

β – galactosidase

(1) (2) (1) (1) (1) (2) (1) - -

تاريخ الإيداع 2010/07/04
قبل للنشر في 2010/11/29

β -galactosidase

5.5 (pH) %22.1
6 - 4 8.5
55C°
.60 - 35 C°
(%5) Lactose (Hydrolysis)
270 %95 60 %40
- :

Characterization of β -galactosidase which was Isolated from New Born Goat Brain

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ABSTRACT

Some characteristics of β -galactosidase enzyme that was isolated from a new born goat brain were studied. This study concluded that the enzyme is gluco-enzyme in which the carbohydrate part constitutes 22.1% in accordance with phenol –sulfate acid method.

The optimum pH for the enzyme activity is 5.5. The enzyme lost its activity completely at pH8.5, and showed great stability at the range of pH 4-6.

The results indicated that the optimum temperature for the enzyme activity is 55C° at the optimum pH. The stability temperature for the enzyme is 35-60C°.

The analytical results of 5%lactose solution hydrolyzed by the enzyme have indicated that the hydrolysis rate is between 40% after 60 minutes, to 95% after 270 minutes.

Key words: Enzyme, Enzyme Characterization, Lactase, β – galactosidase, Goat Brain

(Lactase) β -galactosidase

Lactose

β -1, 4

(1)

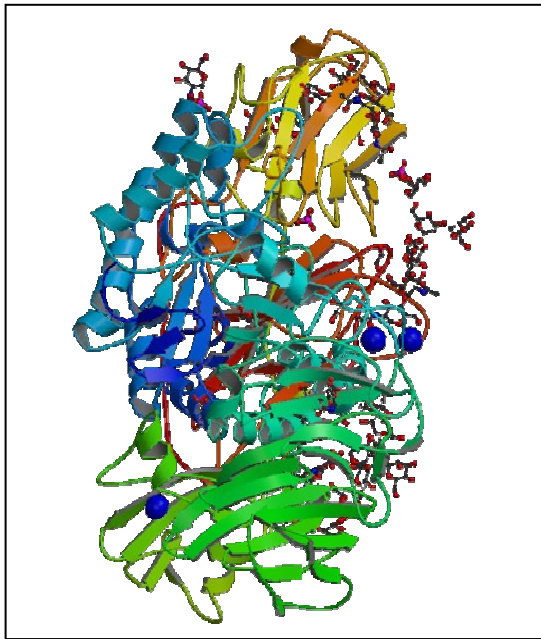
Ec: 3.21.23.

(Hydrolysis)

(IUBMB)

.(2000 Sieber 2005

Voet)



β - galactosidase

(1)

:

β -1,4 D-galactosidic

Lysosome

Galactosyl

Galacto-Lipid

Galacto-Protein

Galactosidic bond

Muco poly saccharide

Galacto

.(1989 Abed Ali)

(1972) Weil Wallenfels β – Galactosidase

Galacto - lipids

Al-Bakir

β – D - galactosyl – diglycerol

Zahidi Dates

(1988)

Galacton

.(2005 Voet)

β-galactosidase

(PH)

(2004

Hiraiwa)

4.5

Al-Arriji

(2005 Randir Sawhney)

(2005) Bakir

β-galactosidase

45–65C°

.(2002 Al-Ziwini)

β-galactosidase

.Lactose Intolerance

β-galactosidase

/ 0.2+

/ 0.2

.5 (pH)

DEAE-Cellulose

Sephacryl S-200
Sephacryl S-

Sphadex G-100

200

.%77.39

124.78

185.942

(1998)

(1956)

Dubois

-

/

(80-0)

5

490

(2)

0.2

)

