

TITLE: MARINE FUNGI CAPABLE OF DEGRADING DIESEL FROM PARANÁ, BRAZIL.

AUTHORS: FARIA, L.C.; MACEDO, A.F.B.; ISHII, F.K.; KOLM, H.E.

INSTITUTION: UNIVERSIDADE FEDERAL DO PARANÁ, CENTRO DE ESTUDOS DO MAR, CAIXA POSTAL 61, 83.255-000 PONTAL DO SUL, PONTAL DO PARANÁ, BRASIL.

ABSTRACT:

Fossil fuels massive use has been causing serious environmental impacts and one point to be discussed is what would be the best method to rehabilitate these areas. Hydrocarbon bioremediation is considered a cheaper and more efficient alternative than physical and chemical treatments. Hydrocarbon bioremediation is an eco-friendly strategy, which focuses on isolating microbial consortiums that are capable of degrading petroleum and its derivatives. The aim of the present work was to investigate the capacity of different fungi to degrade diesel oil. The fungi were collected in the Laranjeiras Bay, in the Paranaguá Estuarine Complex (25°16'34"S; 48°17'52"W). To grow them a mineral solid culture media was used with subsequent addition of 0,25%.L⁻¹; 0,5%.L⁻¹ and 0,75%.L⁻¹ of diesel oil. The colonies were incubated for twelve days, at 28°C, and the growth halo was measured every three days. From eighteen different fungus morphotypes, ten were able to grow with a diesel oil concentration of 0,25%.L⁻¹ and 0,5%.L⁻¹, and just these ten were tested at the highest concentration. The best results were obtained with colonies from the genus *Trichoderma* sp., which grew 8 cm (the total diameter of the Petri dish) in only three days at the two lowest concentrations, and at twelve days at the highest. Colonies from the genus *Curvularia* sp. also presented satisfactory results, reaching 8 cm after 12 days at the lowest concentrations. These results suggest that fungus from Laranjeiras Bay are adapted to hydrocarbon chronically contaminated environments, since vessel traffic has been constant for years in the Paranaguá Estuarine Complex. Further studies with the genera that have shown the best results would help to better understand the process of hydrocarbon chain degradation by fungi, and even test the utilization of them to remediate contaminated environments.

Keywords: Biorremediation, Hydrocarbons, *Trichoderma* sp.