

2010/08/29  
2011/01/24

(*Abrus precatorius*, crab's eye)

(2-1 )

(Oral administration)

30		40	120
	10	%14	
		LDL	
.HDL			

:

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# Studying the Effects of Crab's Eye Extract and Some of Its Components on Glucose and Lipids Metabolism in Alloxan Diabetic Rats

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## ABSTRACT

A known weight of Abrus seeds powder were soaked in chloroform-methanol (2:1) and extracted for 18 hours, the mixture then filtrated and re-extracted with equal volume of water and evaporated to dryness. The crude extract is regarded as chloroform-methanol extract of Abrus Seeds (crab's eye). Chloroform-methanol extract was analyzed by HPLC and GC-MS chromatography for identification and purification of the extract components. Trigonelline and Abrine were isolated, a solution of a definite concentration was made from crab's eye extract and its pure components, trigonelline and Abrine, then oral administration of this solution of a definite concentration were given to the Alloxan diabetic rats.

Blood glucose level were analyzed at different period interval for Alloxan diabetic rats in different treated cases (oral administration), which include solution of the Abrus seeds extract, Trigonelline, Abrine and the control samples. Lipids profile analyses were carried out for diabetic rats and their control samples. Blood glucose level decreased significantly in the extract and trigonelline samples but not in the control, where increased in Abrine samples. Lipids profile analysis showed increases in total cholesterol, LDL and TAGs in negative control. The concentration of HDL increased, where LDL decreased in treated diabetic rats serum, urea concentration analysis showed increased in negative control but not in the treated diabetic rats.

These results indicate the deep effects of crab's eye extract and its pure components on different metabolic activities of blood glucose, serum lipids profile and reveal their anti diabetic effects.

**Key words:** Abrus precatorius, Trigonelline, Abrine, Blood glucose metabolism, Diabetes mellitus.

2700

1400 " " ( 1550)  
. [1] corpus of simples

. [2]

Pumpkin  
Vigna unguiculata

Fenugreek  
Pterocarpus marsupium  
Mungbean  
(Actinodaphne hooker)

[3]

(Type-1)

(Type-11) [3]

[4] 2025

300

[9]

[6]

[8] [5]

[7]

[10]

[11]

Monago

[12]

[13]

Abrin

[14]

Abrine

Glycyrrhizin

Trigonelline

[15]

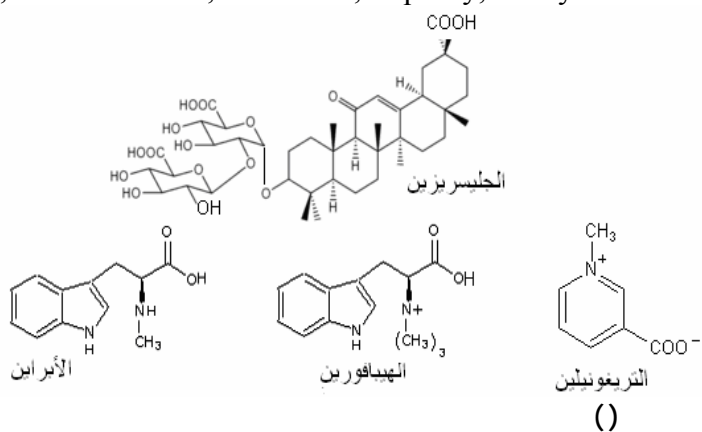
[11]

[16]

*Abrus Precatorius .Leguminosae (fabaceae)*

: [17]

Licorice, Indian Licorice, Love bean, Jequirity, Lucky bean Rosary bea.



( )

*Rattus* (Albino Wister rats)*Rattus* *Muridae* : *norvegicus*

3 350 -300

.Institutional animal ethics committee

(Sigma)

(Alloxan monohydrate)

GC-MS

HPLC

Preparative chromatography

(Kits )

Liquid Kits Blood

[18] (GmbH )

[19] (Accu chek-Active) Glucometer

[22]

[20]

.[25] [24] HDL LDL

20  
.2 :1  
18  
1.2  
Crude extract  
HPLC  
/ 7 10  
50  
%3  
50 75  
( )  
:  
:  
/ 180 Alloxan monohydrate  
-β [21]

