

دراسة الظروف المثلى لإنتاج الإنزيمات المحللة للبكتين من الفطر المحلى *restiractum Penecillium* باستخدام نظام تخمرات الحالة الطلبة

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() Ec.3.2.1. Ec 4.2.2.10

Penecillium sp.

P. restiractum

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Abstract

Pectinases enzymes (pectin lyase Ec. 4.2.2.10 and poly galactorunase Ec. 3.2.1.15) were produced from (15) local fungal isolates of *Penecillium* spp. using submerged cultures, the isolates were screened by estimating the specific activity for the mentioned enzymes, the results showed that the isolate belonging to the species ***Penecillium resteractum*** were the best with a specific activity of 31 unit/mg protein for pectin lyase and 150 unit/mg protein for poly galactorunase . This isolate were used for studying the optimal conditions of pectinases production by solid state fermentation including fermentation time , optimal temperature , optimal moisture liquid and the best moisture rate . the optimal conditions by using wheat bran as a solid substrate for pectin lyase were 72 hrs for fermentation time with a temperature of 30°C using distilled water as the best moisture liquid with a moisture rate of 2:1 , while poly galactorunase results were 120 hrs of fermentation at 30°C using phosphate buffer pH7.5 as a moisture liquid with a moisture rate of 2:1

Dongowski)

(pectin)

(et.al, 2000

(Voragen et.al, 1995)

Scholes and Voragen) ←

. (1996

(Ec. 3.2.1.15)

(Ec. 4.2.2.10)

Trans-elimination :

. (Pilnik and voragen , 1993)

Aspergillus *Botrytis* *Neurospora*

, Soares *et al* Albeek *et al*, 2003) *Erwinia* *Bacillus* *Bacteroides* *Pseudomonas*

(Schlemmer *et al*,1987 ,Dongwski *et al*, 2000 2001

(Silva *et al* , 2002) *Penecillium* sp.

, (Alkorta *et al*, 1998)

(Reid and Ricard , 2000)

(Mutlu *et al* , 1999)

(Duran *et al* ,1994)

(Riou *et.al* , 1992)

(Bacart *et al* , 1989)

(Baretto *et al* ,1989)

Penecillium sp.

Penecillium sp.

PDA

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%

PDA

Penecillium sp.

Alana et al 1990) /

Ceutra 5-UV (Albershiem , 1966)

