

Degradation of fluoroanilines by the wild strain *Labrys portucalensis*

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Aromatic amine compounds, many of them with halogenated substituents, constitute a major class of environmental pollutants that have been released into soil and water due to extensive use in industries and agriculture. Biodegradation has been found to be a major route for the removal of this kind of toxic and recalcitrant pollutants from the environment.

Whereas the degradation of mono- and dichlorinated anilines has been studied, very little is known about fluorinated anilines. Therefore, the objective of this study was to investigate, under aerobic conditions, the degradation of 2-, 3- and 4-fluoroaniline by a previously isolated pure bacterium, designated as strain F11. This microorganism, identified as *Labrys portucalensis*, was isolated from a contaminated site in northern Portugal and has the unique capacity to utilize fluorobenzene as a sole carbon and energy source. The results of the biodegradation of 2-, 3- and 4-fluoroaniline by strain F11 showed that this microorganism is able to completely degrade 2- fluoroaniline and partially degrade 4- fluoroaniline, when these compounds are present as a sole carbon and energy source. Biodegradation of these two compounds also occurred, although at a lower rate, in the absence of an external nitrogen source in the culture medium.

To our knowledge, this is the first study reporting the biodegradation of 2- and 4-fluoroaniline as a sole carbon and energy source by a pure microbial culture.

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