	3	12 -11	4C <sup>0</sup>	(
%3				6
	200 mg/dl			
	200 mg/dl			5
(Accu chek-Active)	ROCHE			Glucometer
45				
:			5	
)				-1
			-	-2
				-3
	/ 50			-4
	/ 75			-5
	/ 50			

40 30 10 5 :

6

( EDTA )

30

)

20

/ 2000 rpm

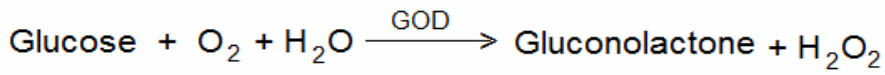
10

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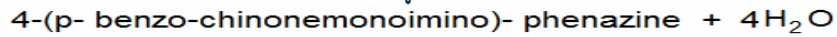
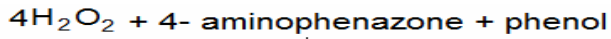
-2

(gluconolactone)



-4

:



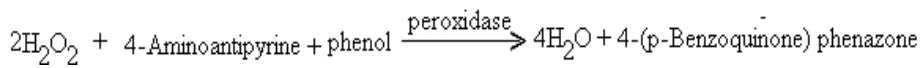
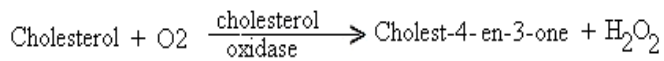
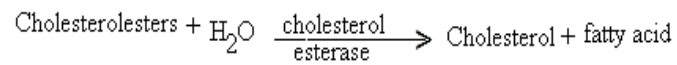
:

(D)

- 0.1mol/l ..... -1
- 0.3mmol/l ..... -2
- 1mmol/l ..... -3
- 20ku/l .... -4
- 1.5ku/l ..... -5
- 100 mg/dl .... -6



		:	
	D		
	10 (T-	)	-1
	10 (S-	)	-2
	(B-	)	-3
37	15	25	
			10
T-	546		
		B-	C -
			(mg/dl)
C= mg/dL	100 ×	$\frac{T}{S}$	= (mg/dl)
	:		-3
	(4-Amino anti pyrine)		-4



	:	
30 mmol/L	=	( pH =6.5 ) -1
0.25mmol/L	=	4-Amino anti pyrine - 2

...

25mmol/L	=	-3
5 ku/L	=	-4
100 U/L	=	-5
%0.01	=	-6
200mg/dl	=	-7

:

-1

1 -2

10 -3

10 25 -4

( ) -5

546 60 -5

:

$$C = \text{mg/dL} \quad 200 \times \frac{\text{---}}{S} =$$

: -4

( )

(ATP)

-3-

DHA

4-Amino anti pyrine ( - 4)

:

4- (p-Benzoquinone-monoimino) - phenazone

:

40 mmol/L = (pH = 7) 7 -1

5 mmol/L = - 4 -2

5mmol/L	=		-3
1mmol/L	=		-4
150U/ml	=		-5
0.5 U/ml	=		-6
0.4 U/ml	=		-7
0.4 U/ml	=	Amino anti pyrine	-8
1.5 U/ml	=		-9
%0.05	=		-10
200 mg	=		-11

:

-1

1 -2

10 -3

5 37 -4

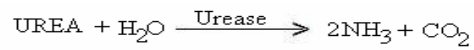
546 ( )

: -5

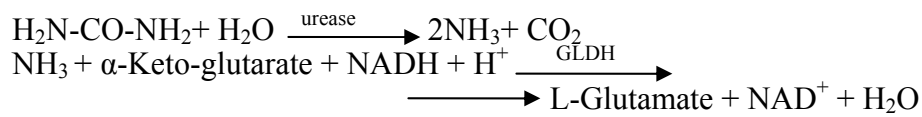
$$C = \text{mg/dL} \quad 200 \times \frac{\quad}{S} =$$

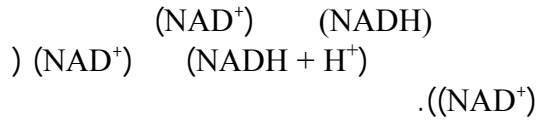
: -5

: ( )



:





:

