

***Ruta graveolens* L.**

Dictamine

(2006/5/31 , 2006/2/2)

Ruta graveolens

()

35

MS

NAA BA / (2.0 0.5)

(2.0 2.0) (1.0 1.0)

20 NAA / 0.5 MS

Dictamine ()

IR

13) *Staphylococcus aureus*

(7

.

Tissue Culture Study of *Ruta graveolens* L. and Comparison of Dictamine Alkaloid in its Extracts

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ABSTRACT

The study showed a variety in the production speed of callus of *Ruta graveolens* L. from different explants (stems, leaves and petioles), the better and fast in initiation and growth of callus were the stems then petioles and finally the leaves, the best media for initiation and production of callus with plentiful shoots was MS with (0.5,2.0)mg/L from BA and NAA respectively approach in results the best initiation media of stem callus (1.0,1.0) and the best initiation media of leaves callus (2.0,2.0) from BA and NAA respectively, whole plant was produced by rooting the shoots that formed from callus by using MS media with 0.5 mg/ L of NAA during 20 day, different extracts from (natural plant, callus and shoots regenerated from callus) varied in Dictamin alkaloid purity wich is noticed by measurement of IR , the best appearance was in callus and shoots extracts, bacterial sensitivity test proved by recording (13, 7mm) inhibition zone for *Staphylococcus aureus* induced by shoots extract callus extract respectively while the plant extract gave negative test.

Ruta graveolens (rue)

(Wessner et al.,1999) Witches dates

1500

(Bowen et al.,1988)

.(2000) Rutaceae

(Poutaraud et al., 2000)

Alkaloids

Furanocoumarins

.(Bowen et al., 1988)

Coumarins

.(Poutaraud et al., 2000)

()

Chalepin Bergapten

(Massot et al., 2000)

.(Abyshev et al., 1992)

Chalepension

Alkaloids Flavonoids Furanocomarins

(Poutaraud et al., 2000)

Essential Oils

	Chlorophylls	Carotenoids
	(Wessner et al., 1999; Bowen et al., 1988)	Acridone
Rutacridone		Acridone 4
	Psoralen	.(Staba, 1982) Glycoside
Milesi 2001)	Psoriasis Vitiligo Dermatology	
	.(Paulini et al., 1991)	furanoacridone (et al.,
	(Bowen et al., 1988)	
	.(1999 ,)	
Staff	Headache Bruising Sprains Homeopathy	
	Stomach problems Rheumatic pains neck	
	.(Wessner et al., 1999) Phlebitis Neuralgia	
	.(Wessner et al., 1999)	
	(Bowen et al., 1988)	
	Furanocoumarins	(Ekiert et al., 2001)
Milesi 2001)		
		.(et al.,
Furancoumarins	Comarins	Rutacultin
	garden rue	Isopimpinelling
		.(Staba, 1982)
		Rue

:

(Common Rue) *Ruta graveolens*

.(/)
 NaOCl

(2: 1) ()% 6
 (5) 3 10

:

MS

(50) / 7-5 (Murashige and Skoog, 1962)

2 ± 25

2000 8 / 16

:

Explants

1 ()
 (

:

MS

(NAA) Naphthaleneacetic acid (BA)Benzyl adenine

(0,0) (/ 2.0 , 1.0 , 0.5 , 0)

NAA / 1.0 BA

(1.0 ,1.0) (0.5 ,2.0)

(NAA ,BA) / (2.0 ,0.5) (1.0 ,2.0)

... *Ruta graveolens* L.

/ 5

2000 °2 ± 25

15

8/

16

:

MS

MS

/ (2.0 ,1.0 , 0.5)

NAA

.(MSO)

:

()

)

(40)

%96

(200)

(

Magnetic Stirrer

24

Rotary Vacuum

Evaporator

. (Verpoorte et al., 1982)

(Grand et al., 1988)

:

IR

)Charcoal

.(FT-IR, Tensor-27 Bruker,Germany)

(

:

(Vandepitte et al., 1991)

Pseudomonas (

) *Bacillus subtilis* *Staphylococcus aureus*

⁸10x1

24

() *aeruginosa*

0.1

0.1)

24

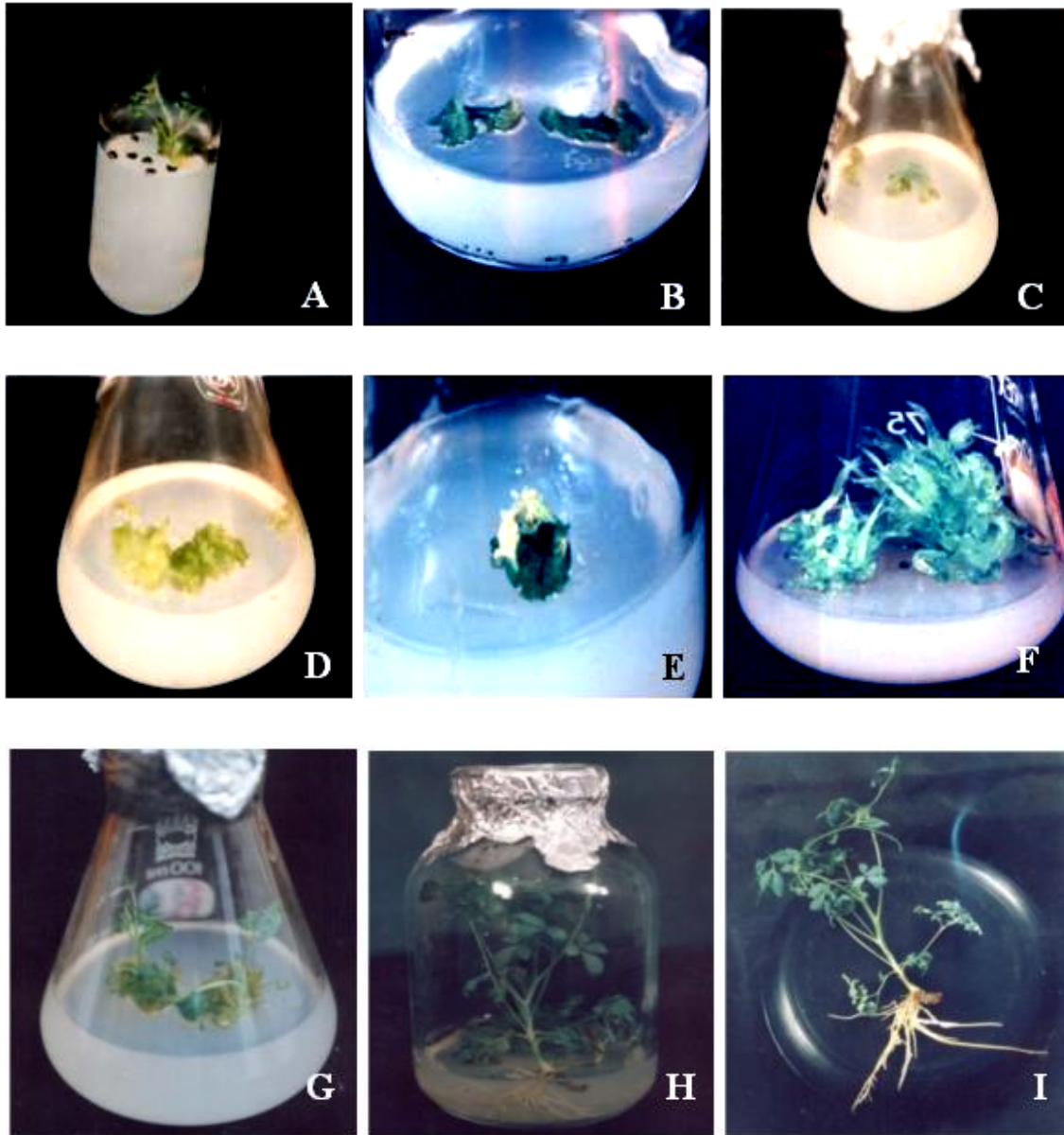
37

(DMSO

)

.(Doxycycline

:
 %100
 35
 (4-3)
 A)
 50 0.5
 .(1
 Explants
 .(Bowen et al., 1988)
 :
 C B)
 .(1 (1
 25
 35
 E D) 7
 (2)
 .(1) BA
 .(1)
 45 .
 7
 7 10
)
 (1990
 BA NAA (Massot et al., 2000)BA 2,4-D
 (Ekiert et al., 2001)



.Ruta graveolens L.

:1

				: A
.	(1.0 NAA BA)MS	15	:B
.	(1.0 NAA BA) MS	25	:C
.	B	35		:D
.	C	35		:E
			65	:F
			65	:G
	.	NAA / 0.5	MS	:H
				:I

BA / 5 NAA / 1
 .BA / 0.1 NAA / 0.1

Ruta graveolens L.

:1

15

BA NAA

MS

*		(/)		رقم المعاملة
		BA	NAA	
-	+++	0.5	0.5	1
-	++	1	0.5	2
-	+	2	0.5	3
-	+	0.5	1	4
-	++++	1	1	5
-	+++	2	1	6
-	+++	0.5	2	7
-	++	1	2	8
-	+	2	2	9
-	+	0.0	1	10
-	-	1	0.0	11
-	-	0.0	0.0	12

/ 5 / *

(-)

. 0.2 +

. 0.5 ++

. 0.7 +++

. 1.0 ++++

Ruta graveolens

:2

NAA

MS

35

BA

*		(/)		
		BA	NAA	
++	R ₃ +++	0.5	0.5	1
+	R ₄ +++	1	0.5	2
+	+++	2	0.5	3
+	++	0.5	1	4
+	R ₆ ++++	1	1	5
++	R ₂ +++	2	1	6
R ₇ +++	R ₁₀ ++++	0.5	2	7
++	R ₉ +++	1	2	8
R ₃ +++	R ₇ +++	2	2	9
-	-	0.0	0.0	10
+	+++	0.0	1	11
-	+	1	0.0	12

/ 5 / / *

(-)

← (++++←+)

← R

:

(3)

(2 1)

. 3

35

:

(1 G F)

65

20

NAA / 0.5

.(4)

MS

:3

. BA NAA

35	15	*		
			BA	NAA
++++	++		2	0.5
+++	++		1	1
+++	++		2	1
++	+++		0.5	2

/ 10 *

MS

20

:4

.NAA

()			NAA	
3	2	1	/	
6	5	-	0.5	1
2	-	-	1.0	2
0.5	0.5	-	2.0	3

(-)

1

MSO

(1 I H)

4

:IR

KBr

(2) Dictamine

(3)

Furanocoumarins

(Massot et al., 2000)

. (Bowen et al., 1988)

... *Ruta graveolens* L.

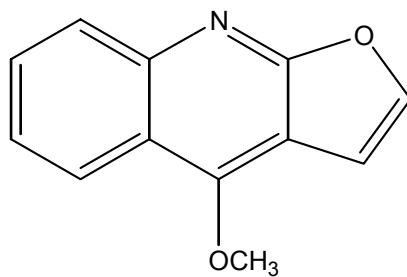
:

CH-CH ₂	1403	C=N	1638	C=O	1736
C-O	1129	CH	2979		3400

(Dictamine)

.(Staba, 1982)

Furoquinoline



.(Staba, 1982)

Dictamine

: 2

:

(4)

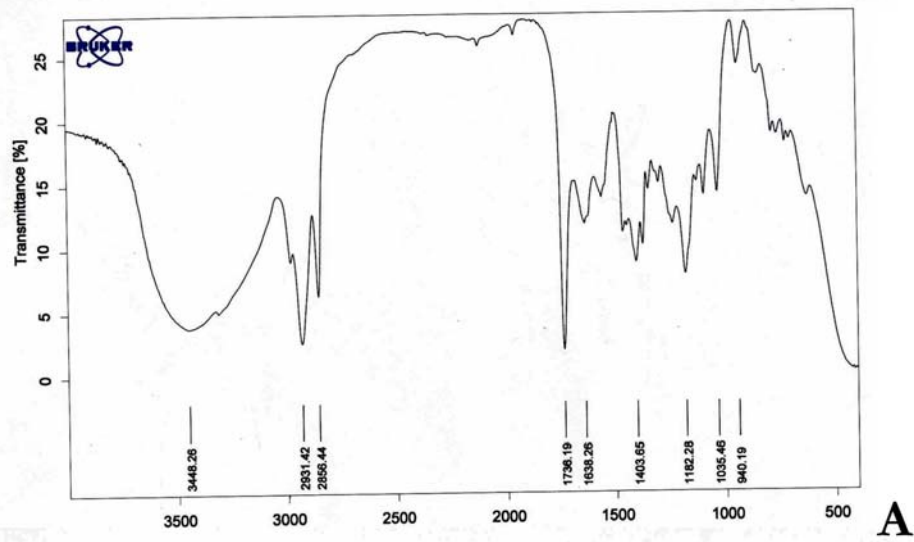
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Staphylococcus aureus

