

- - -

2010/12/16

2011/07/05

(OMW)

Geotrichum

(%1.5)
(%1.5)

/ 8.6
(%2.0)
.(%2.0)

:

.Pencillium Aspergillus Geotrichum

Nutrient Resources Rich in Proteins Production By Using of Olive Mill Waste Water

E. Kholani and A. Malo

Department of Chemistry, Faculty of Sciences, Damascus University, Syria.

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ABSTRACT

The present study contains results of some experiments that had been carried out to study the advantage of olive mill waste water (OMW) use ability and in sugar's factories wastes in Syria as fungi cultures to produce stall-feed rich in proteins.

The results showed that *Geotrichum* rich in proteins had been grown and germinated more rapidly and revealed that inorganic nitrogen additions (nitrates or ammonia) to the culture have advanced the fungi growth which is rich in proteins, the highest quantity of proteins was (8.6 g/l) in NH_4NO_3 (1.5%) media and urea (2.0%) media whereas the fungi biomass was higher with NH_4NO_3 (1.5%) than with urea (2.0%).

Key words: Olive mill waste water, Molasses, *Geotrichum*, *Aspergillus*, *Pencillium*.

(.... -)

616229
(57)

(200) (78)

(13)

.[1]

(841)
(800)

:

[9 11 12]
.[3 4]

.[5]

-
-
-1
-2
-3
-

:

()

(biomass)

%85

%90
%91

%95

%(83-82)

.[2 7 10]

:

:

()

.2009 2008

20 (5000 rmp)

:

$$P_{mg} = N_{mg} \times 6.25$$

N

P

(- selecta)

.PH

:

Czapek Dox Medium

10 -

0.5 -

0.5 -

0.2 -

0.1 -

4

30 100

(100 / 5)

25⁰C

5

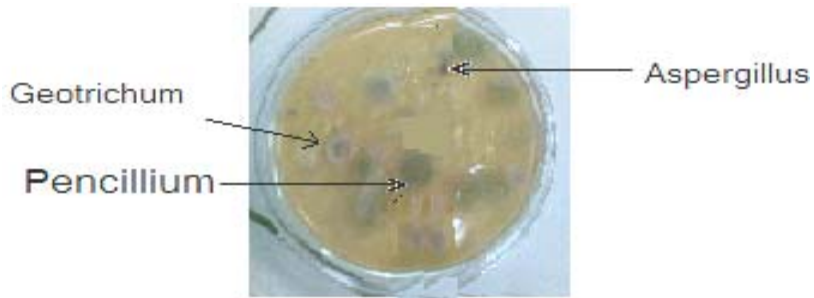
:

3

Aspergillus

Geotrichum

(1) .Pencillium



(1)

[11]
 %15 %50

Pencillinum 14
 Geotrichum
 .Aspergillus

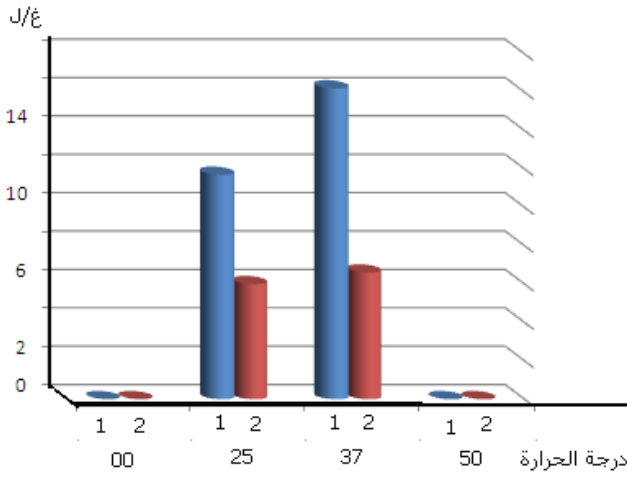
:
 %1 في %50
 .[11] pH 6

النامي 14 (100/ 5)
 [11] في 50⁰ C 37⁰ C 25⁰ C 0⁰ C
 30 (6000 rmp)
 105 C 3
 (2) (1)

