

# Hypericum

(2) (1)  
(4) (3)  
(4) (2) (1)  
(3)

2005/07/12  
2005/11/15

(*clusiaceae* ) *Hypericum*

:

## Study of anatomical variability of some species hypericum genus in Syria

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### ABSTRACT

The results of studying of histological structure of leaf and stem , stomata patterns, the shape and size of stomata and the shape of epidermis cells and its walls between some of hypericum genus speeis (family clusiaceae), show that there are relevant anatomical differences among the studied species, which can be considered as taxonomical criteria for distinguishing the studied species of Hypericum genus from each other.

**Key Words:** *Hypericum*, Anatomy Study, Stomata, Epidermal Cells, Histological Structure, Syria, Variability.

*Hypericum*

Barnes, 2001 Nahrstedt 1997, Patoka .2003) : *H.perforatum*  
 .(Chrubasik .2000,  
 22 (Judd, 1999) 360  
 .(Mouterede, 1970) 15 21

*Hypericum perforatum**Hypericum*

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 (  
 : 1  
 (Mouterde.1970)  
 )  
 .(  
 (1) .2004-2003

(1)

			<i>H.perforatum</i>
			<i>H.langinosum</i>
			<i>H.amblysepalum</i>
			<i>H.libanoticum</i>
			<i>H.nanum</i>
		) ( )	<i>H.triquetrfolium</i>
			<i>H.thymifolium</i>
		( )	<i>H.oliveri</i>
			<i>H.montbretii</i>

:

Clusiaceae      *Hypericum*

Hypericaceae

Theales

:

) *H. perforatum*; *H. amblysepalum*

.(

:



*H .perforatum*

(1)

-2

:

.(×1000 ×400 ×100)

20

.(×400)

.(×1000 ×400)

:

10 2004

) 100

(2005

2005

.(1987 )

: 1

)  
:  
(2 )  
(unequal-celled) anisocytic .1  
(a-2 ) Cruciferous

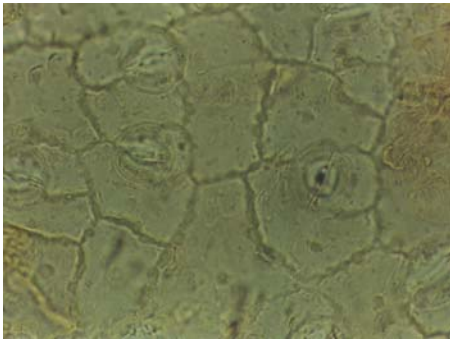
*H. perforatum, H. langinosum, H. amblysepalum, H. libanoticum, H. oliveri, H. montbretii, H. triquetrifolium*  
(c-2) Rubiaceae paracytic .2

*H. thymifolium*  
(b-2) (6-4) :actinocytic .3  
*H. nanum*

20.8) ( 20.6) :  
35.2) *H. montbretii, H. Triquetrifolium* (  
*H. oliveri* ( 33.8) ( 34.2) (  
*H. thymifolium, H. amblysepalum*  
(35.2-20.6)

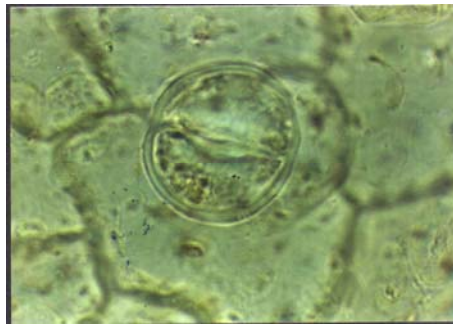
( 22) ( 25.2) *H. perforatum*  
( 27.2) *H. langinosum* ( 22)  
*H. libanoticum* ( 30.2) *H. amblysepalum*  
*H. nanum* ( 22.6)

(b,c 2 ) :  
*H. montbretii, H. langinosum, H. amblysepalum*  
(a-2 )



(400×)

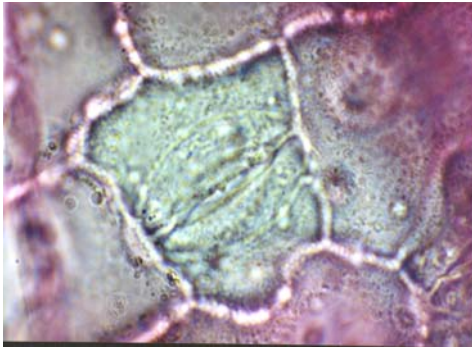
a -



(1000×)

