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(2004/5/22 ;2003/2/5)

(Pinwheels)

(Crystals) (Lamellae)

(Satellite bodies)

Microscopical Study of Internal Symptoms of Bean Yellow Mosaic Virus in Infected Faba Bean Plants

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ABSTRACT

Amorphous granular inclusion bodies were detected in the epidermal cells of infected faba bean plants with BYMV. Electron microscopic examination of thin sections of infected faba bean leaves showed pinwheels , lamellae , crystals and different components in the cytoplasm of infected cells , as well as satellite bodies in the nucleoli .

Also , electron microscopic studies reveald the degradation of some plastids , hypertrophied and malformed mitochondria, and membranous protrusions in the internal membrane of the infected cells .

Vicia faba L.

) % 1.3	% 58.4	% 21.4	
100	80	1999	(1982)
			(FAO, 2000)

Siam and ; Makkouk et al., 1988)

(Beczner, 1991
(Phatak, 1974 ; Mandahar, 1981)

(1995) . (Makkouk et al., 1988)

Bean Yellow Mosaic Virus (BYMV)

(BYMV)

(1995)
/ 2 (0.01) 7.2 pH

(Gibbs and Harrison , 1976) 24

(Noordam, 1973)

% 0.5 (Rose bengal)
(Noordam, 1973) 400

1

: Fixation

(FGA) 1% formaldehyde + 2.5 glutaraldehyde
5.8 pH

(Karnovsky, 1965)

pH 0.2 Sodium Cacodylate

4

%1

4

15

5.8

20

OsO₄

4

: Dehydration

Uranyl acetate

15 % 25

30

24

30

% 90

% 75

% 50

30

15

: Infiltration

24

(1)

(1)

(2)

: Embedding

48

Reichert's microven

(2)

56

Sectioning and Staining

(Meek ,1976)

150-60

(Reichert's OM U3)

(Ultramicrotom)

(Grid)

5 % 1

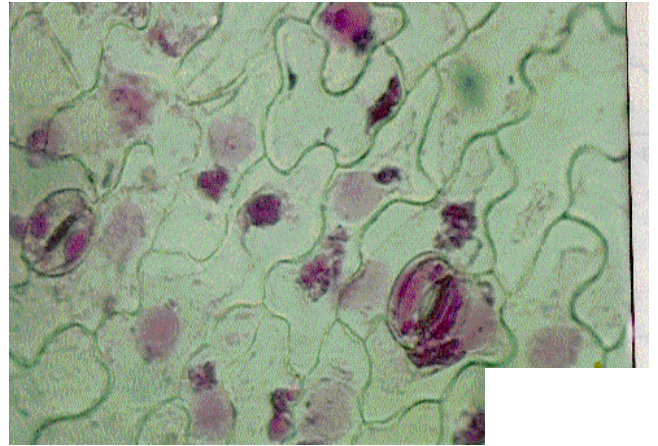
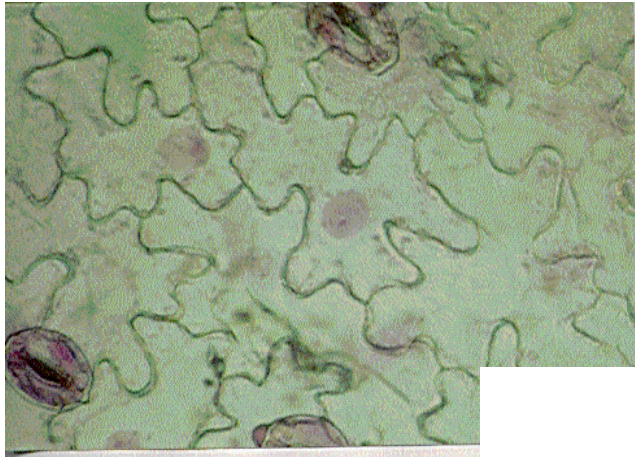
10 (Lead citrate)

(Zobel and Beer,1965)

(Reynolds, 1963)

(Zeiss EM 95-2)

(1)



: 1

(BYMV)

(2)

(Crystals)

(Lamellae)

(Mitochondria)

(Chloroplasts)

(2)

(Pinwheels)

(Inclusion bodies)

(2)

