

## دراسة حبوب اللقاح لبعض أجناس عشيرة Heliantheae (Compositae) في العراق

*Eclipta* *Bidens* L.) Heliantheae  
( *Xanthium* L. *Helianthus* L. (L.) Hassk.

*Xanthium*

### Abstract

The paper comprise comparative polynological study of species of four genera belong to the tribe Heliantheae (i.e. *Bidens* L. , *Eclipta* (L.) Hassk. , *Helianthus* L. and *Xanthium* L.) in Iraq. Pollen grains were found to be Tricolporate but Bicolporate and Tetracolporate were Presented also. It was found the external features of the pollen wall of great taxonomic value.

Heliantheae

Spines

Echinata

( Wodehouse, 1935 )

"

"

Exine

Furrows

( Erdtman, 1943 )

*Xanthium* spp.

*Bidens tripartita*

*Xanthium*

(Wodehouse, 1945)

"

Heliantheae

Ambrosieae

Hay fever

( Karim and Ali, 1979 )

.Pollination

*Xanthium*

*Eclipta alba*

*Bidens tripartita*

(Perveen ,1999)

"

*saccharatum*

*E.alba*

"

- Oblate- Spheroidal

-

Ovate - Spheroidal

. Sharp- pointed

"

AL-ayah, 1983 )

. Staminal Cylinder

Cover Slide

( - )

Oil Immersion Lens

.Tricolporate

*H.tuberosus* *H.annuus*

Tetracolporate

( )

Bicolporate

( Erdtman, 1971 )

*X.spinosum*

*H.annuus*

( Erdtman ,

1943 )

Spheroidal shape

. *H.annuus* *E.alba*

Eiilptic

Suboblate

. *B.tripartita*

.Spheroid- Prolate spheroid

*E.alba* *B.tripartita* Echinata " -:  
 Spineless . *Helianthus*  
 . *Xanthium*

*H.annuus* *B.tripartita* ( , )  
 . ( , )  
*B.tripartita* Dome shape  
 . Conical  
*X.spinosum*

. ( )  
*X.spinosum*  
*X.strumarium* subsp. *strumarium* ( , )  
 " " ( , )  
 . ( )  
 " ) Exine  
 Exine . ( )  
*X.strumarium* subsp. *strumarium* ( , )  
 . ( , ) *H.annuus*

-:  
 . *Xanthium*  
 .

Tricolporate Heliantheae  
 (Wodehouse, 1935)

*H.annuus* Tetracolporate Bicolporate  
*H.tuberosus*

(Radford et al., 1974)  
*X.spinosum* ( )  
*H.annuus*

(Torres, 2000)

"

Polyploidy

(AL-

(AL-Bermani,1991)

(Stebbins,1971)

(AL-Hassiani,1999)

Sawah,1992)

(Erdtman, 1943)

"

(Karim and Ali, 1979)

. *Xanthium saccharalium* *E.alba* *B.tripartita*

*Xanthium*

Echinate

Spineless

(Wodehouse, 1945)

" *Xanthium*

(Skvarla and

Heliantheae

Turner, 1969)

" ( )

*Xanthium*

"

"

"

(Perveen, 1999)

(TEM)