*H. amblysepalum*

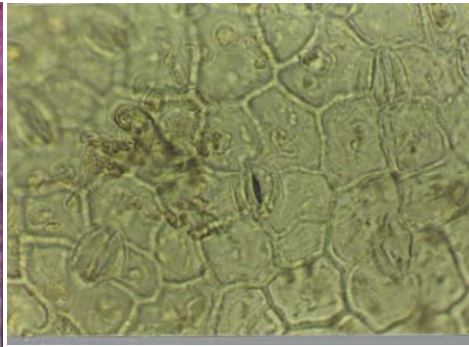
anisocytic



c-(1000×)

*H. thymifolium*

paracytic



b- (400×)

*H. nanum*

actinocytic

(2)

:(d-3 ) *H. nanum*

(3 ) .

.(a-3 ) *H. perforatum*

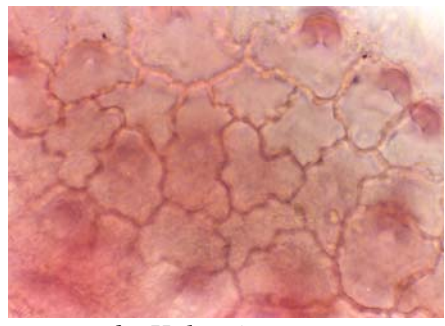
*H. montbretii*, *H. langinosum*,  
(b-3 ) *H. thymifolium*

*H. triquetrifolium*

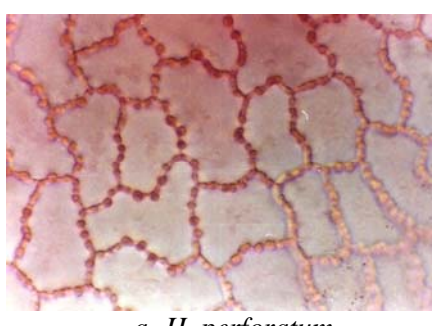
) *H. libanoticum*, *H. oliverei*

/  
*H. amblysepalum*  
. (c-3)

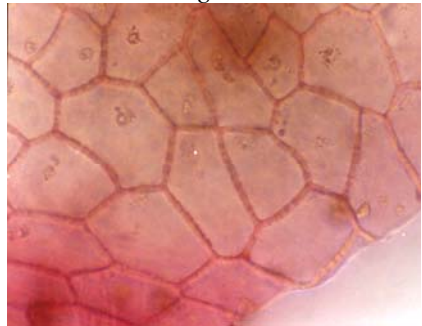
. (d-3 ) *H. nanum*



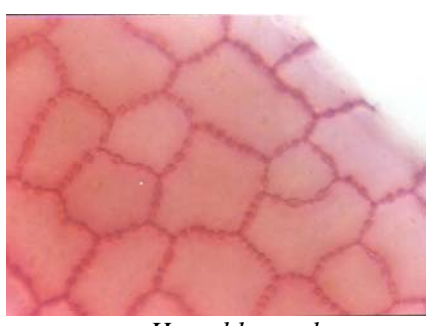
b- *H. langinosum*



a- *H. perforatum*



d- *H. nanum*



c - *H. amblysepalum*

(3)

:

