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(54) **Title**: INTEGRATED PROCESS FOR THE PRODUCTION OF OIL BEARING CHLORELLA VARIABILIS FOR LIPID EXTRACTION UTILIZING BY-PRODUCTS OF JATROPHA METHYL ESTER (JME) PRODUCTION

(57) **Abstract**: The present invention provides a simpler and more energy efficient process for the preparation of marine microalgae Chlorella fatty acid methyl ester (CME) from hydrolysate of deoiled cake of Jatropha (JOCH) and crude glycerol co-product stream (GL7and GL8) (WO2011/027353) along with seawater diluted with tap water (1 :2). A small part of the crude glycerol layer in case of JME is processed to recover glycerol for the purpose of glycerol washing and the otherwise problematic still bottom is utilized for microbial synthesis of PHAs and the rest is utilized for Microalgal conversion of JME byproducts into CME. The remaining part of the methanol- depleted glycerol layer is utilized, along with hydrolysate of the Jatropha deoiled cake(JOCH), for single-stage Microalgal production of lipids by a marine Microalgal isolate (Chlorella sp.) without the need for any other nutrients. Waste streams from the microalgal processes can be discharged directly into agricultural fields as biofertilizer or recycled back in the mass cultivation.

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