- 50mmol/L -1
- 15mmol/L Alpha-Ketoglutarate -2
- 1000u/L -3
- 5.4 ku/L -4
- 0.18mmol/L -5
- 50mg/dL -6

:

- 
- 1 -
- 10 -
- 60 37 -
- 120 -
- 340 -

:

$$C = \text{mg/dL} \quad 50 \times \frac{\text{---}}{S} =$$

:(HDL) -6

(VLDL, LDL, HDL Chylomicron)  
(Phosphotungstic acid)

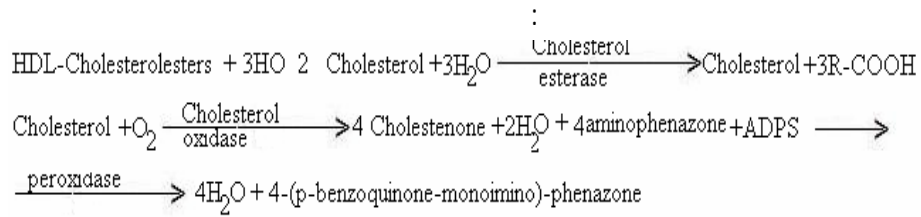
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VLDL)

(HDL

(HDL)

:Cholesterol CHOD/PAP Method



ADPS : N.Ethyl-N-(3-Sulfopropyl)-3-methoxy-aniline.

Phosphotungstic acid = 0.55 mmol/L -1  
 Magnesium chloride = 25 mmol/L -2

1 -1  
 ( ) 500 -2  
 10 25-20 -3  
 .4000 rpm 10 -4  
 -5  
 -  
 1 -  
 100 -  
 5 10 37 -  
 20-25  
 550

...

$$C = \text{mg/dL} \quad 3 \times \left( \frac{\text{HDL}}{S} \right) - 7$$

**: LDL**

(LDL) :

64mmol/L -  
50 ku/L -  
50mg/dl -

10 ( ) 100 -  
20-25 -  
4000 rpm 10 -

10 5 ( ) 37 1 100 -

20-25

550

C= mg/dL

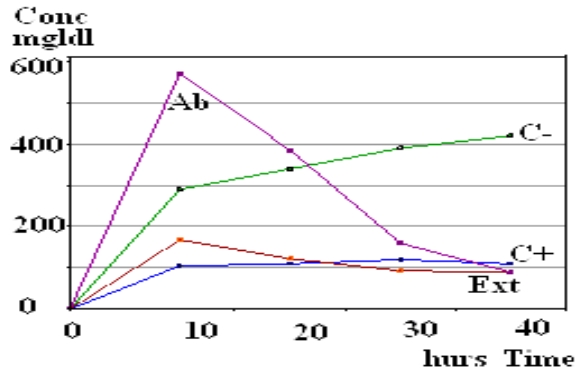
$$11 \times \left( \frac{\text{C}}{S} \right) = \text{LDL}$$

3

T-test  
 ( )  
 (P < 0.05)

%5 (mg/dl) (T- Student test) Tα (Significant - ) %1

( ) (Ab) : (Ext) (C-) (TRG) (C+) (GI) -1 (1)



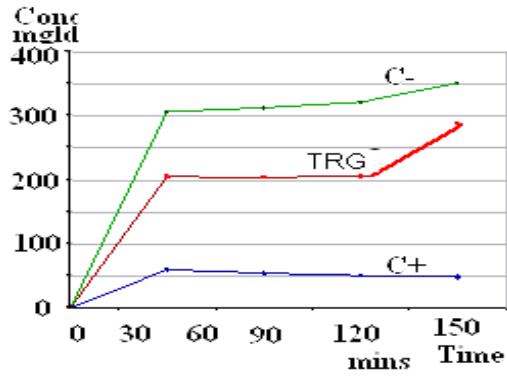
(1)

:  
5      %60  
10  
%76      30      %64  
40      %77  
.Ext (1 )

:  
20      (530mg/dl)  
          (90 mg/dl)  
40      (65mg/dl)  
          % 79  
%96      5  
%13      10  
20      %22  
%59      30  
%79      40  
.(Ab-1 )