37 °C في 20 25 °C
 13 0 °C وفي 48
 50 °C

25 النامي في 37 النامي في
 في النامي في
 / 6.6 37 وفي / 6.0 25
 / 14 / (1)

50	37	25	0	(C ⁰)
00.0	16.2	11.7	00.0	(/)
00.0	06.6	06.0	00.0	(/)



(1) / 14 (2)

(2) /

⁰C 37

:

2) %40
 / 7.2 / 6.6 (3)

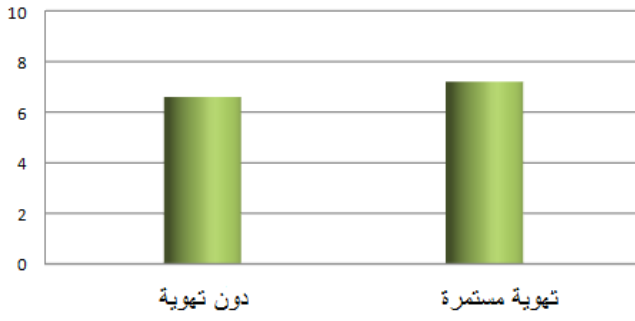
[13]

14

(2)

16.8	16.2	/
7.2	6.6	/

تركيز البروتين غ/ل



14

(3)

:
 () : ()
 () ()
 ()
 :
 -
 37°C 14
 %0.5
 353

:()
 %2.0 %1.5 % 1.0 %0.5 :

.%3.0 %2.5

(4 3)

%1.5

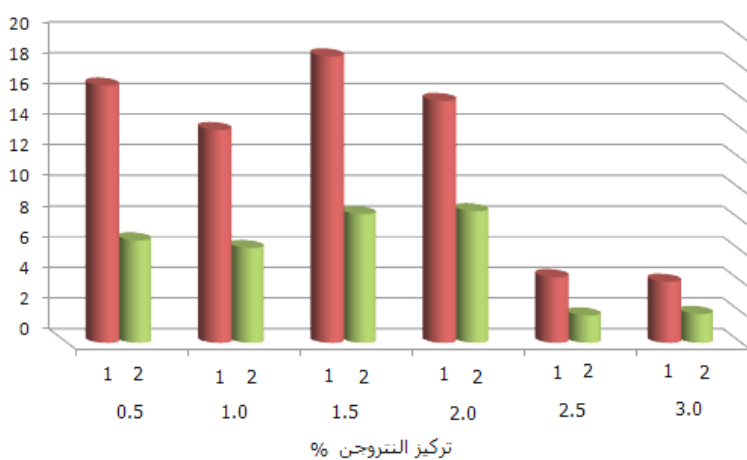
.%2 %1.5

(3)

14

3.0	2.5	2.0	1.5	1.0	0.5	(%)	N
4.0	4.3	15.8	18.7	13.9	16.8	(/)	
1.9	1.8	8.6	8.4	6.2	6.7	(/)	
46.7	40.8	54.3	45.0	44.5	40.0		%

U/ع



(4)

(2)

(1) 14

)

:(

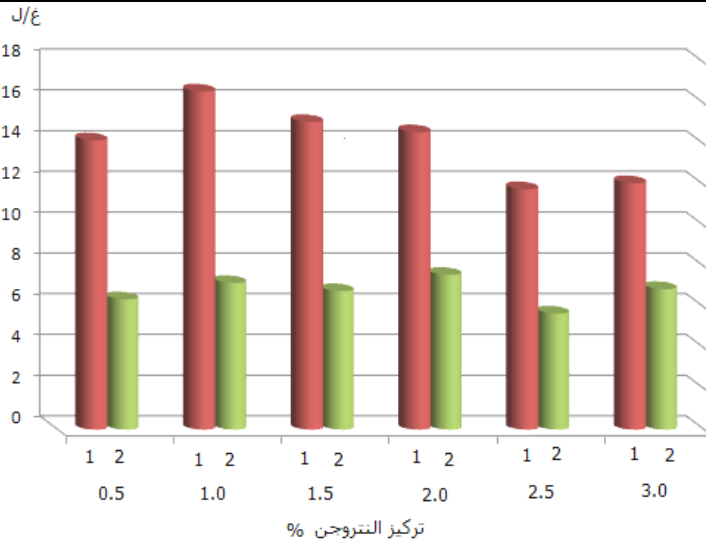
%2.5 %2.0 %1.5 %1.0 %0.5 :