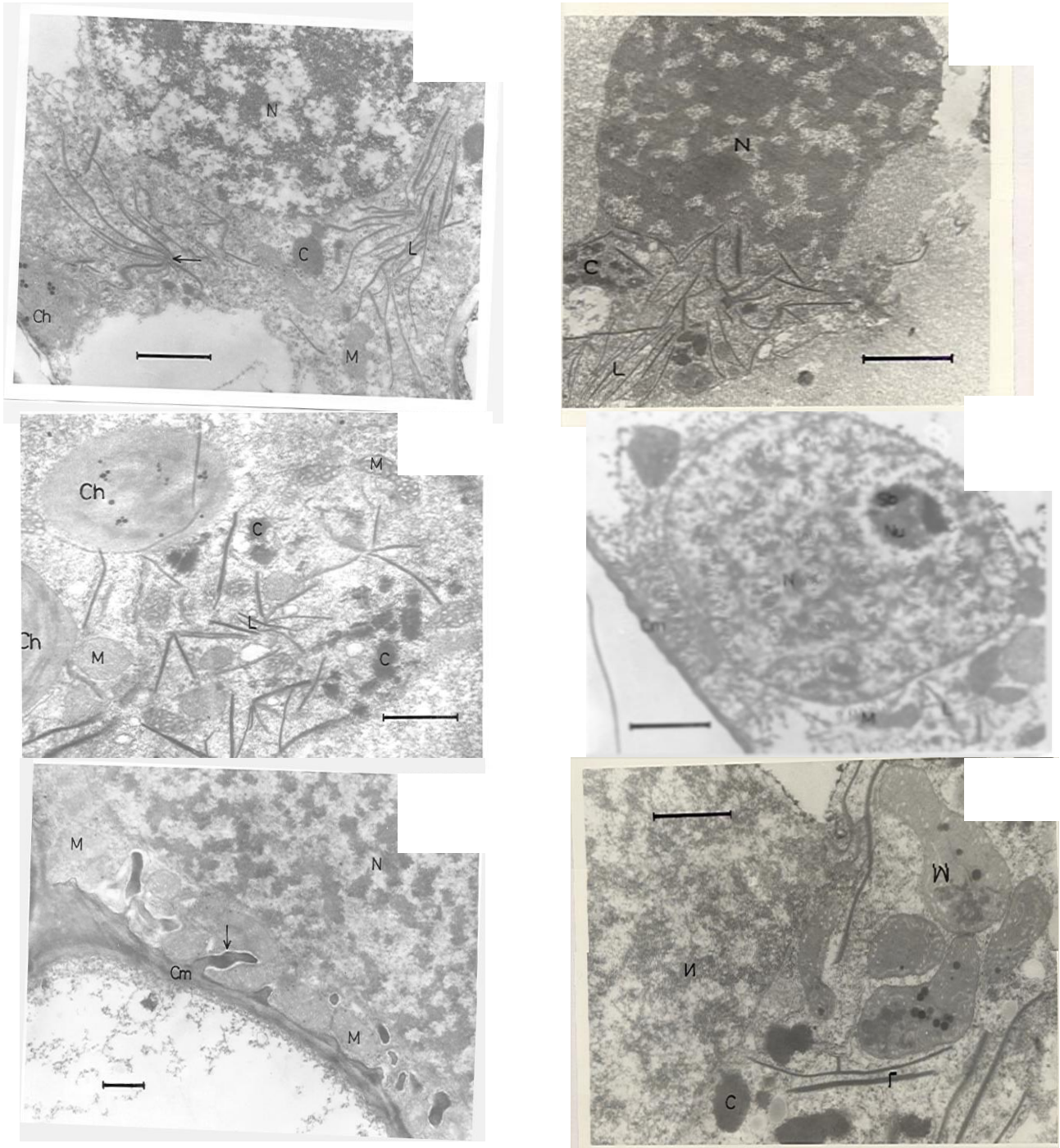
(Satellite bodies)

(2)

(2)

(Grana)

(2)



: 2

:

(C) (L) . (2000) (N) . I
 . (1000) . (→) . II
 . (2000) . (Sb) . V
 . (1000) . (Ch) .
 . (1000) . (M) .
 . (200) . (Cm) (→) .

Bos and Maat (1974) Noordam (1973)
 (1983), Bos (1970) . Fortass et al. , 1991
 . Weintraub and Regetli (1968) Smith (1972) Noordam (1973) Bos
 Pinwheels
 Potyviridae
 . Weintraub and Regetli (1968) Bos (1970)

/ .1995
 / .1982 .

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