

()

(*Carthamus tinctorius* L.)
(*Carthamus oxyacantha* Bieb.)

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(// : // :)

C. oxyacantha

C. tinctorius

(n= x=) *C. oxyacantha*

(n= x=)

LV

C. oxyacantha

F

C

(

) KHB

(

) C

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C

F

F

C. oxyacantha

(Deshpande, 1952;

Ramanamurthy, 1963)

C. oxyacantha

(Ahmadian Tehrani & Yazdi-Samadi, 1974)

(Ramanamurthy, 1963)

(Li & Mundel, 1996)

C. oxyacantha

(*Carthamus tinctorius* L.)

(Ashri, 1971; Ashri & Knowles, 1960)

Carthamus

(Vilatersana et al., 2000)

C. glaucus *C. oxyacantha*

C. curdicus *C. dentatus* *C. persicus* *C. lanatus*

C. gypsicola

(Rechinger, 1980)

(Kotecha &

(Emrie & Knowles,

(Li & Mundel,

n= x=

(Ashri &

Zimmerman, 1978)

1970)

1996)

C. oxyacantha

Knowles, 1960)

(Ashri, 1971)

(n= x=) *C. lanatus*

(Heaton & Klisiewics, 1981)

C. oxyacantha

C. palaestinus

(Deshpande, 1952)

C. palaestinus

(1971) Ashri (Chapman & Burke, 2007)

C C

C. oxyacantha

()

) LV KHB

)

$C_{111} \times LV$ $C_{111} \times KHB$

SAS

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$C_{4110} \times LV$ $C_{4110} \times KHB$

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(1999) Guerra

Knowles

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(1980)

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(HCl)

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(Alexander, 1969)

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F

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C. tinctorius

C. oxyacantha

(1952) Deshpande .

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)

(

KHB

LV

/)

/)

(

() (

cd		$C_{4110} \times KHB$
bc		$C_{4110} \times LV$
b	/	$C_{111} \times KHB$
a		$C_{111} \times LV$
i		
efg		$KHB \times C_{4110}$
ghi	/	
i		
ef		$KHB \times C_{111}$
efgh	/	
gh		
e		$LV \times C_{4110}$
fgh	/	
hi	/	
d	/	$LV \times C_{111}$
ghi		
	/	$C_{4110} \times C_{4110}$
		$C_{111} \times C_{111}$
		$KHB \times KHB$
		$KHB \times KHB$
		$LV \times LV$
		$LV \times LV$

... :

C LV

(1960) Ashri & Knowles

C. oxyacantha

F

F

()

(1960) Ashri & Knowles

KHB

()

F

(Jovanka et

al., 1994)

F

F

(1994) Jovanka et al. .

(1968) Van der Meer & Nieuwhof

F

LV

F

KHB

C. tinctorius *C. flavescens*

(Imrie & Knowles, 1971)

C. oxyacantha /

C. tinctorius /

1. Chromosome lagging

F / F .()
(RF)

C. palaestinus
(Kotecha, 1979)

(Kotecha & Zimmerman, .1978) I .(Sybenga, 1992)
() .(Sybenga, 1992)

F Ashri .
(1960) & Knowles

F .() I
()

F .(Ashri & Knowles, 1960)

() **F**
F
)
(

(1971) Imrie & Knowles .

C. tinctorius

C. flavescens

F ()

F)
F ()
F

(1963) Ramanamurthy .

F
F ()

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F₁

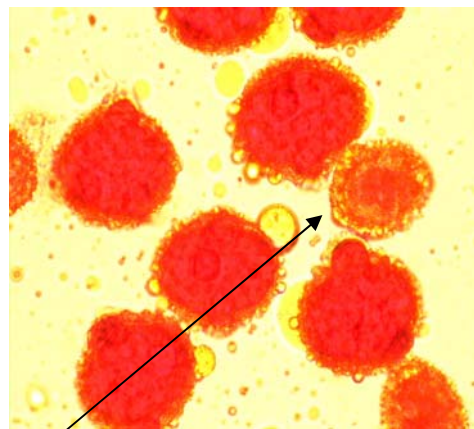
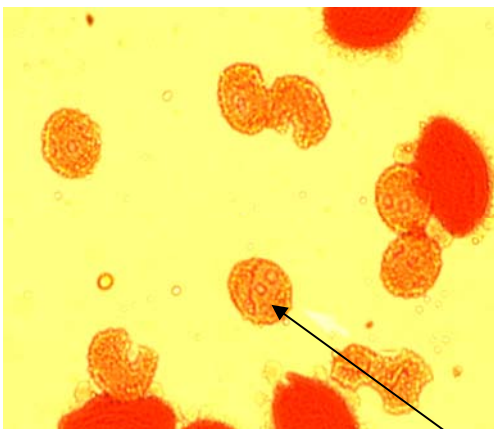
(cm)

C₄₁₁₀(P1)
KHB(P2)
F1
RF1

C₄₁₁₀(P1)
LV
(P2)
F1
RF1

C₁₁₁₁(P1)
KHB(P2)
F1
RF1

C₁₁₁₁(P1)
LV(P2)
F1
RF1

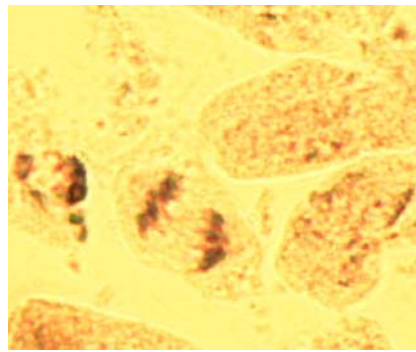


((x))KHB

((x)) C₄₁₁₀ x KHB

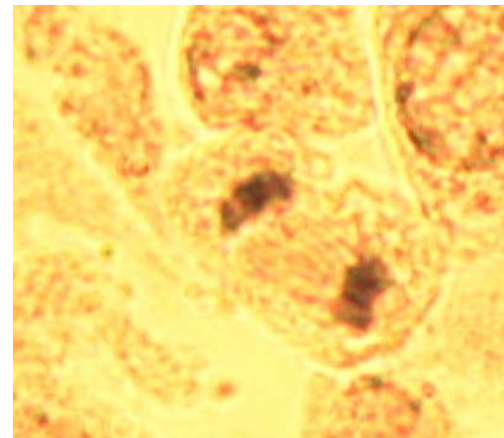
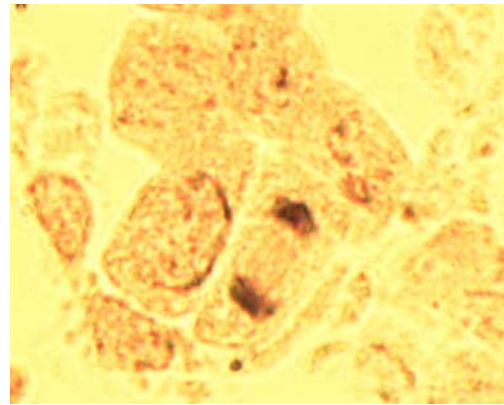
(2004) Pahlavani et al.

(RF F)



C. oxyacantha

C. tinctorius



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()

C_{111} $C_{111} \times LV$ $LV \times C_{111}$ LV

C_{111}

(\times)
)
($C_{4110} \times LV$ $C_{4110} \times KHB$ $C_{111} \times LV$)

Deshpande

(1952)

F

()

(2004) Pahlavani et al. (1952) Deshpande



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