4) . %3.0
 (5
 %1.0
 .%2.0

(4)

14

3.0	2.5	2.0	1.5	1.0	0.5	(%)	N
12.1	11.8	14.6	15.1	16.6	14.2	(/)	
6.9	5.7	7.6	6.8	7.2	6.4	(/)	
56.8	48.4	51.9	45.3	43.5	45.3	%	



(5)

(2)

(1) 14

()

%2.0 %1.5 %1.0 %0.5 :

.%3.0 %2.5

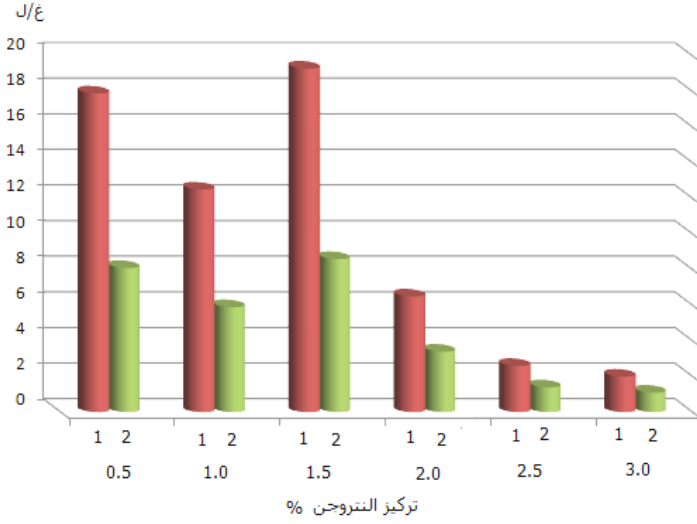
(6 5)

.% 1.5

(5)

14

3.0	2.5	2.0	1.5	1.0	0.5	(%)	N
2.0	2.6	6.5	19.3	12.5	17.9	(/)	
1.1	1.4	3.4	8.6	5.9	8.1	(/)	
53.6	53.2	51.9	44.7	47.5	45.3	%	



(6)

(2)

(1) 14

)

:(

.%2.5 %2.0 %1.5 %1.0 %0.5 :

(7 6)

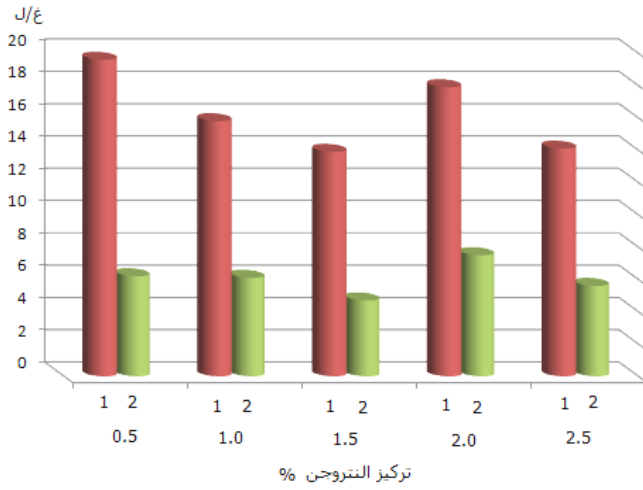
%0.5

.% 2

(6)

14

2.5	2.0	1.5	1.0	0.5	(%)	N
14.1	17.9	13.9	15.8	19.6	(/)	
5.6	7.5	4.7	6.1	6.2	(/)	
39.9	41.7	33.8	38.7	31.7	(%)	



(7)

(2)

