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Detection of lipase in *Cronobacter dublinensis* and its application in biodiesel production and enhancement of disinfectants efficiency

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The production of biodiesel has increased significantly in recent years because of the need for an alternative fuel which endows with biodegradability, low toxicity and renewability. Plant oils have been employed as feedstocks for biodiesel production by transesterification process. In this work *gyrB* gene for *Cronobacter dublinensis* was sequenced and submitted to the Gen Bank databases under accession No: KY991367.1 for confirming the diagnosis as a housekeeping gene. We screened *Cronobacter dublinensis* isolates to produce biofuel from vegetable oil and others fats and found that the castor oil was the best among all the used oils for induction of lipase production in the medium. The dendrogram of lipase production in plates was drawn. Lip gene for lipase was sequenced and submitted to the Gen Bank databases under accession No. MF926637.1 for conform. The lipase was purified by using two-step purification procedure consisting of ethanol precipitation and ion exchange chromatography with a yield of 48.3%. The lipase has an important role in enhancement of disinfectant activity. The lipase enzyme was also used as a biocatalyst for the transesterification reaction step in biodiesel production and found that the olive oil was more suitable than the almond oil also the (palmitic acid methyl ester) was present in the major amount which is best suited for biodiesel production. We observed also that processing of the bacterial supernatants

increased the performance in comparison to the non-processed samples since an easy and cheap process of concentration and dialysis could increase the yield of biodiesel production.

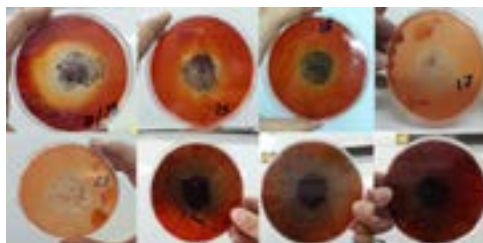


Figure-1: Lipase production in Congo red plates contained different oils

Recent Publications

1. Muslim S N, AL-Kadmy I M S, Auda I G, Mohammed-Ali A N and Al-Jubori S S (2018) A novel genetic determination of a lectin gene in Iraqi *Acinetobacter baumannii* Isolates and use of purified lectin as an antibiofilm agent. Journal of AOAC International 101(5):1623-1630.
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3. AL-Kadmy I M S, A N M Ali, I M A Salman and S S Khazaal (2018) Molecular characterization of *Acinetobacter baumannii* isolated from Iraqi hospital environment. *New Microbes New Infect.* 21: 51–57.
4. Muslim S N, AL-Kadmy I M S, Mohammed-Ali A N, Salmanc B K, Ahmad M, S S Khazaal, Hussein

N H and Muslim S N (2018) Chitosan extracted from *Aspergillus flavus* shows synergistic effect, eases quorum sensing mediated virulence factors and biofilm against nosocomial pathogen *Pseudomonas aeruginosa*. *International Journal of Biological Macromolecules* 107:52–58.

Biography

Israa M S AL-Kadmy has completed her BSc and MSc degree in Microbiology from University of Mustansiriyah, College of Science, Iraq. Academic visitor | Marine building| Faculty of science & Engineering| Plymouth University| Drake Circus | Plymouth | Devon

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