/ 0.2

/ 0.2

Tris-HCl

/ 25

(1985 Conbridge

5.5-3

/ 0.2

8-6

1

10-8.5

15 30 C°

30 40 C°

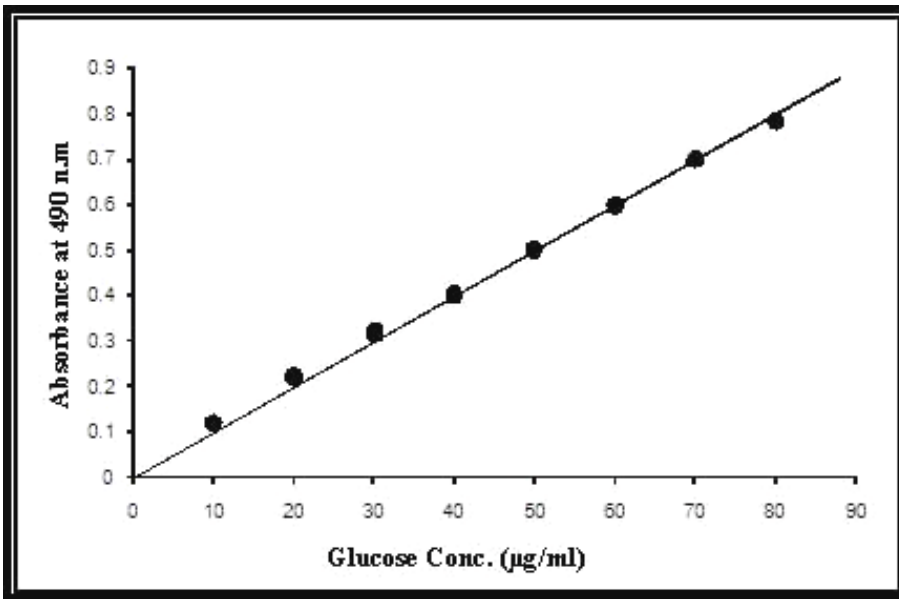
15 90-10C°

/ 0.2

8.5

1

15 80-30 C°



/ (80 - 0) (2)

β-galactosidase
% 22.1 ±

(2006) Abed (1989 Abed Ali) %32.5 *Aspergillus'sNiger*
. %20.5

Sephacryl S-200

/ 0.1

280

/ 0.3

490

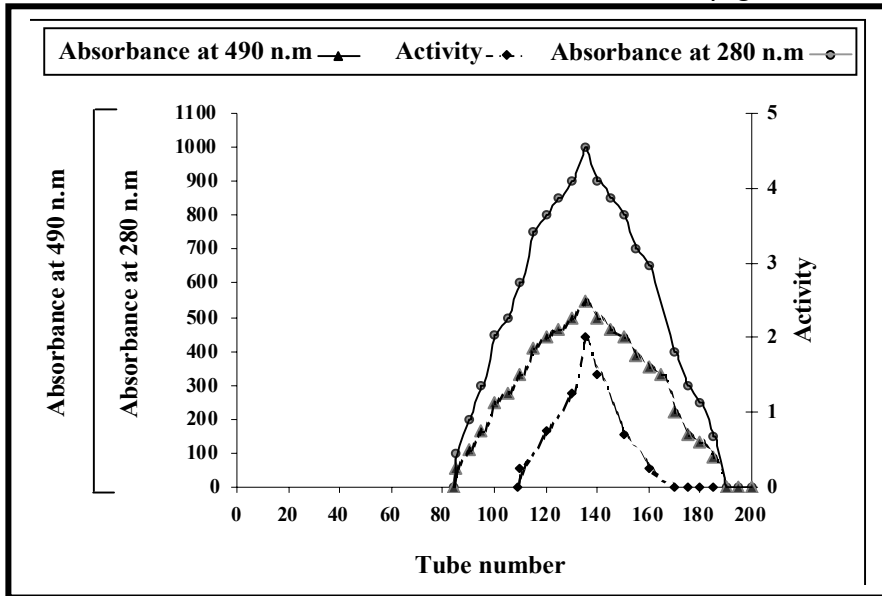
(3)

420

(2010 Abed)

(1980 Marshal)

β -galactosidase



β -galactosidase

(3)

Sephacryl S – 200

4

β -galactosidase

(4)

8.5

5.5

5.5

8.5

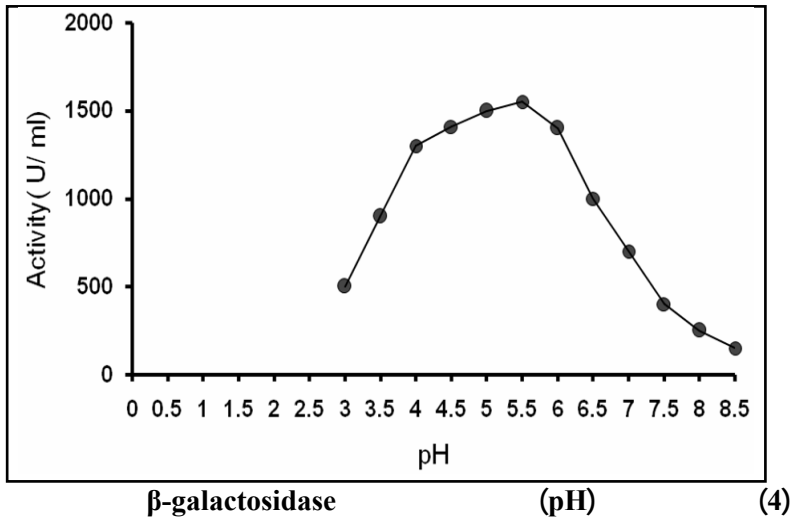
-

[EP]