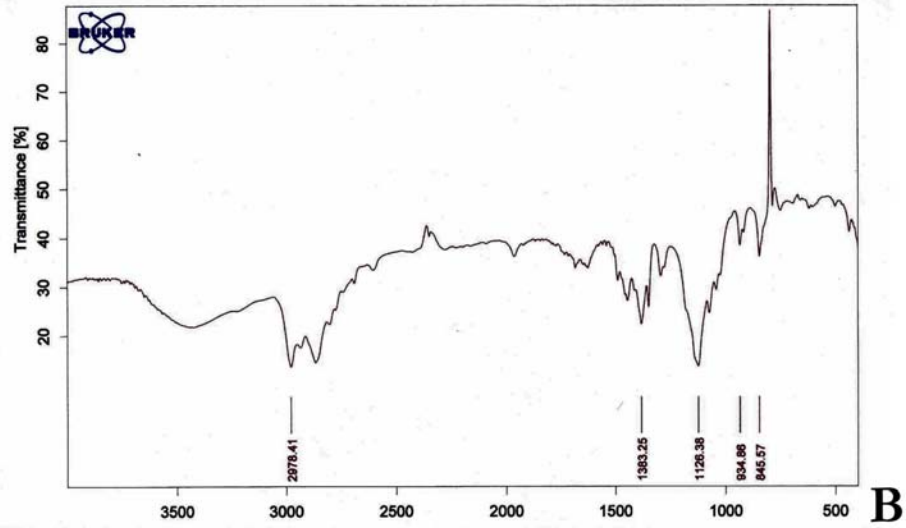
Staphylococcus aureus

. *Pseudomonas aeruginosa*

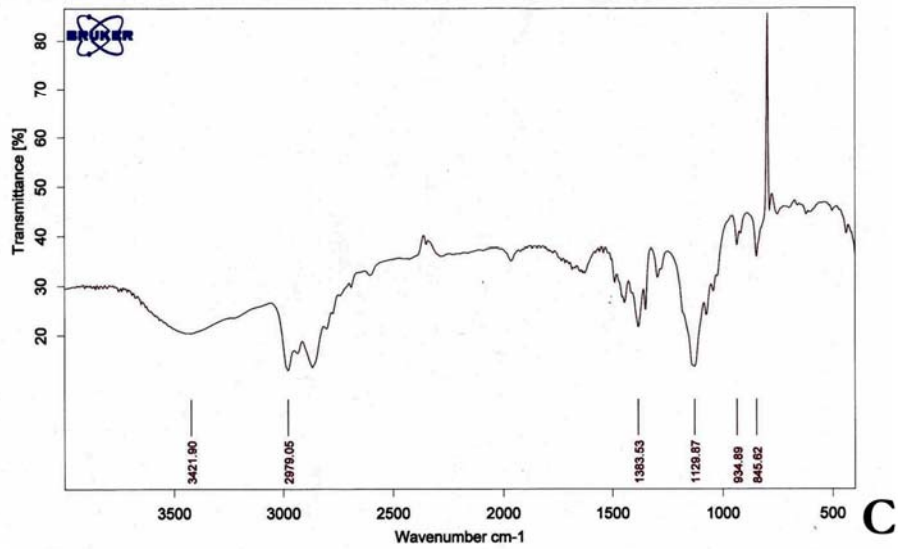
Bacillus subtilis



A



B



C

شكل 3: أشكال قياس IR —
 A: مستخلص النبات الطبيعي للسذب، B: مستخلص كالس السيقان،
 C: مستخلص الأفرع الخضريّة الناتجة من الكالس

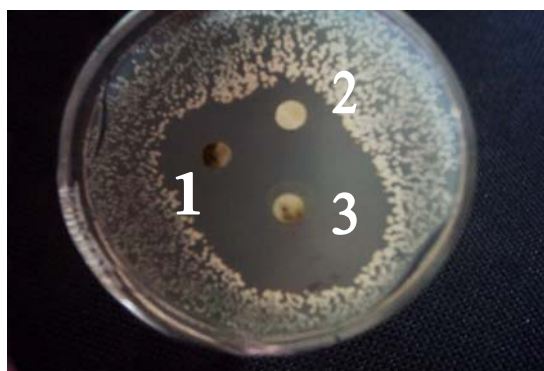
:5

<i>Pseudomonas aeruginosa</i>	<i>Bacillus subtilis</i>	<i>Staphylococcus aureus</i>	
-	*22	-	
-	14	7	
-	35	13	

- *

rutacultin

.(Staba,1982)



Dictamine

: 4

-1

-2

-3

.2 .2000

.1999

.1990

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