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A Mini Review on Paclitaxel Producing Fungal Strains

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Mini Review

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Abstract

Since the discovery of penicillin by Sir Alexander flemming. The new era of antibiotic producing fungi came into the picture. Paclitaxel is an anticancerous compound and it is widely accepted in hospitals and clinics. Recently a large number of fungi are potential paclitaxel producers were harnessed. In this mini review paclitaxel producing fungal strains are discussed in detail

Keywords: Paclitaxel; Potentialistic Fungal Strains; Anticancerous Compound

Introduction

There is a need of natural products all over the world. Synthetic drugs possess large number of side effects, therefore the scientific world started focusing on natural products now a days. The drugs of plant origin harnessed at maximum level in the past. New strategies and concepts to be developed and new fungal strains must be discovered for the drug production. Paclitaxel is an anticancerous compound produced by various endophytic fungal strains and yew tree. This compound is found in yew trees and these plants usually destroyed to extract paclitaxel in recent years [1-7]. So if the new endophytic fungal strains discovered, which are potentialistic paclitaxel producer at bioprocess level, can be the game changer.

Why Paclitaxel of Fungal Origin

The limitation and disadvantages of paclitaxel from plant origin especially yew trees are that the large number of plants destroyed and these plants grown again to harness the compound. This is a time consuming process [1-7]. Scientist therefore switching to explore the fungal strains which are potentialistic paclitaxel producers. Since natural production of compound from the endophytic fungal strains is an organic process that is why there will not be any side effect. This is the major idea in the researchers mind.

Paclitaxel Producing Fungal Strains

A large number of fungi are potentialistic paclitaxel producers listed below [1-7] (Table 1).

Taxon	Strain number
Taxomyces species	HQ33
Alternaria taxi	HD1353
Alternaria alternate	TPF6
Rhizoctoniaspecies	Tax-1
Botrytis species	Tax-X

Trichodermaspecies	Tax-23
Chaetomium species	Tax-60
Penicillium species	12.3.2
Pestalotiopsis species	F1
Mucor species	Tax-56
Aspergillus species	HD86-9
Fusarium species	F2
Fusarium mairei	UH23
Phyllosticacitricarpa	-
Pestalotiopsis pauciseta	CHP-11
Fusarium solani	-
Botryodiplodiatheobromae	BT115
Cladosporium species	MD2
Phomamedicaginis	-

Table 1: Potentialistic Paclitaxel producers list.

Future Research and Challenges

In the coming future the potentialistic paclitaxel producing fungal strains at bioprocess level will be identified at large scale and patented. But still there are certain challenges or bottleneck to obtain high yield of paclitaxel from the fungal strains for example the genes or loci to be identified, their expression and regulation to be discovered *in-vitro*.

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