(1) 14

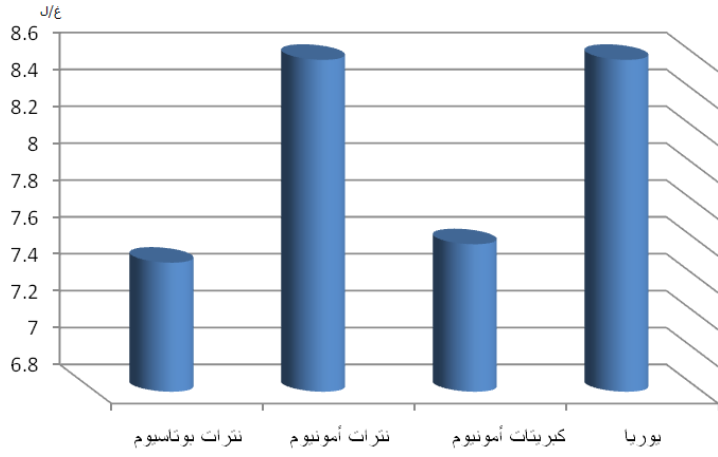
:

7)

(8)

(%2.0) (%1.5)
 (%1.5) . (%2.0)
 (7)

%2.0	%2.0	%1.5	%2.0	
15.8	14.6	19.3	17.9	(/)
8.6	7.6	8.6	7.5	(/)



(8)

:

9 (8) () (10)

14

14 (8)
%0.5

NH ₄ Cl	(NH ₄) ₂ SO ₄	NH ₄ NO ₃	
Trace	14.2	12.5	(/)
Trace	6.4	5.9	(/)

14

(9)

%1

NH_4Cl	$(\text{NH}_4)_2\text{SO}_4$	NH_4NO_3	
Trace	16.6	6.5	(/)
Trace	7.2	3.4	(/)

14

(10)

%1.5

NH_4Cl	$(\text{NH}_4)_2\text{SO}_4$	NH_4NO_3	
Trace	15.1	2	(/)
Trace	6.8	1.1	(/)

-1

-2

-3

%1.5

-4

%3

-5

-6

()

-7

REFERENCES المراجع

- .(2008) . -1
- .(2004) . -2
- .(2008) . -3
- .(2010) . -4
- 5- Khoufi S., Aloui F. and Sayadi S. (2008). Extraction of antioxidants from olive mill wastewater and electrocoagulation of exhausted fraction to reduce its toxicity on anaerobic digestion. *J. Hazard. Mater.* 151: 531-539.
- 6- Ramesh Maheshwari and P. T. Kamalam. (1985). Isolation and Culture of a Thermophilic Fungus, *Melanocarpus albomyces*, and Factors Influencing the Production and Activity of Xylanase, India. *J Gen Microbiol.*131: 3017-3027.
- 7- H. Jeder, A. M. Deschamps, J. M. Lebeault. (1987). Production of single-cell protein with *cellulomonas* sp. on hempstalk wastes. *Acta Biotechnologica* 7 (2): 103–109.
- 8- M. M. Haider, N. N. El-Tajori, S. H. Baiu. (2006). Single Cell Protein Production From Carob Pod Extract by the Yeast *Saccharomyces cerevisiae*, Benghazi, Libya.
- 9- Fountoulakis M. S. Dokianakis S. N. Kornaros M. E. Aggelis G. G. and Lyberatos G. (2002). Removal of phenolics in olive mill wastewaters using the white-rot fungus *Pleurotus ostreatus*. *Water Research*, 36 19: 4735- 4744.
- 10- Hidenori Abe and Masaaki Yamakawa. (2001). Microbial biomass protein production by incubation of koji fungi on potato waste using rotating solid state fermentor.
- 11- Asses. N. Ayed. L. Bouallagui. H. Ben Rejeb. I. Gargouri. M. Hamdi. M. (2008). Use of *Geotrichum candidum* for olive mill wastewater treatment in submerged and static culture. *Tunis, Tunisia. Bioresource Technology* 100 : 2182–2188
- 12- Mandi L. Achak M. Hafidi A. Ouazzani N. 2009. Low cost bio-sorbent for the removal of phenolic compounds from olive mill wastewater. *J. Hazard. Mater.* 166 (1):117-125
- 13- Fadil, K., Chahlaoui, A., Ouahbi, A., Zaid, A., Borja-Padilla, R. (2003). Aerobic biodegradation and detoxification of wastewaters from the olive mill industry. *International Biodeterioration and Biodegradation.* 38 51 (1): 37– 41.