45 0.2 %

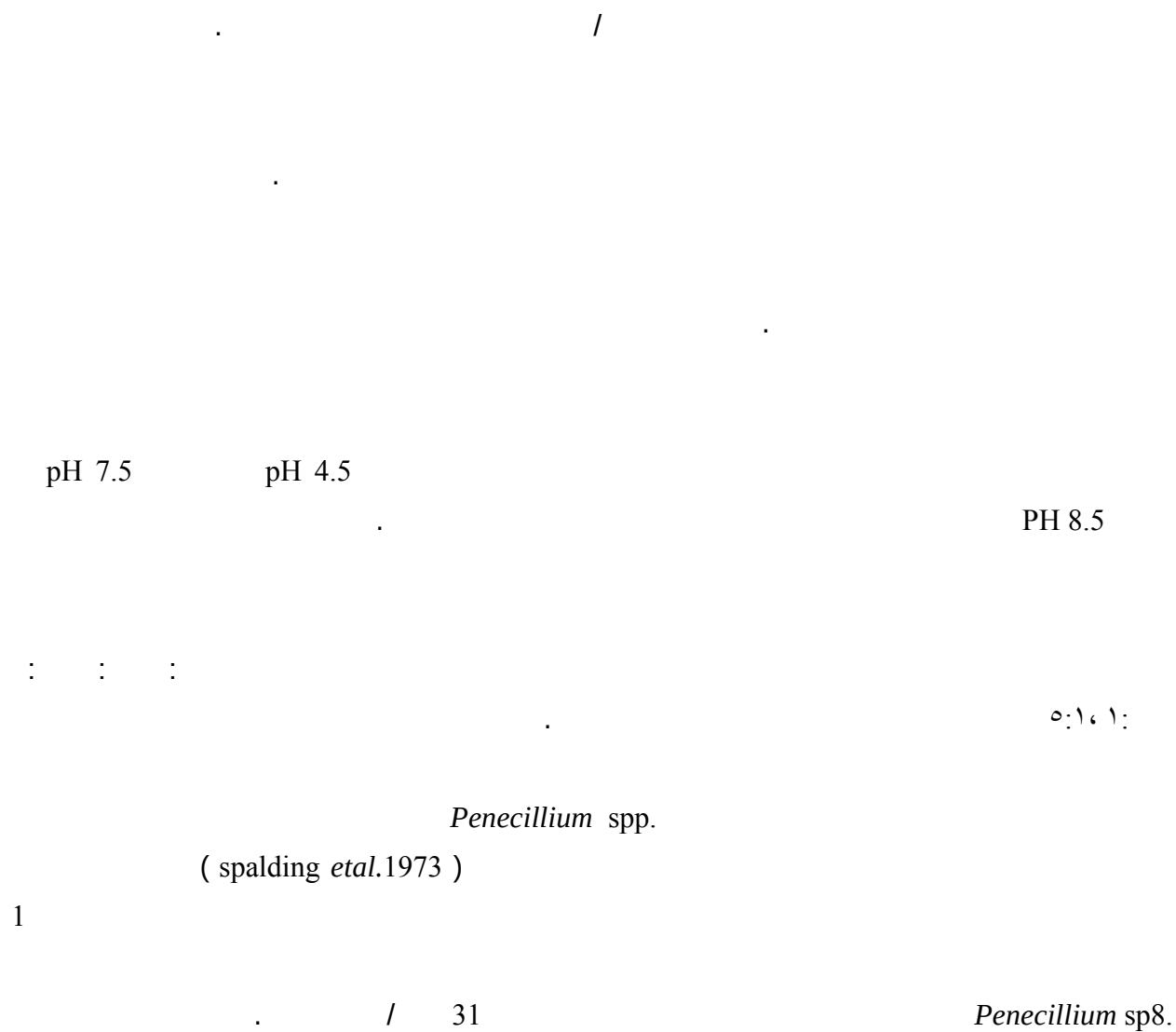
(Somogi & Nilson)

0.8 () %

(Whitaker and Granum ,1980) (/)

% :

P.restiractum



***Penecillium spp.* : (1)**

(/)	(/)	(/)		
0	0.1	0	<i>Penecillium sp.T1</i>	1
17.9	0.14	2.5	<i>Penecillium sp.T2</i>	2
13.8	0.16	2.2	<i>Penecillium sp.T3</i>	3
20.8	0.13	2.7	<i>Penecillium sp.T4</i>	4
17.9	0.14	2.5	<i>Penecillium sp.T5</i>	5
17.5	0.12	2.1	<i>Penecillium sp.M1</i>	6
12.4	0.137	1.7	<i>Penecillium sp.M2</i>	7
31	0.155	4.8	<i>Penecillium sp.8</i>	8
3.6	0.137	0.5	<i>Penecillium sp.M3</i>	9
4	0.125	0.5	<i>Penecillium sp.M4</i>	10
9.8	0.136	1.2	<i>Penecillium sp.A1</i>	11
11.5	0.139	1.6	<i>Penecillium sp.A2</i>	12
9.9	0.131	1.3	<i>Penecillium sp.A3</i>	13
9.8	0.122	1.2	<i>Penecillium sp.H1</i>	14
12.2	0.139	1.7	<i>Penecillium sp.H2</i>	15

