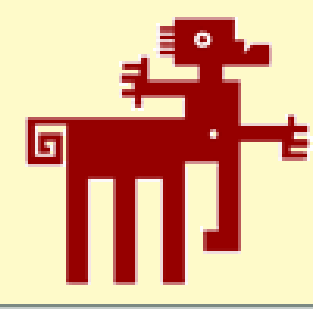


# Study of the vaginal microbiota of the dog without clinical signs of disease



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## OBJETIVES

The aim of this work is the **determination of vaginal microorganisms isolated in healthy bitches**, in our area, who have been visited the Reproduction Service of the Veterinary Hospital Foundation (FHCV).

It also aims to find whether there are **differences in cultures** depending on the **reproductive cycle** in the bitch. Finally, it will investigate if the **environment where the dog lives has some effect** on the results found in the cultures.

## INTRODUCTION

The microbiota skin and mucous membranes represents a **critical defense system**. The vaginal mucosa is also colonized by microbiota living in a state of **equilibrium** with the host, in this case the bitches, which seems to play an important role in the resistance to any kind of infection or reproductive disorder. Therefore, merely isolating bacteria does not constitute a basis for incriminating the isolate(s) with the reproductive disease.

Microorganisms **most commonly isolated** from the vagina of normal bitches are *Escherichia coli*, *β-haemolytic streptococcus*, *α-haemolytic streptococcus*, *Staphylococcus aureus*, *Pasteurella multocida*, *Proteus mirabilis*, *Bacillus sp.*, *Mycoplasma sp.* In less frequency also are isolates *Corynebacterium sp.*, *Pseudomonas sp.*, *Micrococcus sp.*, *Neisseria sp.*, *Klebsiella sp.* i *Moraxella sp.*

## MATERIAL AND METHODS

**Vaginal swab samples** were taken from **15 bitches** (between one and fourteen years old) of different breeds. Seven of this dogs come from breeders, the rest were household bitches.

Bitches were in **different stages of sexual cycle**: in proestrus, oestrus, diestrus, anoestrus or pregnancy. Stages of the sexual cycle were determined based on history, physical examination, vaginal cytology and serum progesterone levels.

Swabs were transferred to the microbiology laboratory to proceed to the cultures in different mediums. Microorganisms were identified using standard procedures.

## RESULTS

Mesophilic bacteria were isolated in 100% of the cultures. There was no *Mycoplasma spp.* and *Staphylococcus spp.* isolated. Neither we obtained results of anaerobic bacteria, yeast or fungi.

In the general, the commonest isolates (93,3%) were lactic acid bacteria (LAB) and enterobacteriaceae (60%).

Specifically, we found that the most common bacteria isolated from vagina were **lactic acid streptococcus** (73,3%), *E. coli* (53,3%) and **α – β haemolytic streptococcus** (46,67%). *Lactobacillus sp.* was isolated only in 13.3% of the plaques. *Proteus sp.* was isolated in 2 samples (20%) and *Pseudomonas sp.* only in 1 of them (6,67%) (Figure 1).

In reference to the estrous cycle phases, five of our dogs were in proestrus, five in oestrus, one in diestrus, one in anoestrus and three in pregnancy. Bacteria were always isolated during **proestrus and oestrus** and the incidence of positive cultures at these stages **was higher** than at other stages of the reproductive cycle (Figure 2).

Bacteria were **isolated greater extent in breeding females** than household dogs. *E. coli* was most frequently isolated in breeding bitches and potentially pathogenic bacteria was found in them (Figure 3).