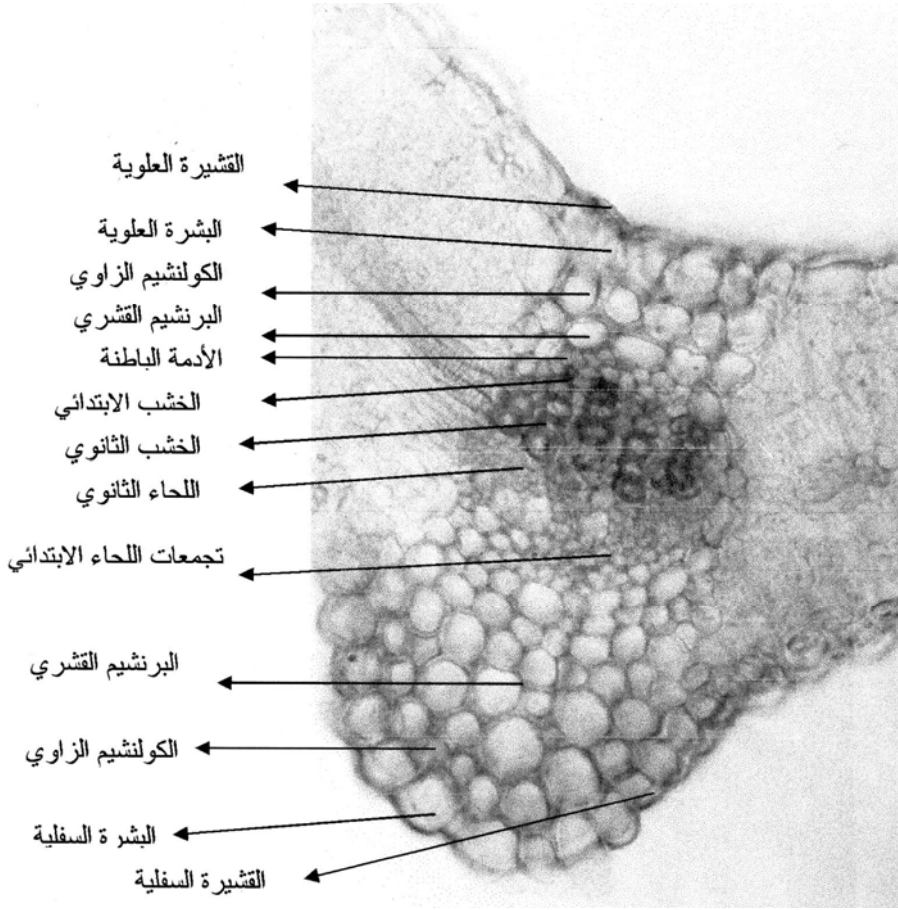
2

:

*H. thymifolium*



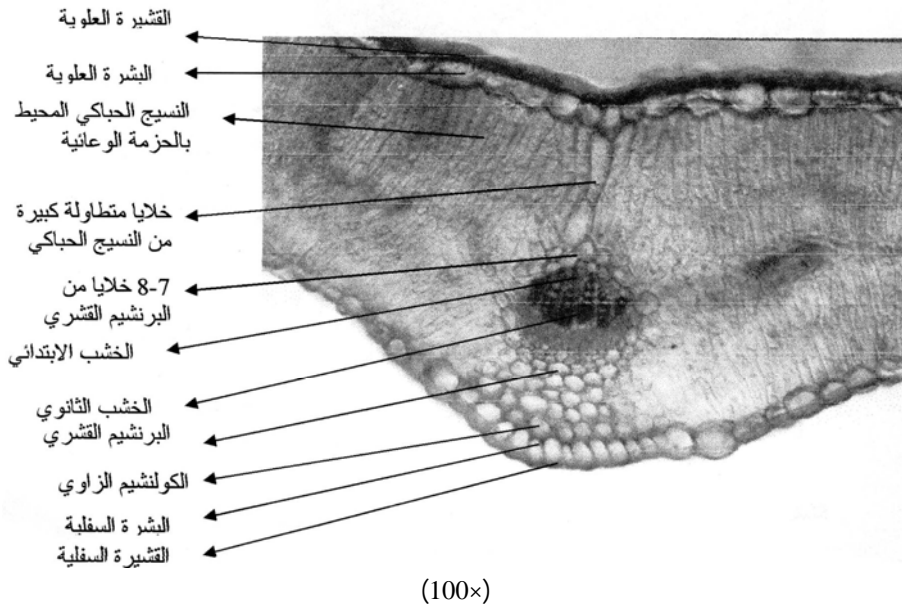
	( )
:	-
	: -1
	<i>H . oliveri</i>
	.(c-4 )
	: -2
:	
:	<i>H. langinosum</i>
	-
	-
	.( )
	-
	: - 3
	: - 4
. <i>H.nanum</i>	: -5
	: -6
	: -7



(100×)

*H. triquetrifolium*

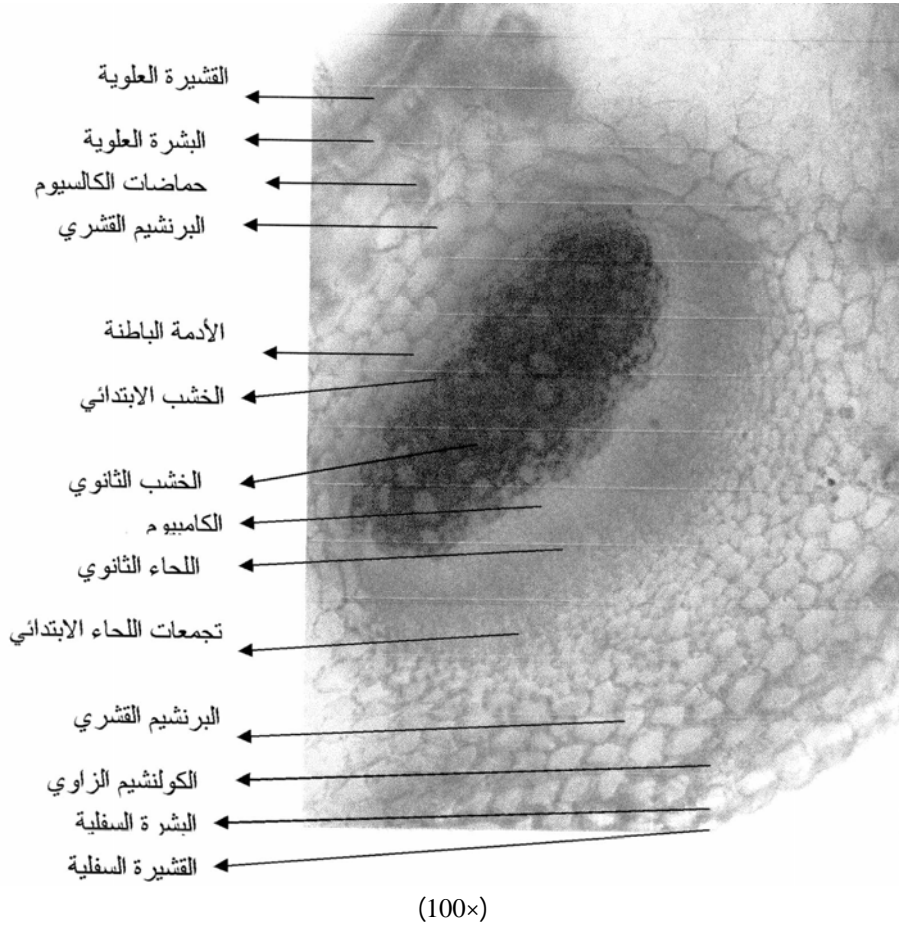
-a

*H. libanoticum*

- b

*H. oliveri H. libanoticum*

- c



*H. nanum*

-d

(4)

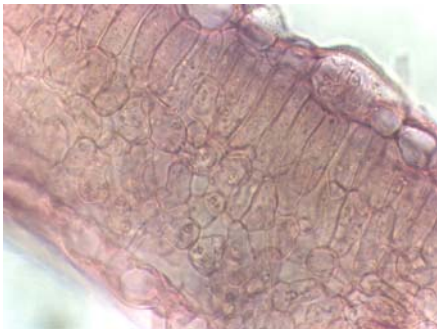
: :

: -1

: -2

*H. langinosum*

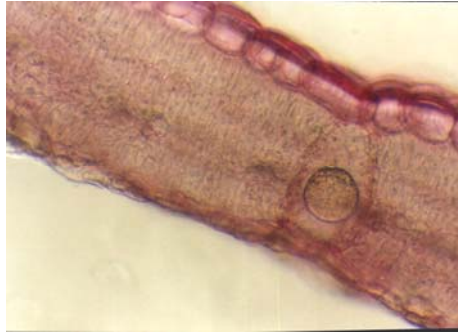
	:	-3
(	)	
<i>H. nanum</i>	:	-4
	:	-5
	:	-6
	:	-7
<i>H. nanum</i>	:	-8
	:	-9
<i>H. nanum</i>	:	-10
	:	-11
<i>H. nanum</i>	:	-12
	:	-13
<i>H. langinosum</i>	:	-14



(400×)

-b

*H. triquetrifolium*



(200×)

-a

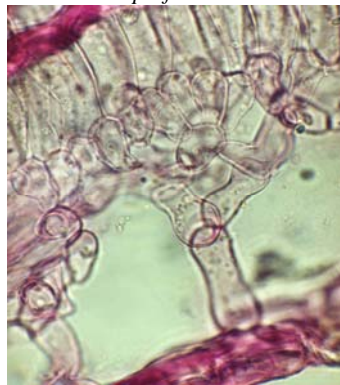
*H. perforatum*



(200×)

-d

*H. laninosum*



(400×)

-c

*H. thymifolium*



(200×)

e

*H. nanum*

(5)

:					
	:				
		:			-1
<i>H. perforatum, H. langinosum,</i>					
<i>.H. amblysepalum, H. thymifolium, H. montbretii</i>					
<i>.H. nanum, H. triquetrifolium</i>					
<i>H. libanoticum, H. oliveri</i>	<b>3</b>				
					$(c - 4)$
		:			-2
					$(a - 6)$
					$(b - 6)$
<i>H. amblysepalum, H. thymifolium, H. montbretii, H. nanum</i>					$(c, e - 6)$
<i>)H libanoticum, H. oliveri, H. triquetrifolium</i>					$(d - 6)$
					:
					-3
					$(d - 5)$
					<i>H. langinosum</i>
		:			-4
<i>H. perforatum, H. amblysepalum, H.</i>					
					<i>montbretii,</i>
		:			-5
<i>H. amblysepalum, H. thymifolium, H. nanum, H. libanoticum, H</i>					
					<i>oliveri</i>
		:			-6
<i>H. perforatum, H. amblysepalum</i>					
					$(a - 6)$
<i>H. oliveri, H. libanoticum,</i>					
					$(d, c - 6)$
					<i>H. nanum, H. thymifolium.</i>

*H. langinosum, H. triquetrifolium* .( *b* -6 )

.( *e* -6 ) *H. montbretii*  
:

*H. perforatum, H. libanoticum, H. oliveri, H. nanum*  
.( *a* -5 ) *H. amblysepalum*

*H. triquetrifolium, H. langinosum, H. thymifolium,*  
.( *b* -5 ) *H. montbretii*  
:

*H. libanoticum H. oliveri*  
*H. libanoticum*

*H. oliveri*  
( *a, b* -4 )  
:

*H. libanoticum, H. oliveri*  
*H. amblysepalum, H. nanum, H. perforatum, H. montbretii, H. langinosum*  
.( *a* -5 )

.( *b* -5 ) *H. triquetrifolium*

.( *c* -5 ) *H. thymifolium*  
:

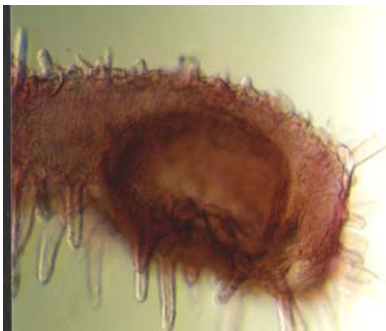
*H. triquetrifolium H. perforatum, H. montbretii, H. langinosum, H. amblysepalum.*  
*H. thymifolium, H. libanoticum* ( *a* -4 )

.( *d, b* -4 ) , *H. nanum, H. oliveri*  
:

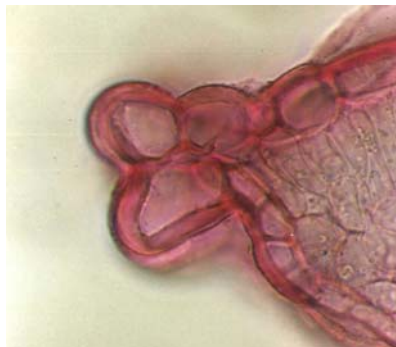
-10



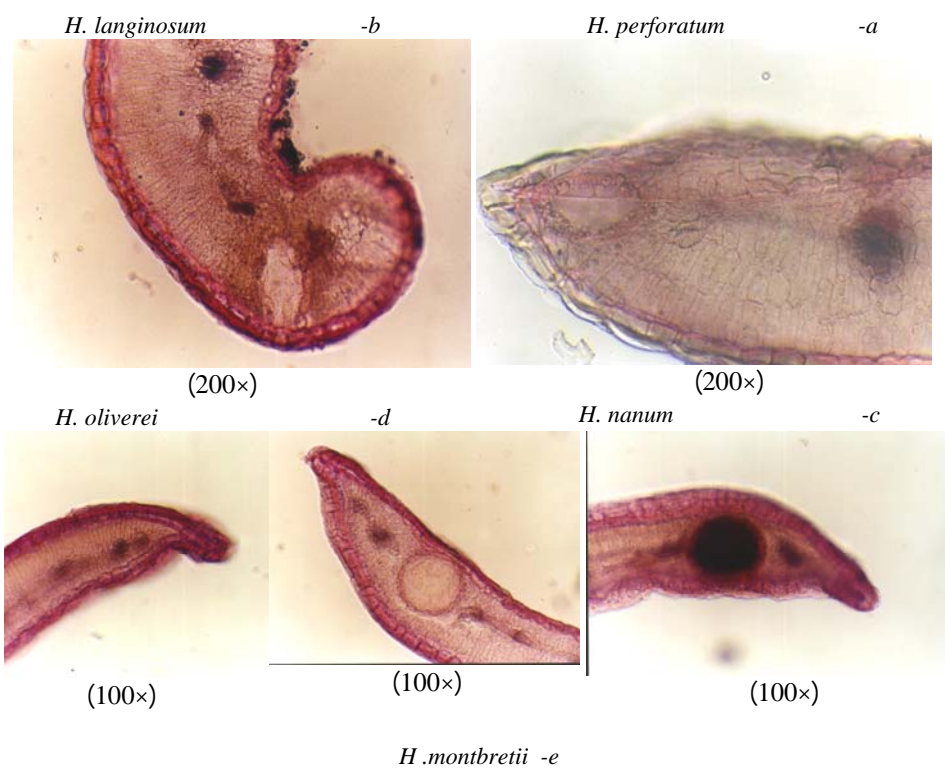
.( b -4 )	<i>H. libanoticum, H. oliveri</i>	8-7
.( a -4 )		2-1
:		-11
	. <i>H. langinosum</i>	8-7
.( d -4 )	<i>H. nanum</i>	12-10
.( a -4 )		5-4
:		-12
.( d -4 )	<i>H. nanum</i>	12-10
.( a -4 )		6-4
.( d -4 )		-13
( e -5 )	<i>H. nanum</i>	- 14
:		.( d -4 )
		-15
<i>H. perforatum</i>		
	.( a -7 )	<i>H. thymifolium</i>
	.( b -7 )	<i>H. langinosum</i>
	.( c -7 )	<i>H. triquetrifolium</i>
	.( d -7 )	<i>H. montbreti</i>