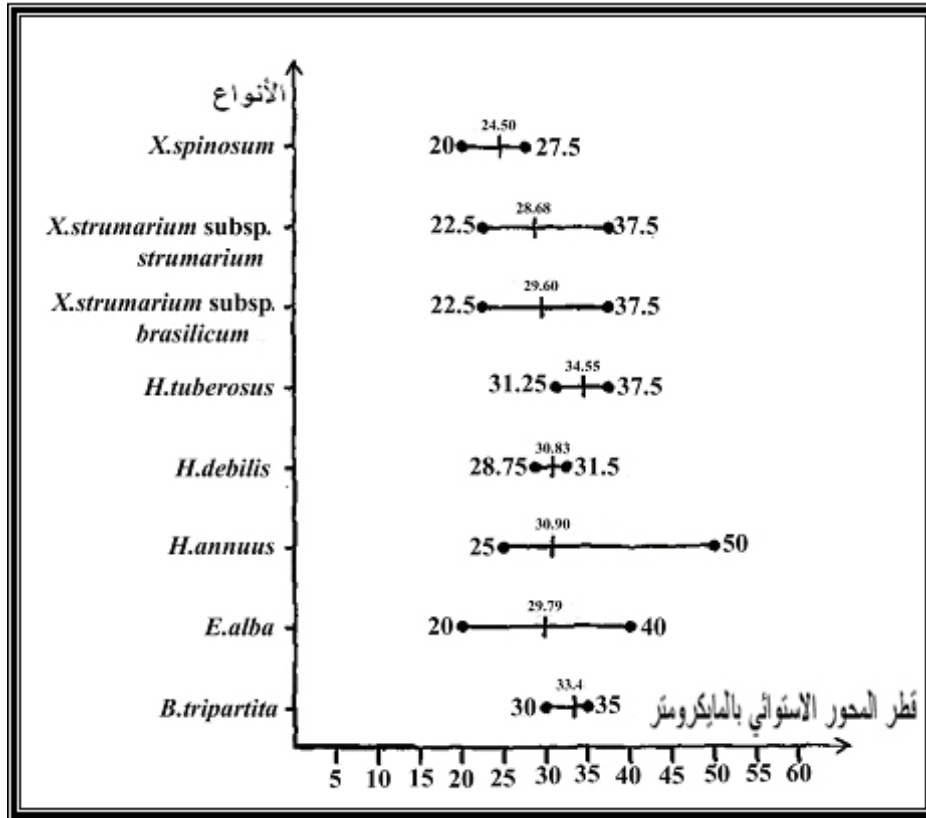
(SEM)

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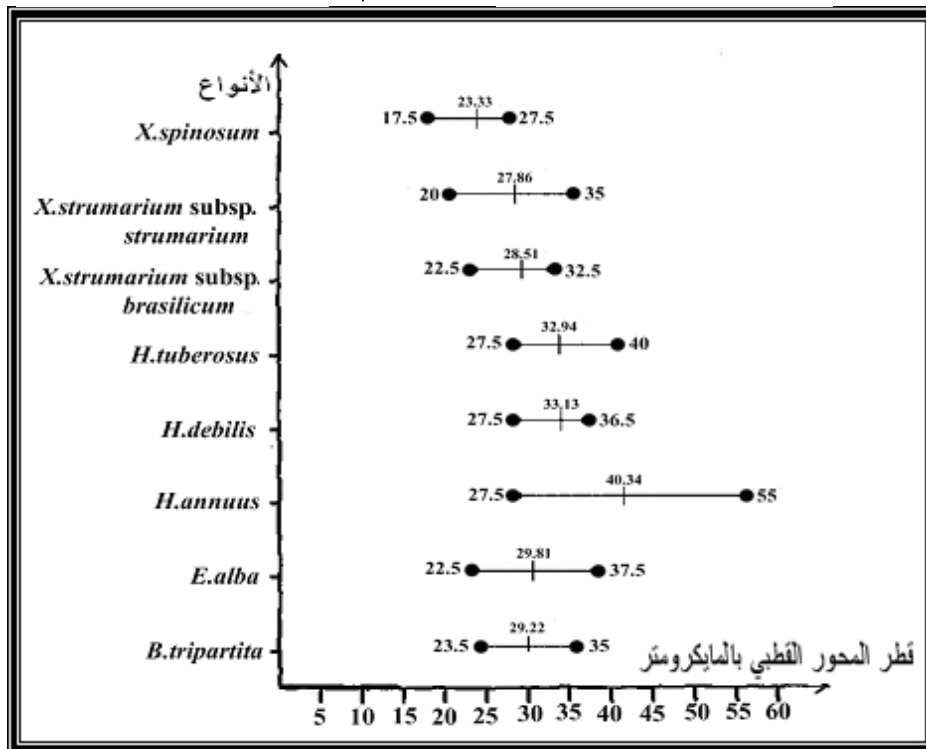
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						P/ E	(E)	(P)		
	+			' - , ( , )	' - ( , )	- , ( , )	'	- ( , )	- , ( , )	<i>Bidens tripartita</i>
		+		' - ( , )	' - , ( , )	- , ( , )		- ( , )	' - , ( , )	<i>Eclipta alba</i>
		+	-	- ( , )	- ( , )	- , ( , )	'	- ( , )	- , ( , )	<i>Helianthus annuus</i>
+				' - , ( , )	' - ( , )	- , ( , )	'	' - , ( , )	' - , ( , )	<i>H.debilis</i>
+			-	- , ( , )	' - ( , )	' - , ( , )	'	' - , ( , )	- , ( , )	<i>H.tuberosus</i>
+				- ( , )	' - , ( , )	---	'	' - , ( , )	' - , ( , )	<i>Xanthium strumarium</i> subsp. <i>brasilicum</i>
+				' - , ( , )	- , ( , )	---	'	' - , ( , )	- ( , )	<i>X.strumarium</i> subsp. <i>strumarium</i>
+				' - , ( , )	' - , ( , )	---	'	' - ( , )	' - , ( , )	<i>X.spinosum.</i>



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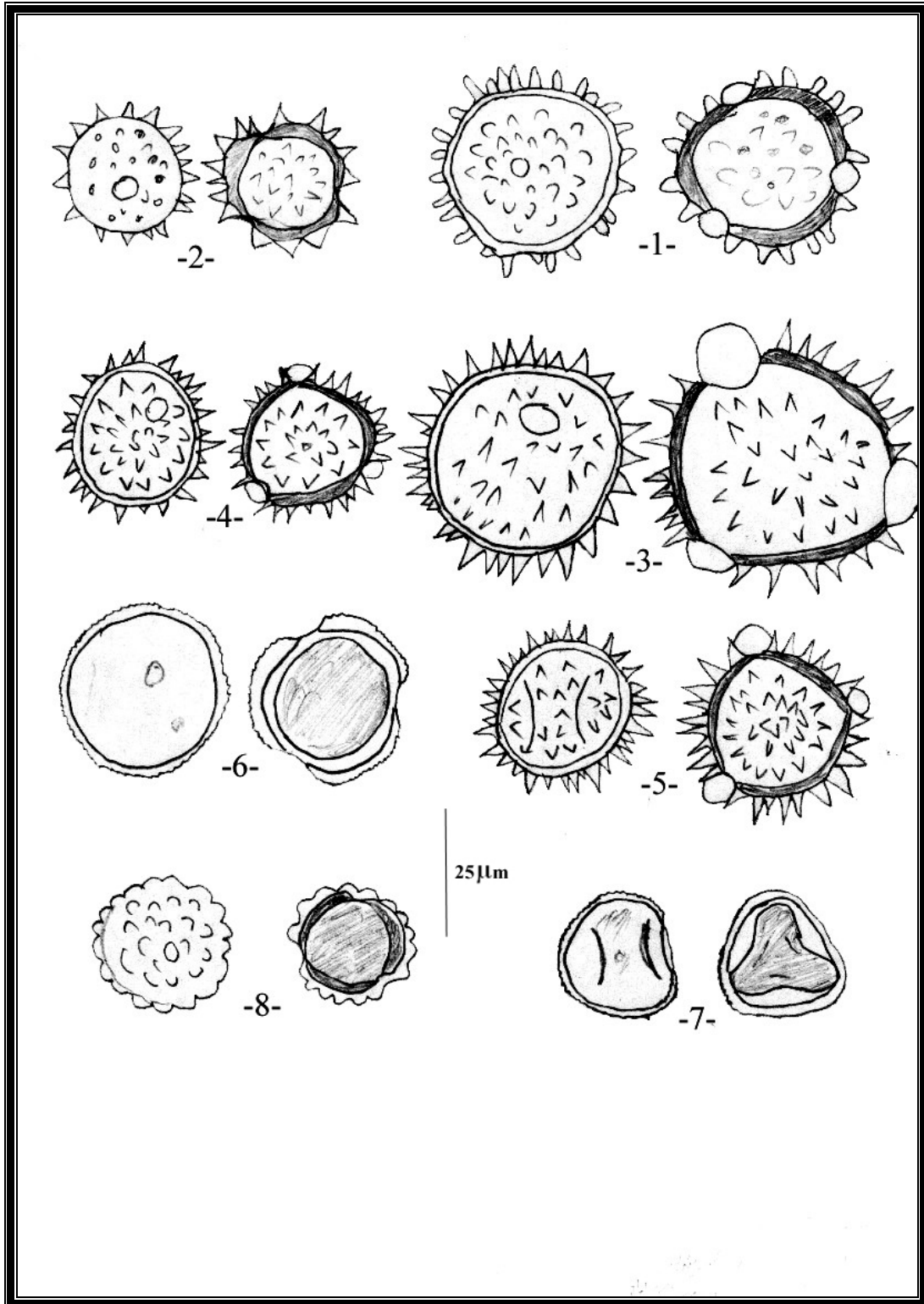
Mean | Range ●—●



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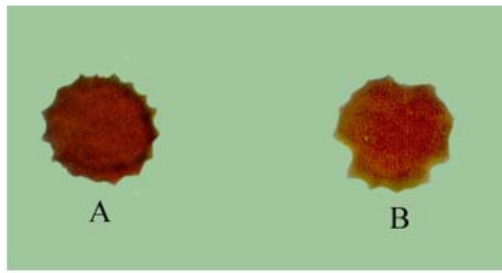
Mean | Range ●—●



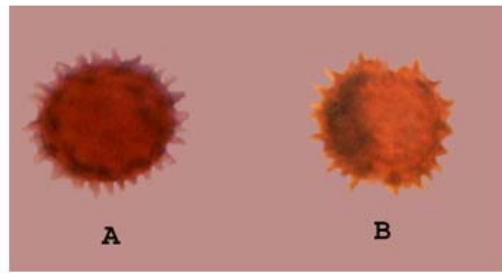


:( )

- H.tuberosus* - 5 *H.debilis* - *H.annuus* - *E.alba* - *B.tripartita* -  
*X. strumarium* subsp. *strumarium* - *X. strumarium* subsp. *brasilicum* -  
*X. spinosum* -

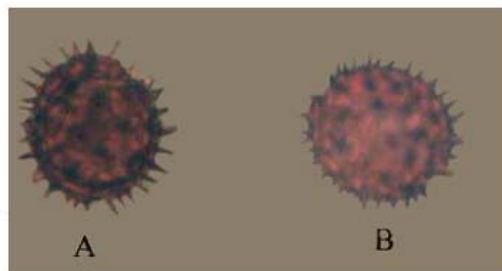


*Eclipta alba*

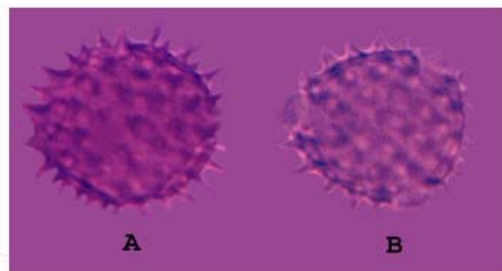


*Bidens tripartita*

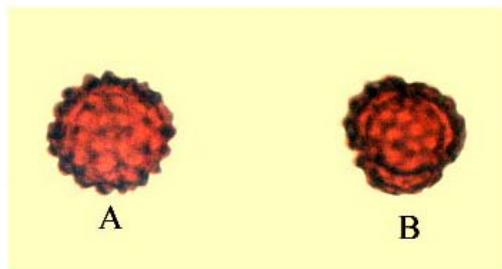
50  $\mu$ m



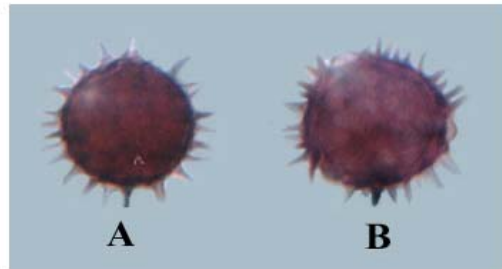
*Helianthus tuberosus*



*Helianthus annuus*



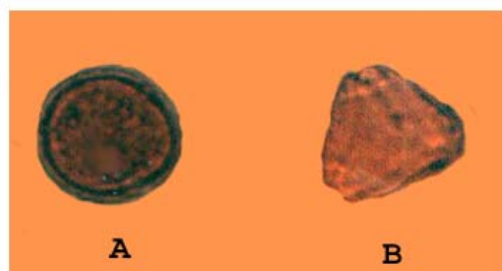
*Xanthium spinosum*



*Helianthus debilis*



*Xanthium strumarium* subsp.  
*brasiliicum*



*Xanthium strumarium* subsp.  
*strumarium*

: ( )

-B

-A