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## Introduction

Among the culture-independent techniques, the progress of high-throughput sequencing and bioinformatics have contributed to place metagenomic analysis as a new tool to study complex microbiota.

## Objectives

Description of bacterial population in the core and in the rind of four cheeses :

- Two Belgian soft cheeses with washed rind made with raw milk
- One Belgian soft cheese with washed rind made with pasteurized milk
- One French creamy soft cheese made with raw milk.

## Results and discussion

In total, 48 genus and 163 species were identified for all samples.

*Lactococcus lactis* and/or *cremoris* are the most representative species in the core of the four cheeses.

On the rind of cheese, the predominant species are *Psychrobacter glacinola*, *Staphylococcus eqorum*, *Corynebacterium casei* and *Marinilactibacillus psychrotolerans*. The presence of *Brevibacterium* spp and/or *Psychroflexus* spp gives the orange color on the rind of soft cheeses.

These species are present in different proportions depending on the origin and the cheese making process. They are well known for their technical properties on the rind of cheese.

The two Belgian soft cheese made with raw milk are composed of many different bacterial species. While the cheese made with the pasteurized milk contains less species, mainly composed by *Lactococcus lactis* (97,6%) in the core.

An unexpected result is the lack of diversity of the a French creamy soft cheese made with raw milk with only two predominant species. *Lactococcus cremoris* and *Leuconostoc citreum* are present in the core (94,9% and 4,9% , respectively) and on the rind (93,8% and 5%, respectively). Compared with the others cheeses made with raw milk, this result is surprising.

## Materials et methods

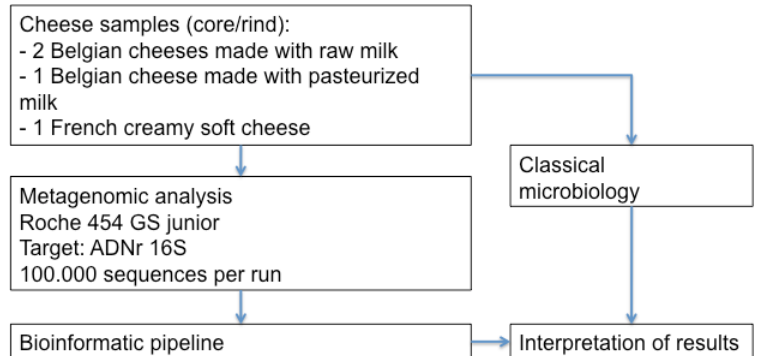


Fig. 1: Description of a metagenomic analysis

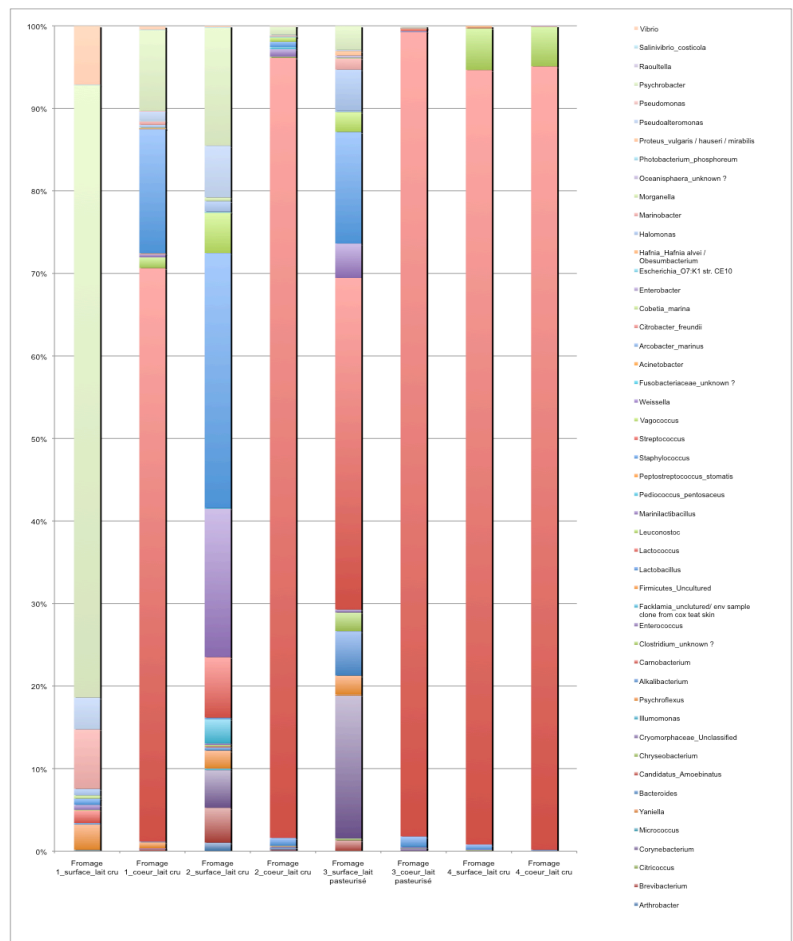


Fig. 2: Proportions of identified bacteria (genus) on the rind and in the core of the four selected cheeses

## Conclusions

The cheese microbiota plays a central role in cheese-making. The subtleties of cheese character, as well as the shelf-life and the safety, are largely determined by the composition and evolution of this microbiota.

Among the culture-independent techniques, the metagenomic analysis gives a rapid, accurate and precise description of microbiota in foods.