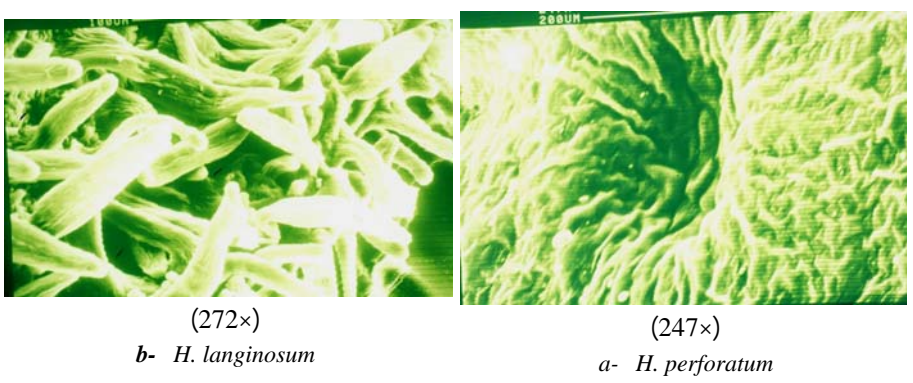
(200×)

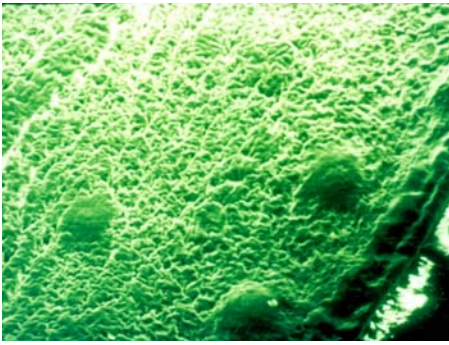


(200×)

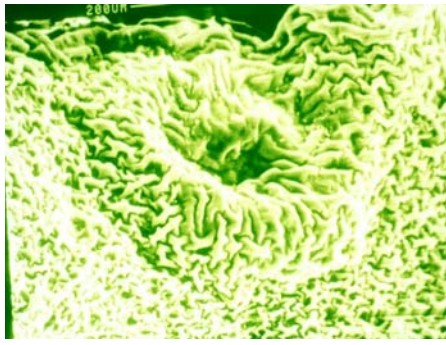


(6)





d- (64.6x)  
*H. montebretii*



c- (157x)  
*H. triquetrifolium*  
(7)

: 2

(8 ) :

: -1

: -2

*H. langinosum*

: -3

.( b -8 )

: -4

*H. nanum*

: -5

*H. nanum*

: -6

( )

: -7  
( )

: -8

)

