

# 47<sup>th</sup> World Congress on Microbiology

September 10-11, 2018 | London, UK

## *Sphingomonas turrisvirgatae* a new agar-degrading *Sphingomonas* species

P Marmo<sup>1</sup>, M M D'Andrea<sup>2</sup>, F Casu<sup>3</sup>, G Di Lallo<sup>1</sup>, L Migliore<sup>1</sup> and M C Thaller<sup>1</sup><sup>1</sup>University of Rome "Tor Vergata", Italy<sup>2</sup>University of Sienna, Italy<sup>3</sup>The University of Auckland, New Zealand

*Sphingomonas turrisvirgatae* (type strain MCT13<sup>T</sup>), was isolated from a drainage ditch within a disused system of constructed wetlands, flowing through uncultivated land. Its growth on agarized media is associated with clearing and pitting around the colonies, a feature so far never reported among sphingomonads. The MCT13<sup>T</sup> isolate is characterized by a quite narrow carbon sources assimilation spectrum, and agarase activity is enhanced on poor media. This trait suggests the existence of nutrients-related regulation mechanisms, and/or the possibility of associative interactions with other environmental microorganisms. The analysis of the *S. turrisvirgatae* (MCT13<sup>T</sup>) draft genome, has detected the presence of four different agarase-like enzymes encoding genes. Up to now, agarolytic activity has been more often found in marine-bacteria and has not been observed in any of the characterized or validly published *Sphingomonas* species. A BLAST search, using the amino acid sequences of the four putative agarases, showed the best alignment scores (48 to 71% identity) with three proteins of the uncharacterized *Caulobacter* sp. X isolate, where the genes order is also partially conserved. The preliminary bioinformatics analyses have also detected the presence of genes potentially useful in bioremediation or in industrial applications, rendering *Sphingomonas turrisvirgatae* MCT13<sup>T</sup>, a possible tool for both the degradation of complex carbohydrates and pollutants.

### Biography

P Marmo is a PhD student in Evolutionary Biology and Ecology, Department of Biology, University of Rome "Tor Vergata", 00133 Rome, Italy. His PhD project is centered on the study and characterization of environmental bacteria which could be potentially used either in bioremediation or in industrial applications. A second research topic is the screening and characterization of bacteriophages from environmental samples (see doi: 10.1038/s41598-017-02788-9). He teams up with both teaching and research activities performed in the Laboratory of Microbiology.

pasquale.marmo@uniroma2.it

### Notes: