Ecological functions and environmental fate of exopolymers of Acidobacteria

Costa, O.Y.A.

Propositions

1. The adaptation of *Granulicella* sp. WH15 to high concentration of cellobiose involves an initial stress response (this thesis).
2. Targeted metabolic studies can unravel possible hidden biotic interactions and biotechnological potential in the soil microbiome (this thesis).
3. Uncharacterized groups of microorganisms, belonging to phyla such as *Acidobacteria* and *Planctomycetes*, have an underexplored biotechnological potential (this thesis).
4. Acidobacterial EPS can be used in industry as emulsifiers but also applied for the enrichment of microbes capable of degrading complex polymers (this thesis).
5. Acidobacterial genomes harbor a large diversity of hydrolase encoding genes which might be important in carbon cycling and useful for industrial applications through heterologous expression.
6. *Granulicella* genus of *Acidobacteria* and other less characterized genera of *Planctomycetes* such as *Singulisphaera*, might interact with each other, which can lead to challenging and interesting studies.
7. There are no unculturable microorganisms, there are microorganisms that we do not know yet how to cultivate.
8. The ecology of uncultivated microorganisms will only be completely elucidated when we learn how to cultivate them in laboratory, which can be achieved by the use of unusual carbon sources and specific trace elements.
9. In the environment as well as in academia, collaborations are more beneficial than competition.
10. Half the time used for data analysis is spent with software problem-solving.
11. Mental health is a highly relevant aspect of academia that is often neglected and should be an integral component of training and supervision.

Propositions belonging to the PhD thesis entitled:

"Ecological functions and environmental fate

of exopolymers of *Acidobacteria*"

Ohana Yonara de Assis Costa

July 9th, 2020