The future of
food production
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# DNAPROKON: 16S rRNA gene sequencing as a tool for process control in the food industry

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## INTRODUCTION

16S rRNA gene sequencing provides faster and much more detailed information compared to traditional microbiological tests, resulting in knowledge on the microbial composition in products and at production sites. This allows the producer to act and ensure optimal shelf life and quality.

Data management is a challenge and providing the producer with user friendly software for assessment of data is the key to ensure easy and appropriate use of the results.

## AIM

To demonstrate the use of 16S rRNA gene sequencing as a process control tool in the meat industry and to create a software system that can support the end user in the data analysis.

## CONCLUSION

The project has demonstrated that 16S rRNA gene sequencing has the potential for the use as a process control tool in the food industry for:

- fast identification of bacteria causing spoilage
- identification of spoilage bacteria in freshly produced products and production environment

**Figure 1:** MinION device from Oxford Nanopore Technologies used for sequencing

## EASY-TO-USE INTERFACE

The interface that end users see should be intuitive and data should be easy to interpret.

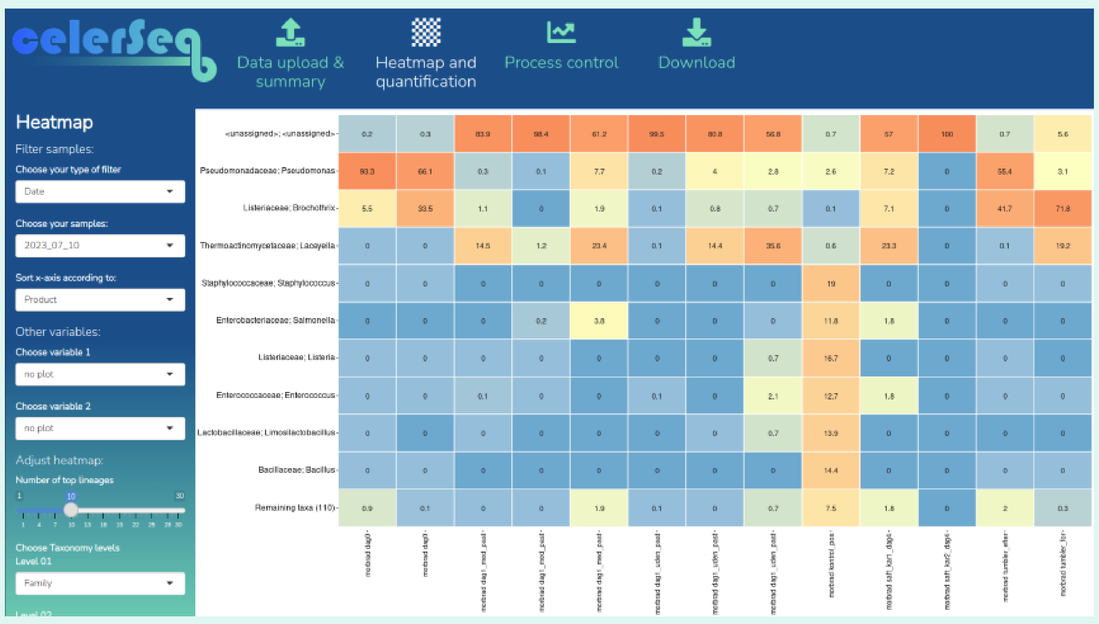


**Figure 2:** User interface showing the bacterial composition of food samples and environment in a production company

## SAMPLES FROM PRODUCT AND ENVIRONMENT

Spoilers identified in products were found at the same production site during a 2-year study.

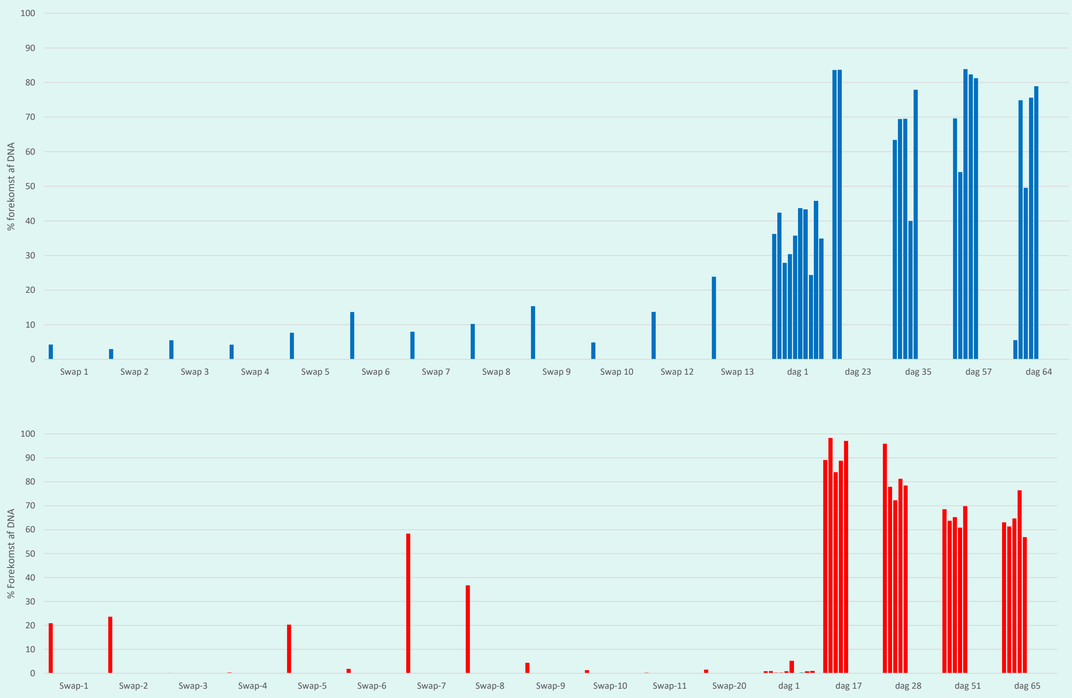


**Figure 3:** Two examples of bacteria present in a product at different days of storage and the presence of the same bacteria in swaps from the corresponding production sites.

## ACKNOWLEDGEMENTS

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