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Evaluation of a native strain isolated from chronically hydrocarbon-contaminated sites.

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The industrial center Zárate – Campana represents one of the most important petrochemical areas in Argentina with several companies carrying out petrochemical activities. Due to spills produced in the area during last 50 years, it has generated hydrocarbon pollution on the site.

In order to evaluate growth conditions of a native strain from chronically hydrocarbon-contaminated sites, in the present work we studied an environmental strain identified in the genus, which can degrade crude oil. Different cultures conditions were assayed in Erlenmeyer flasks, containing minimal salt medium and supplemented with a mixture of hydrocarbons (HC) of various molecular weights as only carbon source. *Ochrobactrum sp* strain (currently being a molecularly characterized) was cultivated at two temperatures: 20 and 25 ºC, and several substrate concentrations, 2, 4.5, 6, 7, 8 y 10 % V/V. Cultures were kept at 135 rpm and pH=7 during 14 days. Bacterial growth was estimated by cell dry weight method, for this a sample of 18 mL culture broth was collected at every 24 h, drying at 80ºC.

Many bacteria in nature have been found to be capable of degrading crude oil, using it as their sole carbon source. Experiment showed that this strain can use HC as its carbon source. The maximum biomass concentration was obtained when the bacteria was cultured in media with 4.5 % of HC at 20ºC and 25ºC (1,33 g/L and 1,75 g/L) respectively at day 8. In addition, a significant biomass concentration was observed too when were used 6% and 7 % of HC in both temperatures between 7 and 13 days of cultured.

According to these results, the environmental-derived strain *Ochrobactrum sp* isolated from hydrocarbon contaminated sites, has the ability to degrade crude oil at high level concentrations, and this could have potential use in bioremediation technologies.

Keywords: Bioremediation, hydrocarbons, *Ochrobactrum sp.*