



PROJECT SUMMARY

Ref No.: MRIC-SBR-P14	Title: Plant-assisted bacterial bioremediation as an innovative approach for targeting crude oil degradation
Local Company: Axonova Ltd	
Project Leader	
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TECHNICAL ABSTRACT	
<p>Mauritius is currently facing an ecological disaster where a Japanese-registered ship, MV Wakashio, ploughed straight into the lagoon at Pointe D'Esny on 25 July 2020. In early August 2020, crude oil from the ship started to leak into the lagoon affecting the rich and world-renowned biodiversity of marine fauna and flora, people living on the coastline and those earning a living from the sea. To overcome this disastrous situation, we are proposing the use of plant-assisted bacterial bioremediation for clean-up of crude oil spills. Three bacterial species which have been previously reported for their oil-digesting activity will be used individually and as a mixture in-vitro to validate their oil degradation activity over time using biochemical assays. The effect of these oil-digesting bacteria on the normal bacterial flora will also be assessed through 16S RNA sequencing and qPCR. After validation of the highest oil-degrading activity by the bacterial population(s), a plant-assisted bioremediation system will be set up to assess the synergistic action between plants and oil-digesting bacteria on oil degradation rate. This study will not only help in sustaining the marine and coastal environment, but also engenders various social and economic implications.</p>	
Key Words: Oil spill management, bioremediation, oil-degrading bacteria, plant-assisted bioremediation	