10 2

/ 150

Penecillium sp. 8

. () *Penecillium restriractum*

***Penecillium spp.* : (2)**

(/)	(/)	(/)		
100	0.1	10	<i>Penecillium sp.T1</i>	1
57.14	0.14	8	<i>Penecillium sp.T2</i>	2
68.75	0.16	11	<i>Penecillium sp.T3</i>	3
70.97	0.13	15	<i>Penecillium sp.T4</i>	4
0	0.14	0	<i>Penecillium sp.T5</i>	5
115.38	0.155	11	<i>Penecillium sp.M1</i>	6
0	0.137	0	<i>Penecillium sp.M2</i>	7
150	0.12	18	<i>Penecillium sp.8</i>	8
14.6	0.137	2	<i>Penecillium sp.M3</i>	9
16	0.125	2	<i>Penecillium sp.M4</i>	10
0	0.136	0	<i>Penecillium sp.A1</i>	11
4.3	0.139	0.6	<i>Penecillium sp.A2</i>	12
0	0.131	0	<i>Penecillium sp.A3</i>	13
0	0.122	0	<i>Penecillium sp.H1</i>	14
11.3	0.139	1.6	<i>Penecillium sp.H2</i>	15

Penecillium sp.

(Bbush & Conder 1970)

(Silva et al. 2002)

1

/ 124

72

/ 15.52

120

(Silva et al. 2002)

Penecillium veridicatum

(Alana et al .1989)

63

Penecillium sp.

(2)

