# Urinary tract infections in sows in Malaysia

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## Introduction

In Malaysia, the number of urinary tract infections (UTI) in sows is probably underestimated, as humidity and heat are important favoring factors (1). This study aimed to assess the prevalence of UTI, to determine their causative agents and the possible impact on health status and performance parameters.

## Materials and Methods

Three Malaysian operations of respectively 1500 (A), 2000 (B) and 3000 (C) sows were included in the survey. Urine was sampled from late gestation sows at midstream from natural urination in sterile 50 mL polyethylene containers. All sows which could be sampled were included.

In order to detect the UTI two methods were implemented: first nitrite detection in fresh urine, which is consider pathologic (2), second bacterial identification and concentration in the fresh urine. Nitrite detection was performed using nitrite strip test 5300 Combur® 9 strip (Roche, Basel, Switzerland). Bacterial culture was performed following culture on a Dip Slide from Oxoid (Thermo Fisher Scientific, Waltham, MA, USA) with Mac Conkey Agar No. 3 medium and CLED Medium. The positivity threshold for urine infection based on bacterial count was set to $10^5$colonies/mL (B+). Bacteria genus identification was performed only in these positive samples.

## Results and Discussion

UTI detection results and bacteria identification are summarized in Tables 1 & 2.

**Table 1**. Chemical and bacteriological positivity for UTI in urine samples collected in 3 different Malaysian farms:

| Farm | Total | Nitrite+ | | Nitrite - | | % | % |
|---|---|---|---|---|---|---|---|
| | | B+ | B- | B+ | B- | Nitrite+ | B+ |
| **A** | 40 | 8 | 2 | 8 | 22 | 25% | 40% |
| **B** | 30 | 7 | 1 | 5 | 22 | 27% | 40% |
| **C** | 78 | 9 | 3 | 11 | 55 | 15% | 26% |
| Total | 148 | 24 | 6 | 24 | 94 | 20% | 32% |

Nitrite+/Nitrite - : positive/negative samples assessed by nitrite strip; B+/B-: positive/negative samples following bacterial culture.

Thirty-two percent of the sows (48/148) were positive for bacteriological analysis with a prevalence within the tested farms ranging from 26% to 40%.

The nitrite test allowed detecting only 56% of the total UTI. Indeed, this test does not detect UTI caused by non-nitrite productive bacteria (3) and the production of nitrite needs the urine to stay at least 2-4h hours in the bladder before miction. Consequently, this rate may be increased by sampling the first urine in the morning.

**Table 2**. Bacteria identification

| Identification | Number of samples |
|---|---|
| *E.coli* | 40 |
| *E.coli+Proteus* | 1 |
| *E.coli+Pseudomonas* | 1 |
| *E.coli+Bacillus* | 2 |
| *Acinetobacter* | 1 |
| *Klebsiella* | 1 |
| Unidentified colony | 2 |

Most of bacteria identified were *E.coli*, in few cases (9%) associated with other bacteria. All are germs commonly responsible of UTI in Europe (4).

*Correlation with reproduction parameters*

No statistically relevant correlations were found, probably because of the low number of sampled sows in each farm. If we consider all the sows from the 3 farms, the nitrite and bacteriology positive ones tend to have more stillborn than negative ones (p=0.082) and less live born piglets .

## Conclusions

In conclusion, the study showed that there are UTI in Malaysia and that *E. coli* is involved in most of the cases. In addition, this study tended to show a correlation between UTI and the number of stillborn piglets and live born piglets.

Urinary tract infections are an underestimated problem in Malaysia. A systematic detection with nitrites strip would be an easy and fast way to check the status of Malaysian farms. When more than 20% of the heard is affected, a systematic treatment should be considered (5). In Malaysia the daily bathing of the sows in open houses farming is a common practice. Farmers use it to cool down the animals and wash the pens, leaving them on a constant wet flooring. The impact of such practice on the urinary tract health has not yet been measured but might probably have negative consequences.

## References

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