

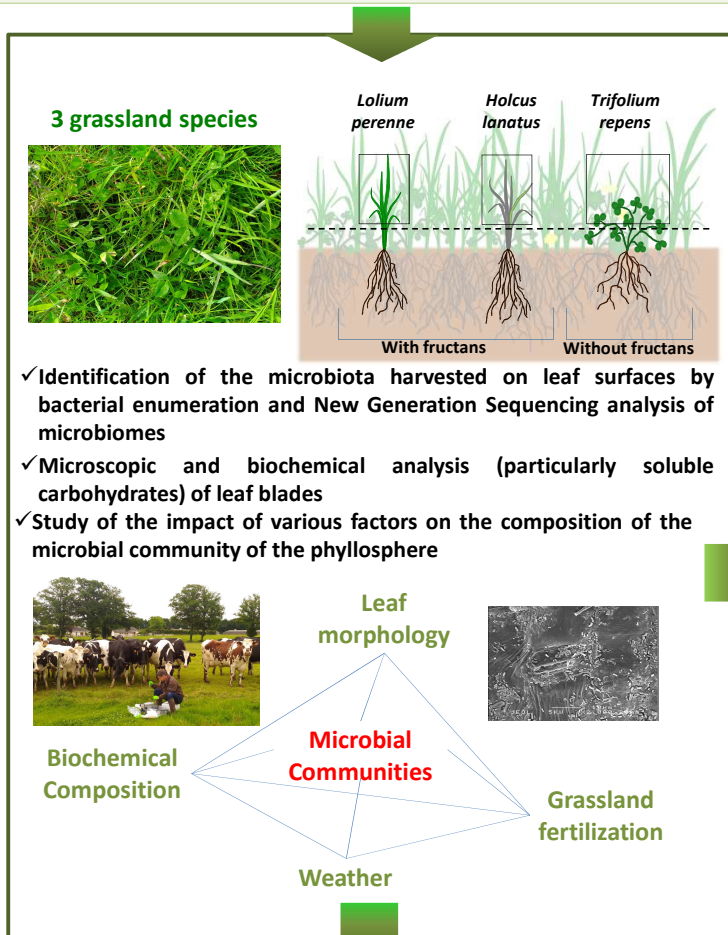
Microbiota diversity of the phyllosphere of pasture plants

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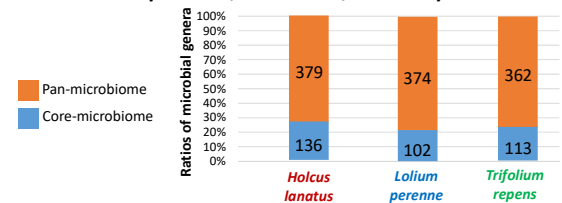
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Microbial transfer from grass to milk

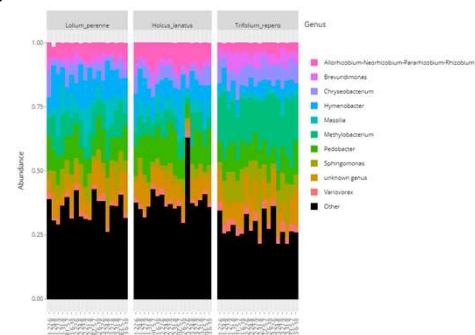
The diversity of microorganisms located at the leaf surface is largely unexplored in pastures whereas it constitutes a source of microbial diversity for raw milk. In fact, the composition and the diversity of milk microbial communities depend on the microbiota found on the skin of the udders. During grazing, microorganisms leaf surfaces can be a source of microbial diversity for milk, by contact of the udders with the grass. Biochemical composition and leaf morphology, related to species and grassland management, will influence the composition of the microbial community of the phyllosphere. Furthermore, the qualitative and quantitative composition in carbohydrates, which depends on grass species and on the pasture system, can thus influence the diversity of microorganisms associated to the phyllosphere. Our objective was to investigate the microbial diversity of the phyllosphere of three dominant plant species from permanent grassland managed by cattle grazing.



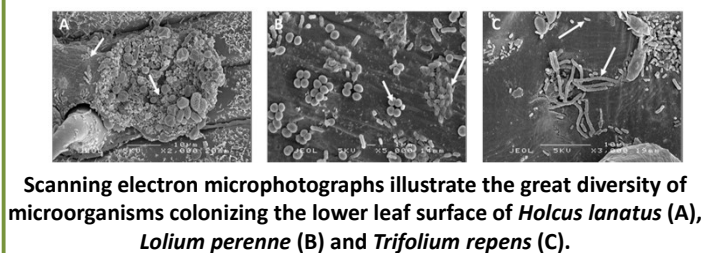
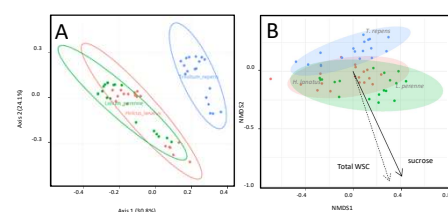
✓ The 16S rRNA gene-based metagenomics analysis exhibited similar trends in genera composition for the phyllosphere microbiome of *L. perenne*, *H. lanatus*, and *T. repens*.



✓ The phyllosphere bacterial community composition varied among plant species whereas it did not vary according to the pasture fertilization and to the collecting period. The phyllosphere bacterial communities of *T. repens* samples were dominated by *Methylobacterium*. *Spingomonas* and *Pedobacter* were the second and third most abundant genera in the *T. repens* microbiome.



The *L. perenne* bacterial community was the least diverse of the three plant species and *H. lanatus* the most diverse (A). According to NMDS ordination (B), when the plant species were taken together, the structure of the microbiota was significantly driven by the levels of total WSC and sucrose.



The two main drivers of the microbiota composition of the phyllosphere in pastures are the plant leaf plant species identity and the soluble carbohydrate composition of the leaves.