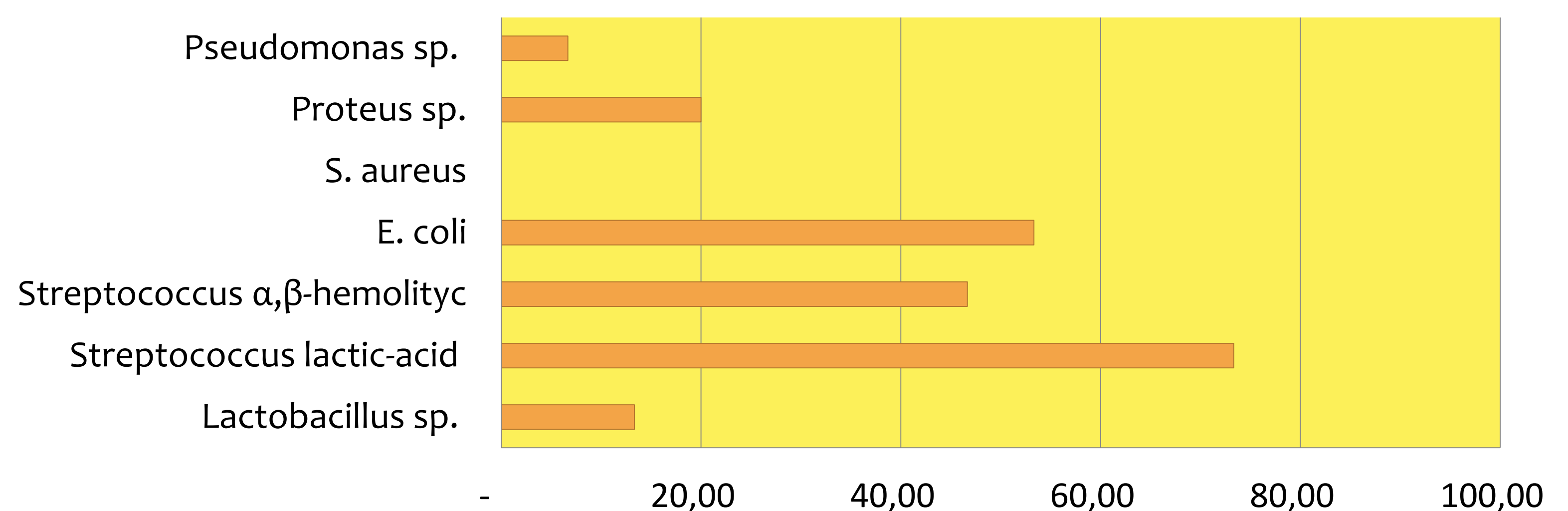


Figure 1. Frequency of isolation of microorganisms in enriched and pure cultures.

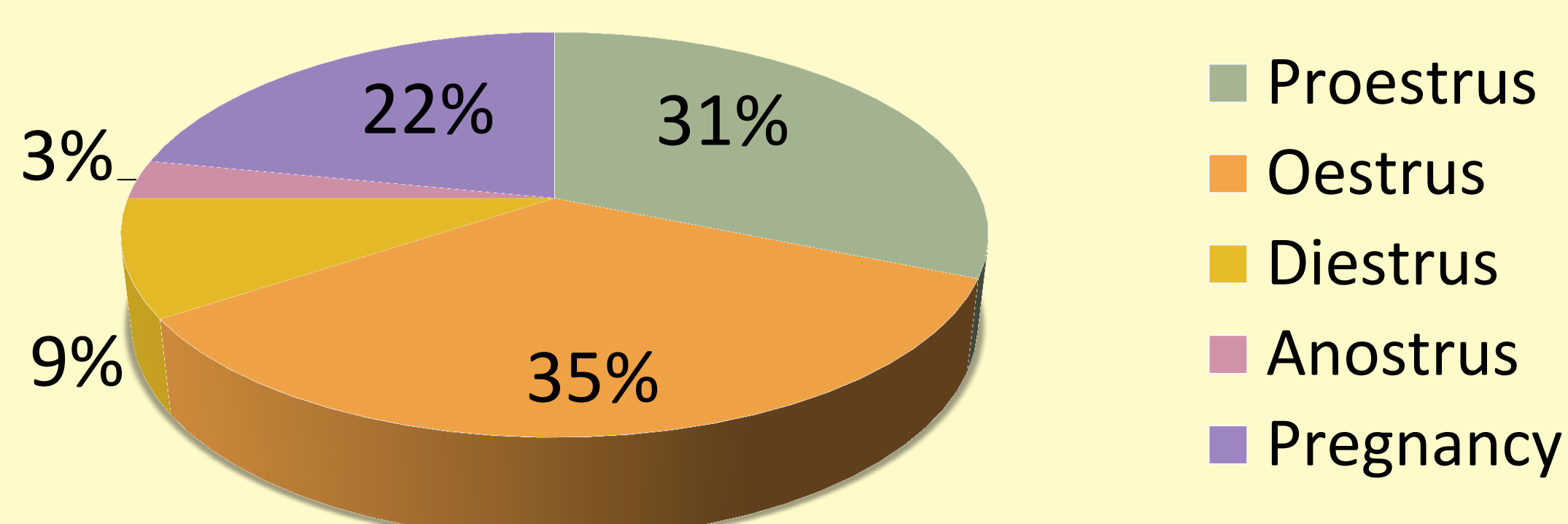


Figure 2. Microbiota growth in the cultures in the different phases of the estrous cycle.

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## CONCLUSIONS

The results of this study reveals that bacterial isolation in healthy bitches is important because **bacteria can become pathogenic** and it could have an influence on the future infertility or her future puppies. When positive cultures are obtained, other signs of disease must be present for a diagnosis of vaginitis and pyometre. Also we can indicate that the number and prevalence of the vaginal flora **were influenced by the estrous cycle**. The **hygiene of the environment** in which the dogs live seems to have a **direct influence** with the vaginal microbiota. The dogs that live in dirty environments have more growth of problematic bacteria in his vaginal cultures.