-

[ES]

(1972 Whitaker)



β-galactosidase (pH) (4)

6-4

(5)

(1976 Segel)

(1995)

Young Jan

Bacillus sp. TA- 11

β-galactosidase

6.4

Lactobacillus crispatus

β-galactosidase

12-6

(2000) Rajagapol Kim

ATCC33820

9-4

6.5

(2007)

Desire

Rhynchophorus palmarum

-4.6

5

(2009)

Manuela

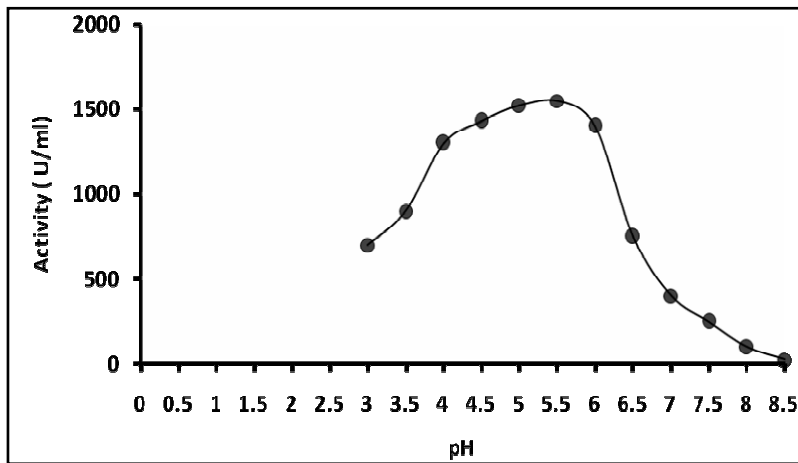
6

Berry

4.2

Triton X-114

(2006 Elliott Elliott)



β - galactosidase (pH) (5)

β -galactosidase
(80-30) C°

1590

(7 6)

55 C°

/

70C°

/ 383

80 C°

%70

60-30 C°

80 C°

70 C°

(2007)

Desire

(2010) Abed 55 C°

β -galactosidase

(1995)

Young Jun

50 C°

40 C°

(2000) Rajagapol Kim

50 C°

45 C°

(2009)