.(c -8

-9

: -10

*H .nanum*

: -11

: -12

*H.nanum*

: -13

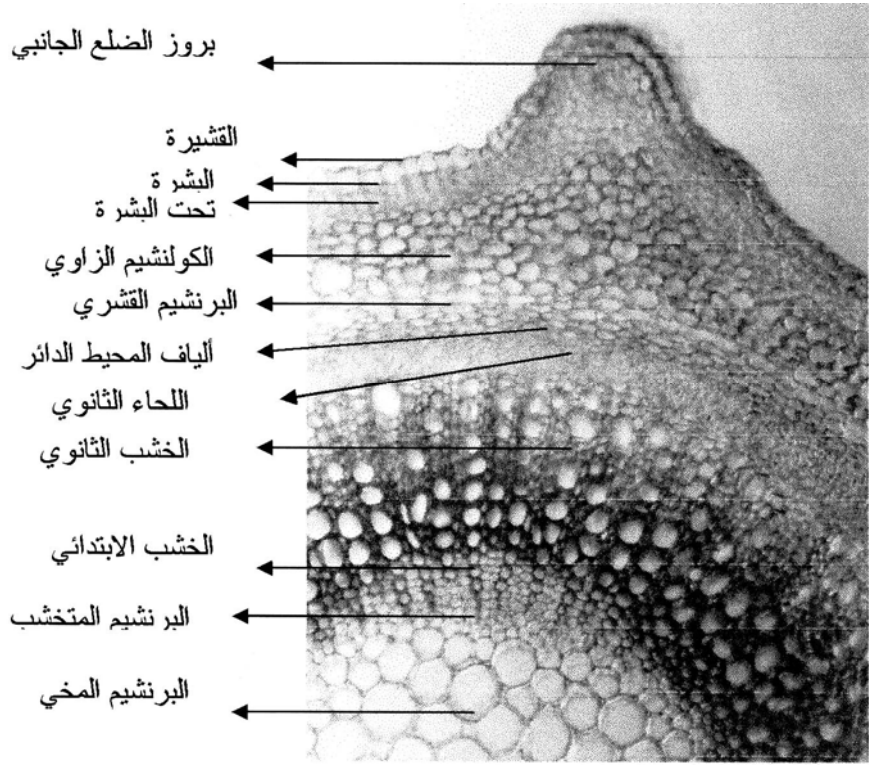
: -14

: -15

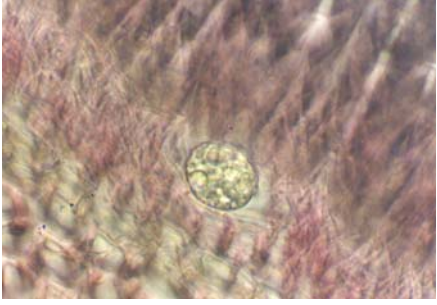
*H.oliveri*

*H. nanum*

	:		
		:	-1
		. <i>H. amblysepalum</i> , <i>H. perforatum</i>	
		. <i>H. libanoticum</i> , <i>H. langinosum</i> , <i>H. triquetrifolium</i>	
			.(g ,f -8 ) .
		.( d -8 ) . <i>H. langinosum</i>	:
			-2
			:
			-3
		<i>H. montbretii</i> , <i>H. thymifolium</i> , <i>H. nanum</i> ,	
		(f -7 )	
			<i>H. oliveri</i>
		.(h- 8 ) <i>H. nanum</i> , <i>H. thymifolium</i>	-4
		.(h -8 ) . <i>H. nanum</i>	-5
		.(e -8 ) <i>H. nanum</i>	-6
-4)		( 12-10) <i>H. nanum</i>	-7
		.(a ,h -8 ) .	(6
		( 12 -10) <i>H. nanum</i>	-8
		.(a ,h -8 ) .	(2-1) (4-3)
			:
			-9
		.(f -8 ) <i>H. oliveri</i>	
		.( k -8 ) <i>H. montbretii</i>	



(100×) *H.perforatum* -a



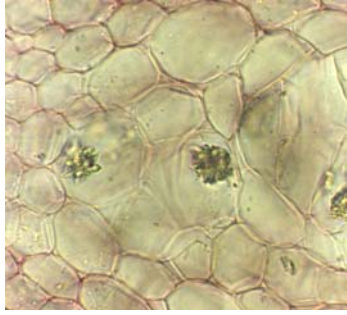
(400×)

*H. langinosum*



(400×)

*H. perforatum*



(400×)



