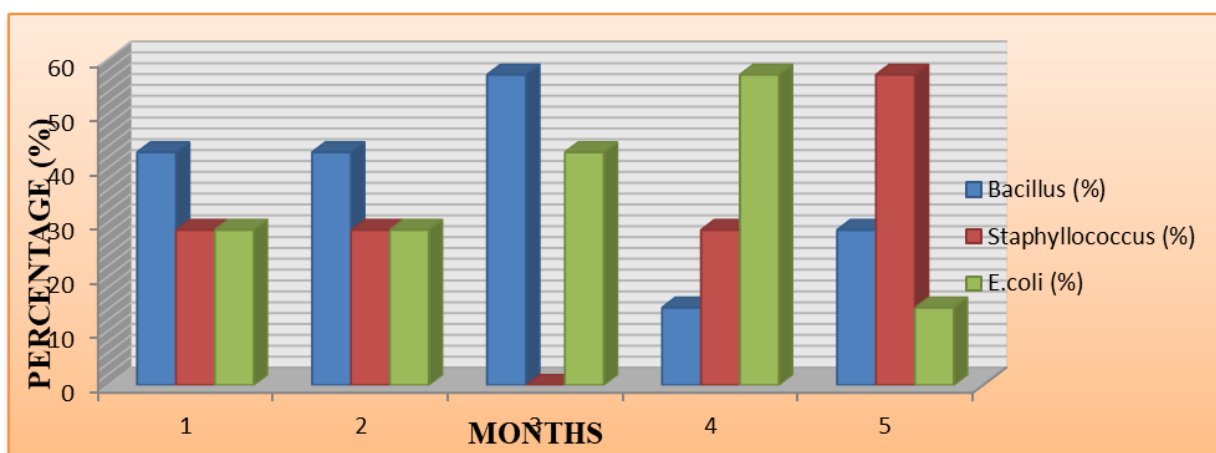


Plate 1: Preputial microflora in Boer kids



Plate 2: Colonies of *Bacillus* spp. showing large, rough, whip like growth on nutrient agar

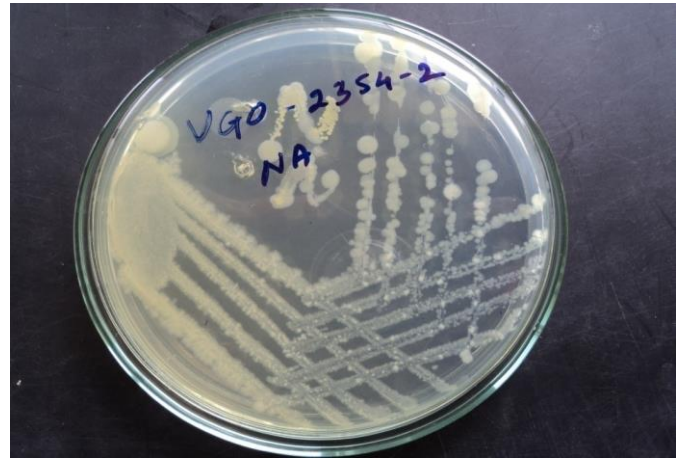


Plate 6: Colonies of *E. coli* spp. smooth, circular, white to grayish white colonies

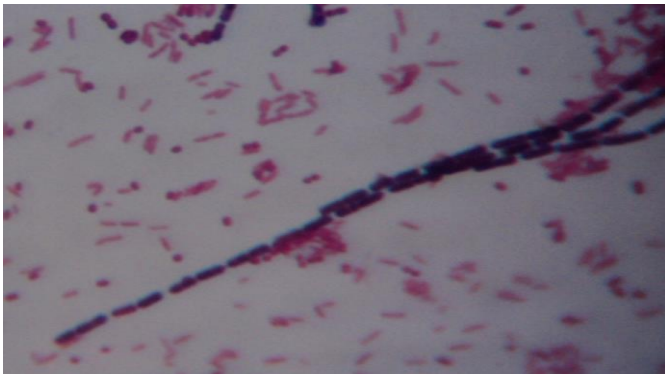


Plate 3: Gram positive *Bacillus* spp. rod shaped and in chain form (100x)

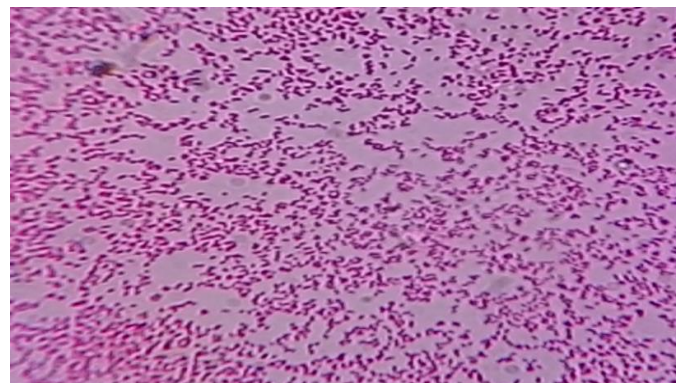


Plate 7: *E. coli* as Gram negative, pink colour, small rod shaped organism single or in pairs (100x)



Plate 4: Colonies of *Staphylococcus* spp. showing round, smooth, shiny, opaque, golden yellow growth on nutrient agar

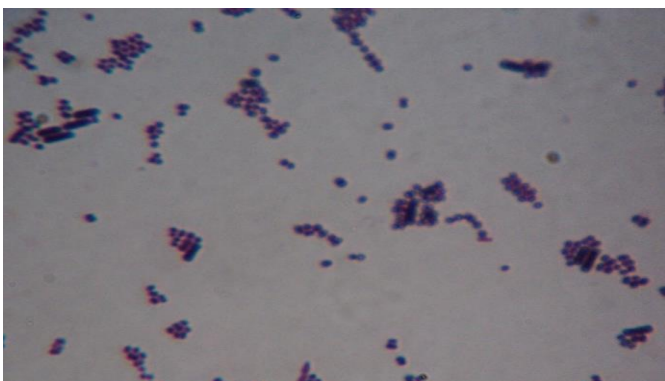


Plate 5: *Staphylococcus* spp. as Gram positive, spherical cell arranged in grape like cluster (100x)

References

1. Chemineau P, Malpoux B, Delegadillo JA, Gue'rin Y, Ravault JP, Thimonier J, *et al.* Control of sheep and goat reproduction: use of light and melatonin. *Anim. Reprod. Sci.* 1992;30:167-184.
2. Gupta VK, Sinha NK. Genetic growth traits of goats. *Indian J Anim. Sci.* 2001;71:256-261.
3. Hare WCD. Technical Series, Office International des Epizootics, 1985, No. 4.
4. Kendrick JW, Harlan GP, Bushnell RB, Kronlund N. Inflammatory in the genital tract. *Theriogenology*; 1975;4:125.
5. AL-Delemi DHJ, Karam KM, Jafar AM. The normal bacterial flora in the preputial cavity of Iraqi bulls, rams and bucks. *J Vet. Med. Sci.* 2009;4(1):23-29.
6. Zaid NW, Al-Zubaidy IA. The Effect of Natural Mating on the Bacterial Pollution in the Endogenous Ram. *Al-Anbar J Vet. Sci.* 2009;2(1):1-8.