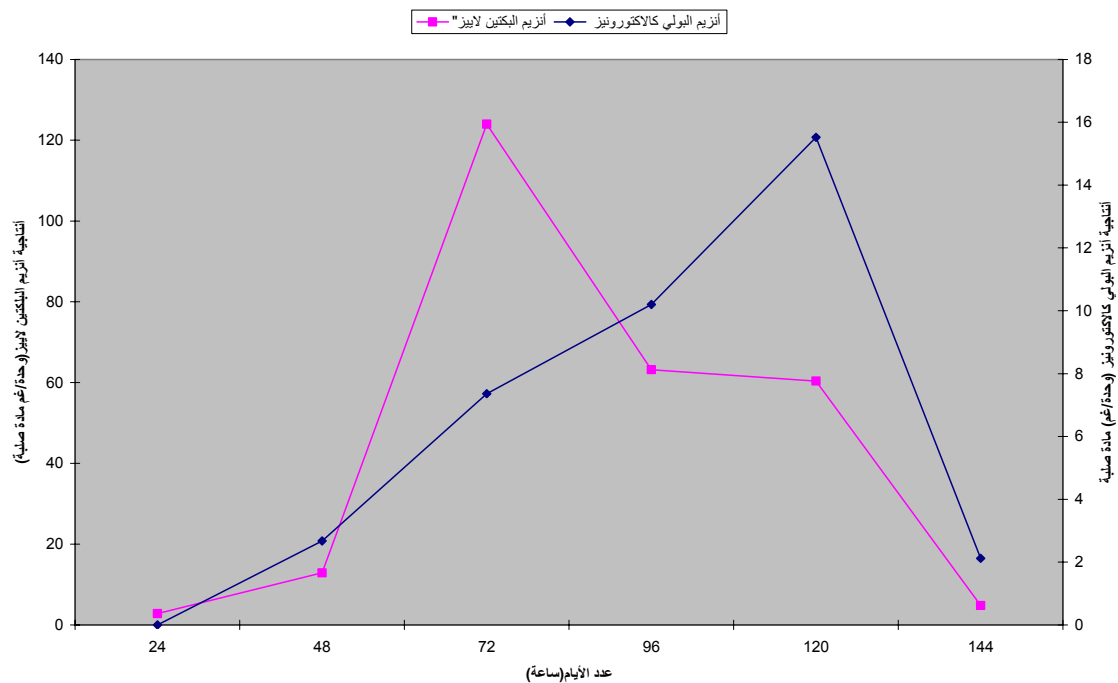
7.5

/ 186.2

/ 19.7

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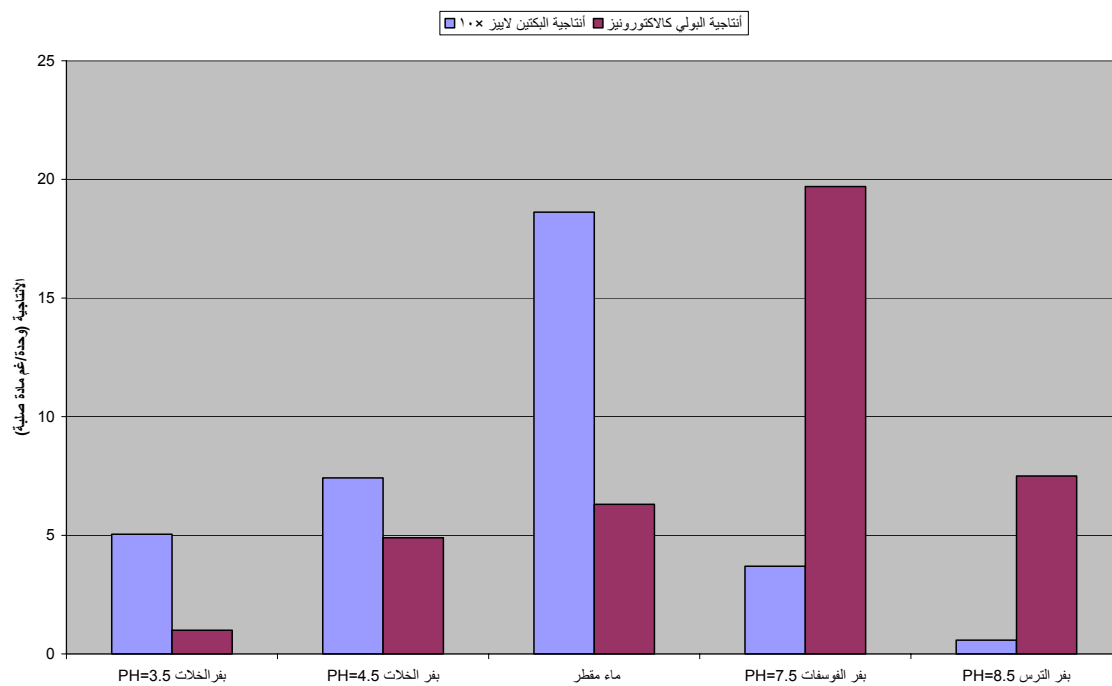
. (Silva etal. 2002)



Penecillium

: (1)

. *restiractum*



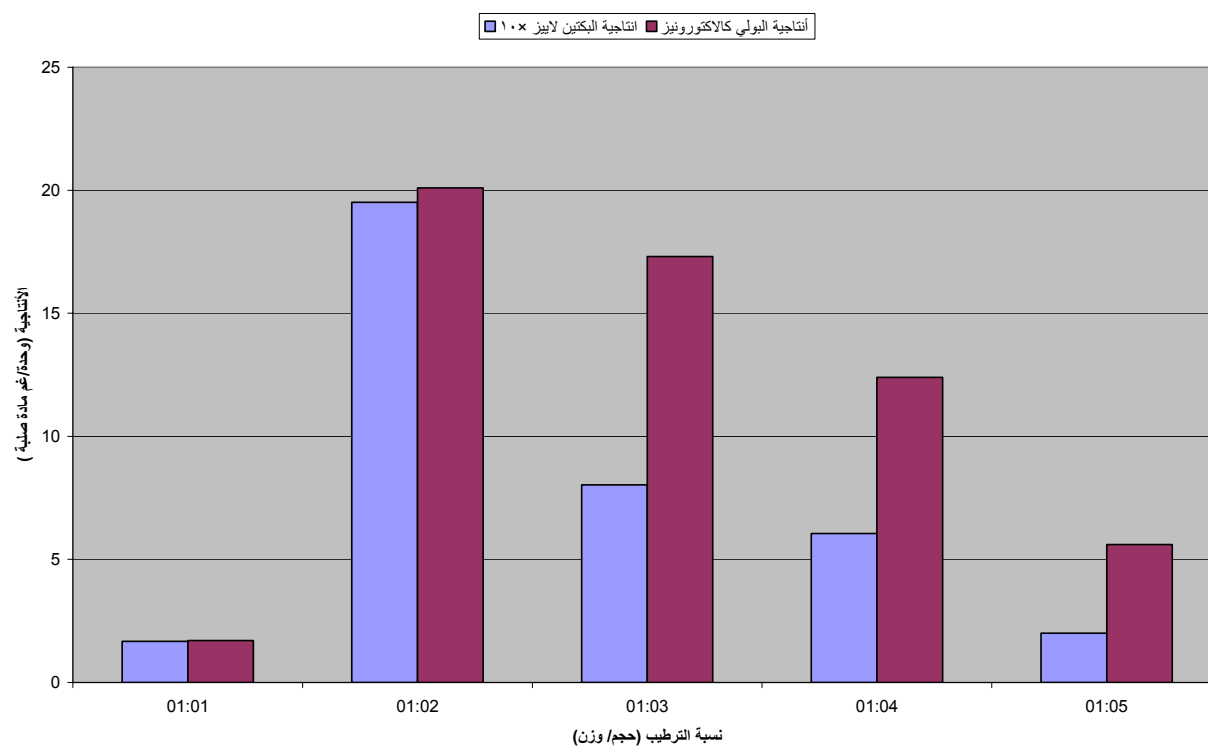
: (2)