:  
-1



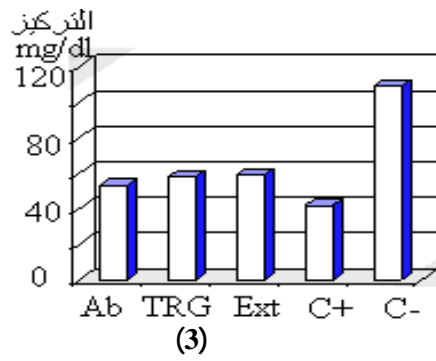


(2)

120  
(203 mg/dl) 30  
(285 mg/dl)  
:  
150  
30 %29  
90  
120 %28  
150 %25  
-2 ) (TRG  
-2  
-50 ( )  
50-75  
-1

(3)

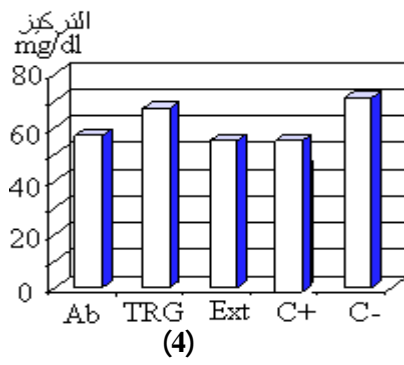
% 47 46



-2

(4)

%23



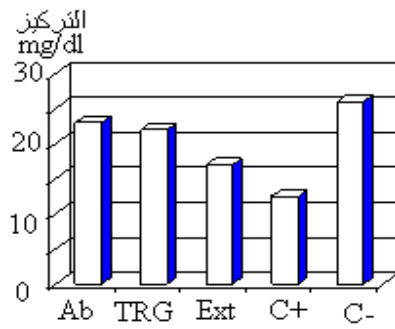
-3

LDL

(5)

LDL

(5) %35



(5)

- 4

HDL

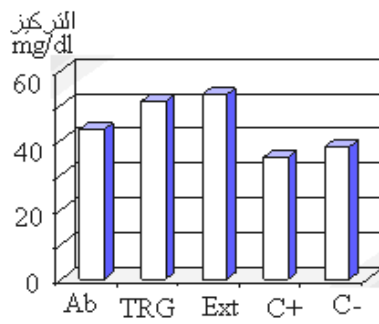
(6)

HDL

%34 39

(6)

(HDL)



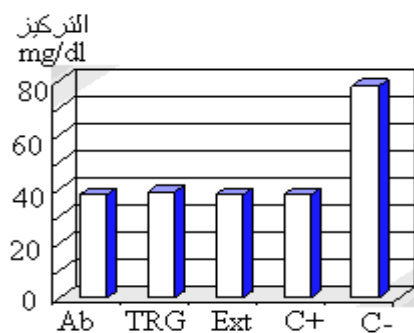
(6)

(Urea) -5

Urea

%51.2

(7)



(Urea) (7)

200g/dl  
95-75mg/dl

140-110mg/dl

[1]

(24)

(GTT)  
120  
(1,2)

[23]

(2,1 )

5

(1 ) %60 %96  
 %64 10  
 %13  
 30  
 %59  
 30  
 40 .(1 ) %76  
 %79  
 40  
 .(1) %77  
 %47 % 46  
 % 23 (3 )  
 .(4 ) %20 (LDL)  
 %12 %35 ( )  
 (HDL) (5 )  
 (6 ) %34 %39 ( )  
 .(7 )  
 [5]  
 [8]  
 [9,6]  
 .[12,26]

30 / 75  
 .(2 )  
 90 %29.4  
 120 %25.2 %27.7  
 %11 150  
 .  
 120  
 .(1 ) 40  
 - - (2 ) / 75  
 [35]  
 .[5]  
 75  
 %23 %47  
 %15 (LDL)  
 %51 (Serum Urea) %34 (HDL)  
 .(7-3)  
 / 75 / 50  
 30 20  
 / 50  
 .(23)sulfonylurea  
 / 10 7

/ 75  
/ 50

40

120

/ 50

40

30

.[28]

[29]

[30] NAD

( )

.[31]

[32]

.[30]

:

[33,34] (lipophilic)

[33,34] [36] [35]DNA  
[33,34] [34,31]  
[33]  
.[33,31,34]



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