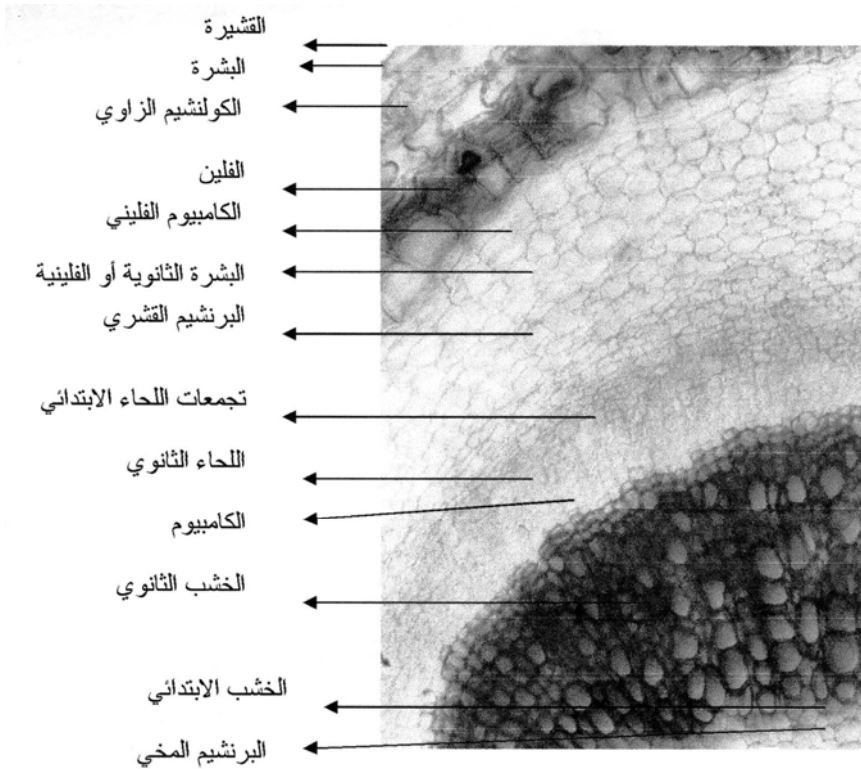
(200×)

-e

*H. langinosum*

-d

*H. nanum*



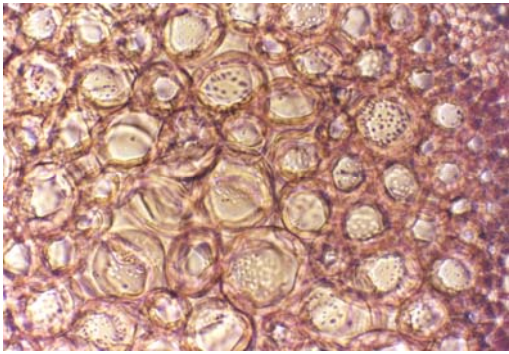
(100×) *H. nanum*

-h

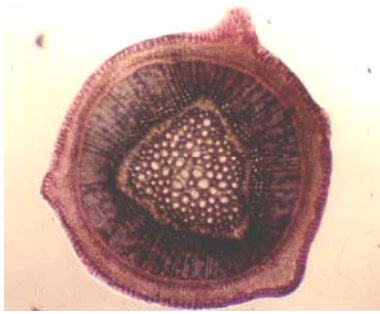
- القشيرة
- البشرة
- الكولنشيم الزاوي
- الفلين
- الكامبيوم الفليني
- البشرة الثانوية أو الفلينية
- البرنشيم القشري

- تجمعات اللحاء الابتدائي
- اللحاء الثانوي
- الكامبيوم
- الخشب الثانوي

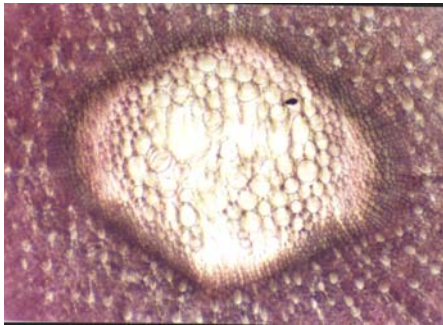
- الخشب الابتدائي
- البرنشيم المخي



(400× 40×)



( ) -f  
*H. oliveri*



(10×)

*H. montbretii* -k



(40×)

*H. montbretii* -g

(8)

- :
- H. nanum*..... :1
  - 2..... :1
  - H. langinosum*..... :2



3.....	:2
5.....	:3
4.....	:3
<i>H.triquetrfolium</i>	:4
	:4
<i>H. thymifolium</i> .....	
6.....	:5
	:5
7.....	
3-2	:6
<i>H. ibanoticum</i> .....	
	:6
<i>H. oliveri</i> .....	
<i>H. amblysepalum</i> .....	:7
	:7
8.....	
<i>H. perforatum</i> .....	:8
<i>H.mntbretii</i> .....	:8

*H. perforatum*

(Ghalreman.et al.1999)

*H. yocyamus*

(Oran.et al.1998)

*Globularia*

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- .(1987) .
- .122-119 -
- fabaceae MedicagoL .(2005) .
- .(2005) .