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DIAGNOSIS OF CYP52 GENE OF *CANDIDA TROPICALIS* RESPONSIBLE FOR BIOREMEDIATION USING DNA SEQUENCING TECHNIQUE

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ABSTRACT : One hundred and nine isolates of the genus *Candida tropicalis* were isolated from water bodies of Basrah. Some of those isolates were diagnosed by PCR technique using ITS1 and ITS4 primers. The results of sequencing analysis of *C. tropicalis* by program showed that it is identical to the global isolatesin the gene bank with varying rates between 75% to 82%.The genes responsible for the biological treatment of oil pollutants by yeasts were also detected. Two genes were detected, CYP52A3, CYP52A5 in *Candida tropicalis*.It can be conclude that this isolates can be help in oil bioremediation.

Key words : CYP52 gene, bioremediation, DNA sequencing technique, *Candida. tropicalis.*

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INTRODUCTION

Since the life sciences have a basic peculiarity in their direct contact with the human being and his attachment to his life and food, their knowledge developed in a dynamic and rapid manner until the growth of this development to take the form of the scientific revolution during the past three decades until it took multiple and overlapping forms and horizons. It produced a new knowledge system that is directly and fundamentally related to development, which is the biotechnology system, or as it is known as biotechnology. This system has become a broad base for various development programs and an indication of the extent of scientific and civilized progress and excellence, especially in the field of providing and developing human food and pharmaceutical needs, as well as environmental, economic and other industries (Qandil, 2007).

Genetically, there have been numerous studies that have shown that there are more than 80 genes responsible for the biodegradation process of petroleum compounds, including at least 26 genes responsible for the oxidation of alkanes and their transformation into fatty acids (Craft, *et al*, 2003; Eschenfeldt *et al*, 2003; Yamagami *et al*, 2004).

As the representation of alkanes by yeasts such as *C. maltosa* contains the cytochrome P450 system that encodes for 8 genes of similar structure called P450 alk, which belongs to the CYP 52 gene family that in the end unites with the NADPH system – cytochrome P450 reductase responsible for the oxidation process of alkanes as a first step in Alkanes metabolism (Ohkuma *et al*, 1998; Zimmer *et al*, 1998), six of the genes belong to the CYP52A subfamily and the other to CYP52C2 & CYP52D1 and most of them are active towards lipid compounds, as the CYP52A - CYP52A3 - CYP 52A4 - CYP 52A5 - CYP 52A6 genes are highly active towards hydrocarbons while the CYP52C2 and CYP 52D1 genes are weak.

Screening test for the presence of CYP genes in the genome of *C. tropicalis*. Three genes belonging to the special gene complex of microorganisms were used in terms of their ability to biodegradation or what is known as bioremoval or bioaccumulation and several biological processes by microorganisms that are included in one term and comprehensive for all these vital processes is biological treatment and this technique that uses microorganisms And other living organisms such as plants to get rid of environmental pollutants that threaten the fate of living organisms in the ecosystem, and this confirms the aggravation of the problem of environmental

responsible for oil degradation, were detected in most isolates. Thus can be conclude that this yeast can be help in oil bioremediation.

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