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Are antibiotics still truly needed in bovine embryo collection media ? A preliminary study

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PURPOSE

- ✓ The OIE recommends the addition of antibiotics to bovine embryo collection media (OIE Terrestrial Code, Chapter 4.8.6),
- ✓ Embryos undergo 10 baths of IETS regulatory washes containing antibiotics.
- ✓ A pressing demands for veterinarians to decrease the use of antibiotics.

The aim of this study was to evaluate whether or not the removal of antibiotics from collection media leads to an additional risk compared to the standard procedure

MATERIAL AND METHODS

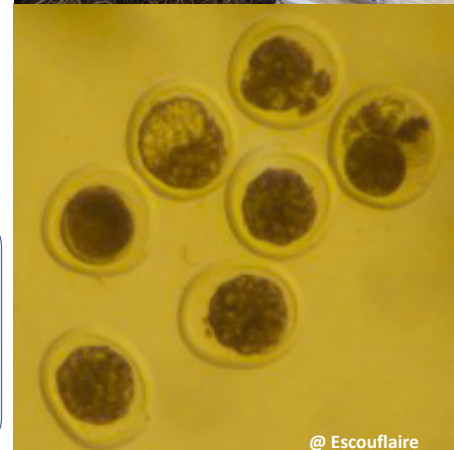
80 Prim'holstein donors (12.9 months average age) were divided into two groups,

- **Batch A** (control group) : n=40; collected with EuroflushND with antibiotics (IMV technologies)
- **Batch B**: n=40; collected with Euroflush without antibiotics (IMV technologies).

All the embryos underwent ten washes containing gentamicin 0.05g/L and kanamycin 0.1g/L before transfer (fresh or frozen).

The sample from the last wash was tested for bacterial count (<100 CFU/mL considered free from pathogens), the sample from the collection medium was tested for mycoplasma .

The size of this study was determined considering a logistic regression model, with a probability of non-infection of 0.99 for the standard procedure (with antibiotics) and of 0.95 for the batch without antibiotics, a power of 0.8 and a significance level of 0.05.



RESULTS

- ✓ **Bacterial contamination**: no statistical differences between A and B (exact Fischer test, p-value = 0,3467).
- ✓ **Mycoplasma**: not found
- ✓ **Number of viable embryos** : no significant differences (n=196, p-value=0.42 Wilcoxon test),
- ✓ **Success rate of embryo transfers**: not significantly different (p-value=0.84 χ^2 independence test)

CONCLUSION

The removal of antibiotics from the collection medium does not induce additional bacterial contaminations.

These first results are very encouraging, further studies with more samples are necessary to confirm the results.

| | Batch A (ATB+) | Batch B (ATB-) | total |
|--|-------------------|-------------------|-----------|
| < 100 CFU/ml Free from pathogens | 35 | 40 | 75 |
| > 100 CFU/ml Contaminated | 3 | 1 | 4 |
| Presence of mycoplasma | 0 | 0 | 0 |
| Total | 38 | 41 | 79 |

Table 1 : Results for microbiological controls.

CFU: Colony- forming Unit

| | fresh embryos transferred (n) | frozen embryos transferred (n) | % success rate for embryo transfer |
|--------------------|--|---|--|
| Batch A | 39 | 50 | 52% (n=44) |
| Batch B | 38 | 55 | 53% (n= 49) |
| Total | 77 | 105 | 53% (n= 93) |

Table 2: Results for embryo transfer succes rate.