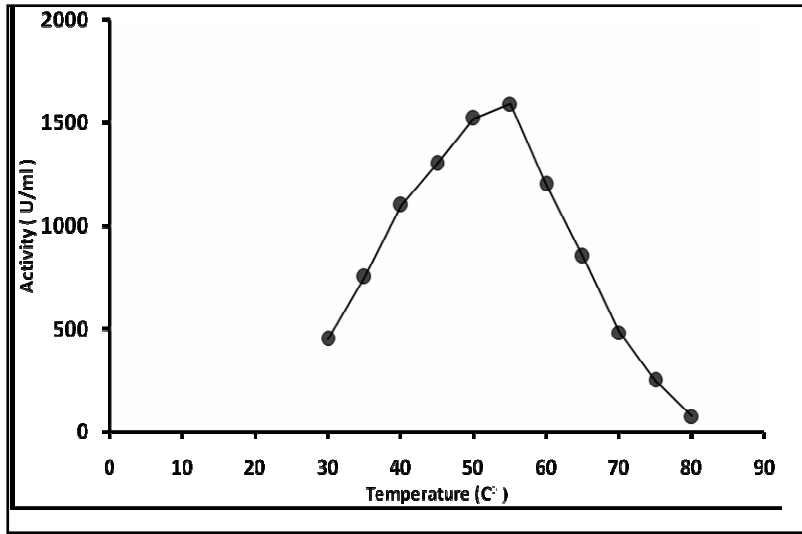
Manuela

60-20 C°

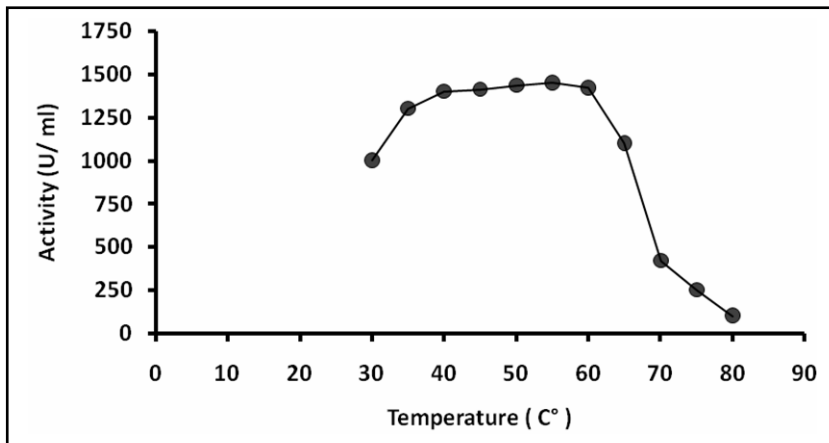
65 C°

(1998 Woods Aurand) 100 C°

(1998 Narayanan 1983)



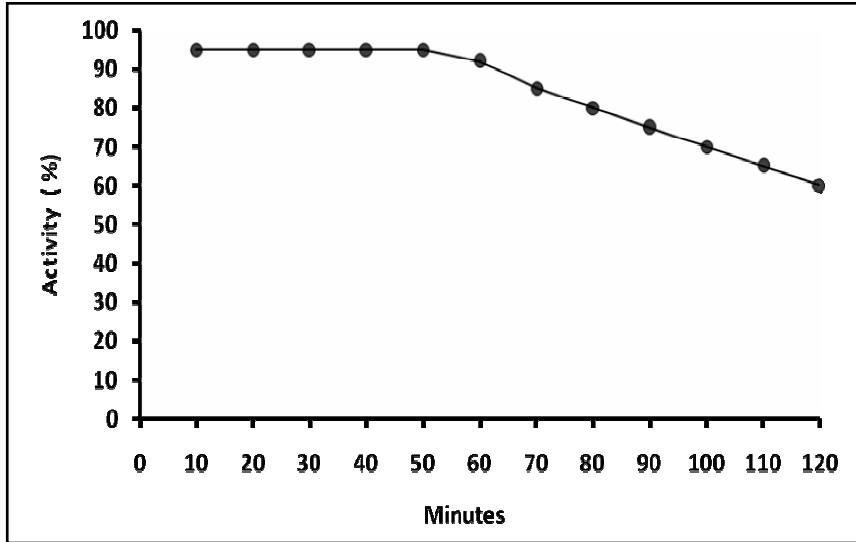
β-galactosidase (6)



β-galactosidase () (7)

(8)
 50 55 C°
 %5 60
 120 %60
 60 55 C°
 Desire

(2010) Abed (2007)

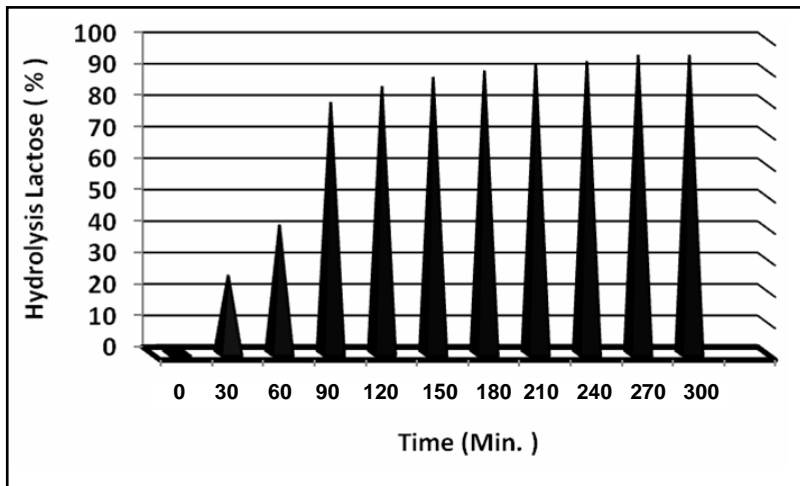


()

β -galactosidase
55 C°

(8)

Lactose
 %95 30 %40 Galactose Glucose
) 270
 (9
 Lactose Intolerance



β-galactosidase

(9)

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