Penecillium restiractum

/ 20.1 195.3 (3) 2:1

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. (1990)



Penecillium

(2) :

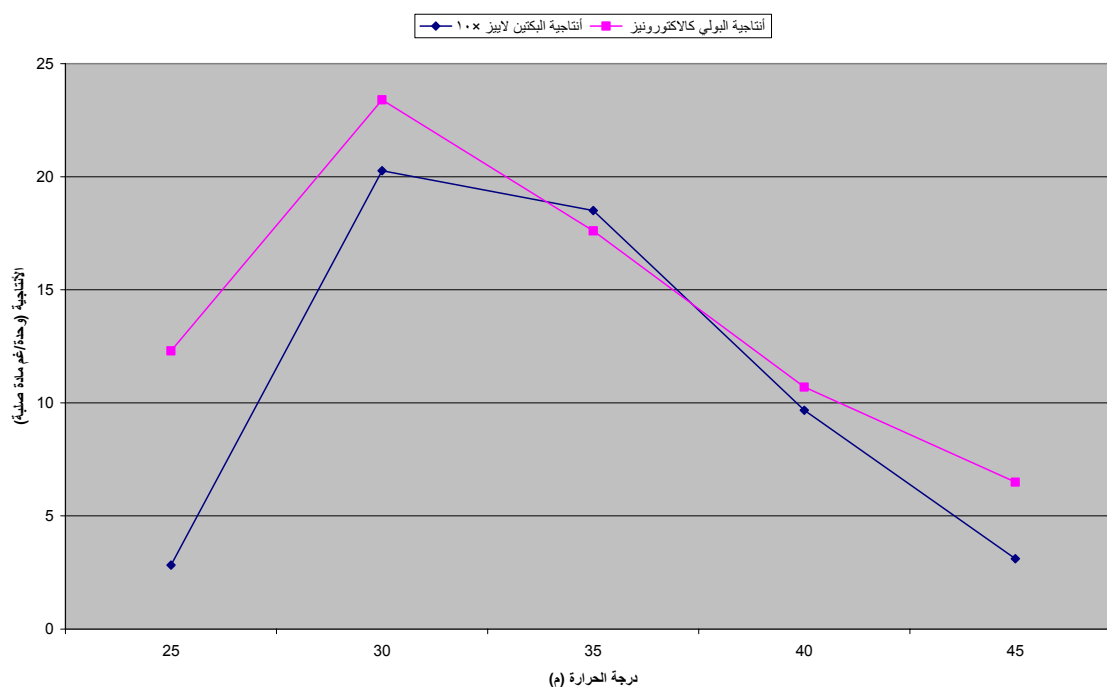
restiractum

(4)

/ 23.4 202.6

° 30

. (McKee & McKee , 1996)



Penecillium

: (4)

restiractum

.108-109

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(1990)

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Aspergillus orantus

(1996)

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. 44-47

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