

## Proteomic Characterization of *Pseudomonas putida* Isolated from Amazonian Region

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**Introduction:** The Amazonian region has a wide genetic biodiversity of microorganisms, providing a major source to investigate the molecular and unique functions that these organisms can present. According to the literature, the genus *Pseudomonas* can transform different carbon sources, including aliphatic and aromatic hydrocarbons, making them interesting for bioremediation studies. In this context, the shotgun proteomics is an approach that could help to understand the molecular processes that could be associated to the potential of degradation of petroleum. **Objective:** The study aims to investigate and characterize the proteomic profile of *Pseudomonas putida* isolated from Amazon Region. **Material and Methods:** The *Pseudomonas putida* strain 16 was isolated from the plant *Eichhornia crassipes* found in refinery Isaac Sabbá (REMAN) - Amazon. This bacteria was cultivated in large scale with different growth phases (7 and 72 hours) and sources of carbon (petroleum and glycerol, respectively), being the experiment performed in triplicate. To evaluate and compare the proteomic profiles, the resulting samples were trypsin digested and submitted to the reverse chromatography online with tandem mass spectrometry (Orbitrap XL). **Results and Discussion:** In our analysis, it was found 567 proteins. We observed that the higher number of identified proteins were in the grown phase to 7 hours. Proteins related to the carbon metabolism and reduction reactions were verified specially in samples with petroleum as source of carbon. Examples of these proteins are carbon storage regulator and ubiquinol-cytochrome c reductase. Detailed examination in functional analysis revealed that most of proteins belonging to redox reactions, translation and metabolic processes as well as the main associations of domain protein were the aldehyde dehydrogenase and pyridine nucleotide-disulfide oxidoreductase family, which can be related to the degradation of alkanes. **Conclusions:** The results indicate that *Pseudomonas putida* S16 in contact with petroleum presents proteins related to biodegradation processes, suggesting the great potential of this specie for bioremediation studies.

**Keywords:** *P. Putida*, Shotgun proteomics, Bioremediation.

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