



**ABSTRACTS**

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## INSIGHTS GAINED FROM METAGENOMIC SEQUENCING OF APPLE FRUIT SURFACE (CV. PINOVA)

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Plant microbial communities (microbiota) living at the surface of fruit have been the source of the majority of biocontrol agents (BCAs). Despite this interest, their role as a community has been poorly studied so far. They holistic study was an unattainable objective due to the absence of techniques to survey microbial communities and their evolution. The recent developments in high-throughput sequencing (HTS) have now enabled the holistic analysis of the microbiota genomes. A pioneering assay has been carried out to get insight into the microbiota of apple surface through metagenome sequencing. Apple from Pinova cultivar have been sampled in orchard and the microbiota isolated. After DNA extraction, the HTS assay generated 14.5 Gbases which were assembled in 133,888 contigs. These contigs provided useful information on taxonomic composition of the microbiota. A total of 1398 bacterial species and 397 fungal species have been identified. Among them, 22 species corresponded to known apple pathogens (*Penicillium expansum*, *Penicillium spp*, *Botrytis cinerea*, *Monilinia fructicola*, *Nectria haematococca*, *Glomerella cingulate*, *G. graminicola*, *Alternaria alternate*, *Alternaria brassicicola*, *A. citri*, *A. longipes*, *A. solani*, *A. tenuissima*, *Fusarium solani*, *F. oxysporum*, *F. culmorum*, *F. lateritium*, *Mucor circinelloides*, *M. hiemalis*, *F. racemosus*, *Venturia inaequalis*, *Cladosporium cladosporioides*). In addition, several contigs were assigned to species or genus of known BCA strains like *Pichia canadensis*, *Bacillus sp.*, *Debaryomyces hansenii*, *Aureobasidium pullulans* and *Pantoea vagans*. These results will be discussed. In any case, these results underline a very diverse microbial community whose role needs to be characterized. In this line, the functional analysis (gene function determination) of the contigs is ongoing.

**Key words:** Microbiota; Apple; High-Throughput Sequencing