

NEW DIAGNOSTIC TOOL FOR THE DETECTION AND QUANTIFICATION OF PATHOGENIC BACTERIA IN BOVINE MILK SAMPLES FROM DAIRY FARMS IN THE UK

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OBJECTIVES

The use of an FTA card for PCR-RT testing of a milk sample (STARTCHECK®) is a reliable diagnostic tool. This new methodology enables the collection and conservation of the sample and the detection of major mastitis causative agents. PCR-RT testing (STARTCHECK®) can be used to complement Somatic Cell Count (SCC) and bacteriological culture to monitor mastitis at a herd level. This tool (STARTCHECK®) has been used worldwide since 2009 and milk samples from 44 different countries have been analysed. The aim of this study is to show the results obtained in the UK dairy farms.

MATERIALS AND METHODS

A total of 366 Bulk Tank Milk (BTM) and Mastitis Pool Milk (MPM) samples were collected from different dairy farms in the UK. The samples were taken according to the kit (STARTCHECK®) instructions [Impregnating two designated areas (one for BTM and the other one for MPM) on the FTA card with 250µl of the respective milk sample] and sent by ordinary mail to the DIAGNOS service of Laboratorios HIPRA SA, Amer, Spain (Figure 1).



Figure 1. STARTCHECK® KIT

The samples were processed and tested using the Real-Time Multiplex PCR assay as previously described, to detect the presence of *Staphylococcus aureus*, *Escherichia coli*, Coagulase Negative Staphylococci (CNS) and Coliform bacteria. The semiquantitative results were determined as positive or negative based on the Cycle threshold (Ct) values, with Ct values below 37 being considered as positive.

RESULTS

All samples collected in the UK using this tool (STARTCHECK®) were analysed in the specialized HIPRA facilities by using a PCR-Real Time test. Results were obtained in a semi quantitative way and the positiveness to each mastitis pathogen was as follows (Figure 2):

- 98% of the bulk tank milk samples were positive to Coagulase Negative Staphylococcae.
- 63% of the bulk tank milk samples were positive samples to *E. coli*.
- 13% of the bulk tank milk samples were positive samples to other coliforms.
- 22% of the bulk tank milk samples were positive samples to *Staphylococcus aureus*.

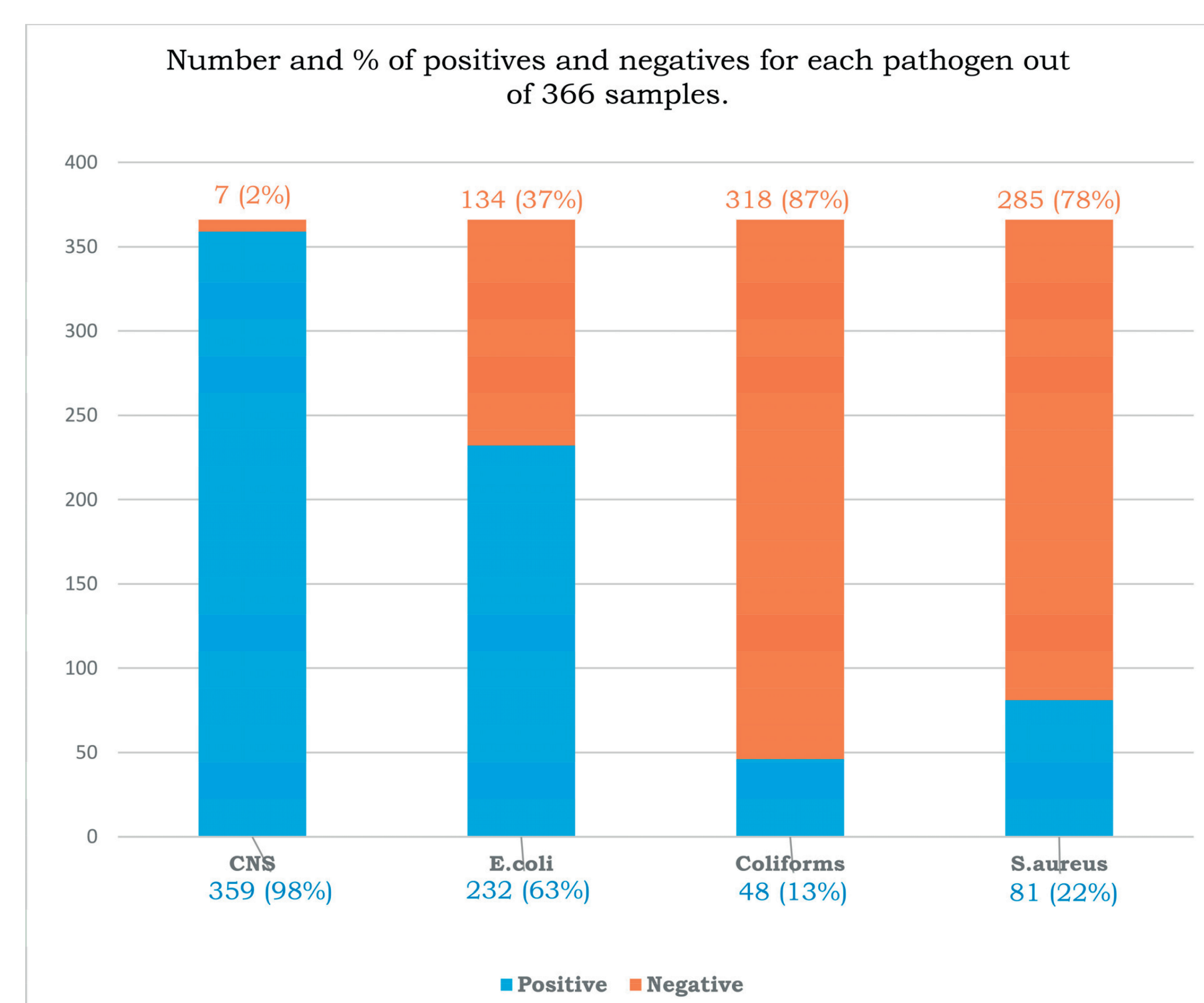


Figure 2. Number and % of positives and negatives for each pathogen out of 366 samples.

CONCLUSIONS

FTA Card milk sample for PCR-RT testing (STARTCHECK®) is a good diagnostic tool to identify pathogenic bacteria present in milk samples. The high specificity and sensitivity circumvents limitations experienced with bacteriology. Compared with worldwide data, it should be noted that the presence of *Staphylococcus aureus* in UK samples (22%) is higher than samples obtained from other countries (6-10%). Further data will be discussed in more detail during the WBC congress.

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