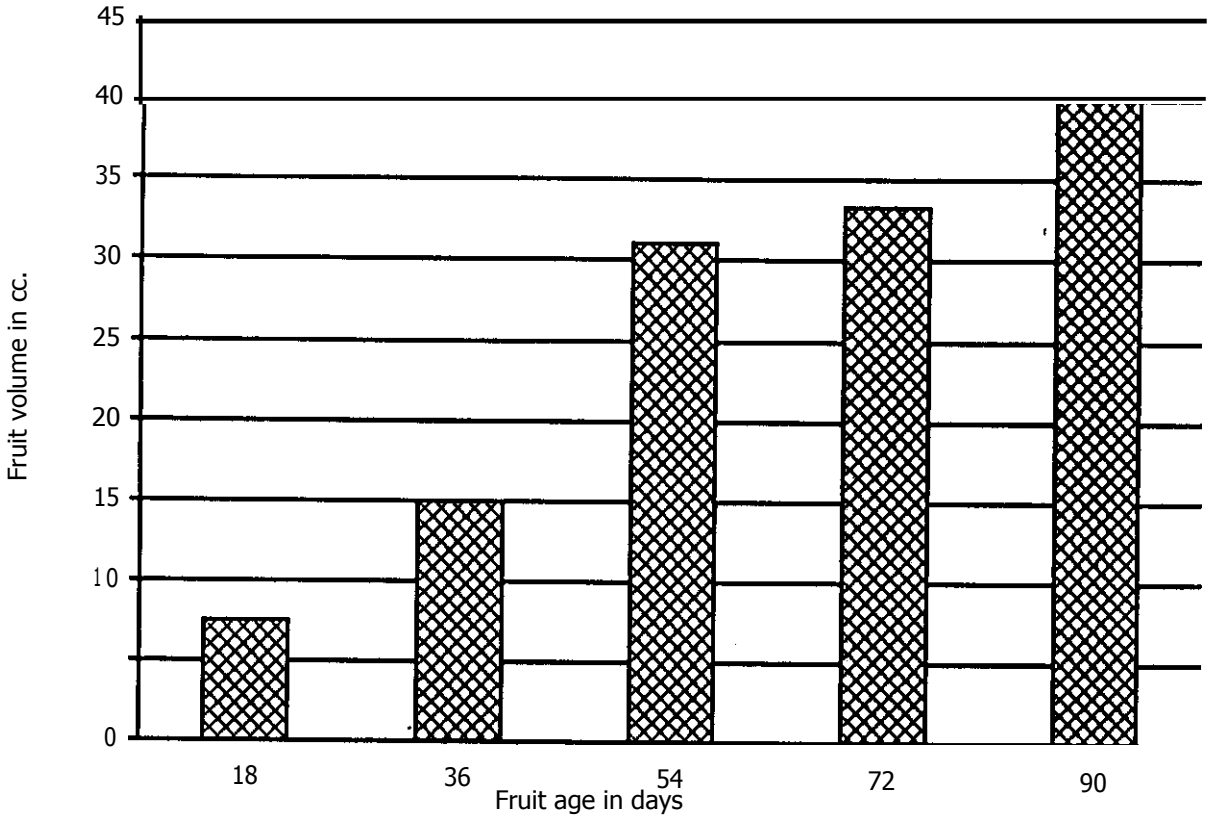


Fig. (20) Changes in fruit volume during the different stages of development (first crop).

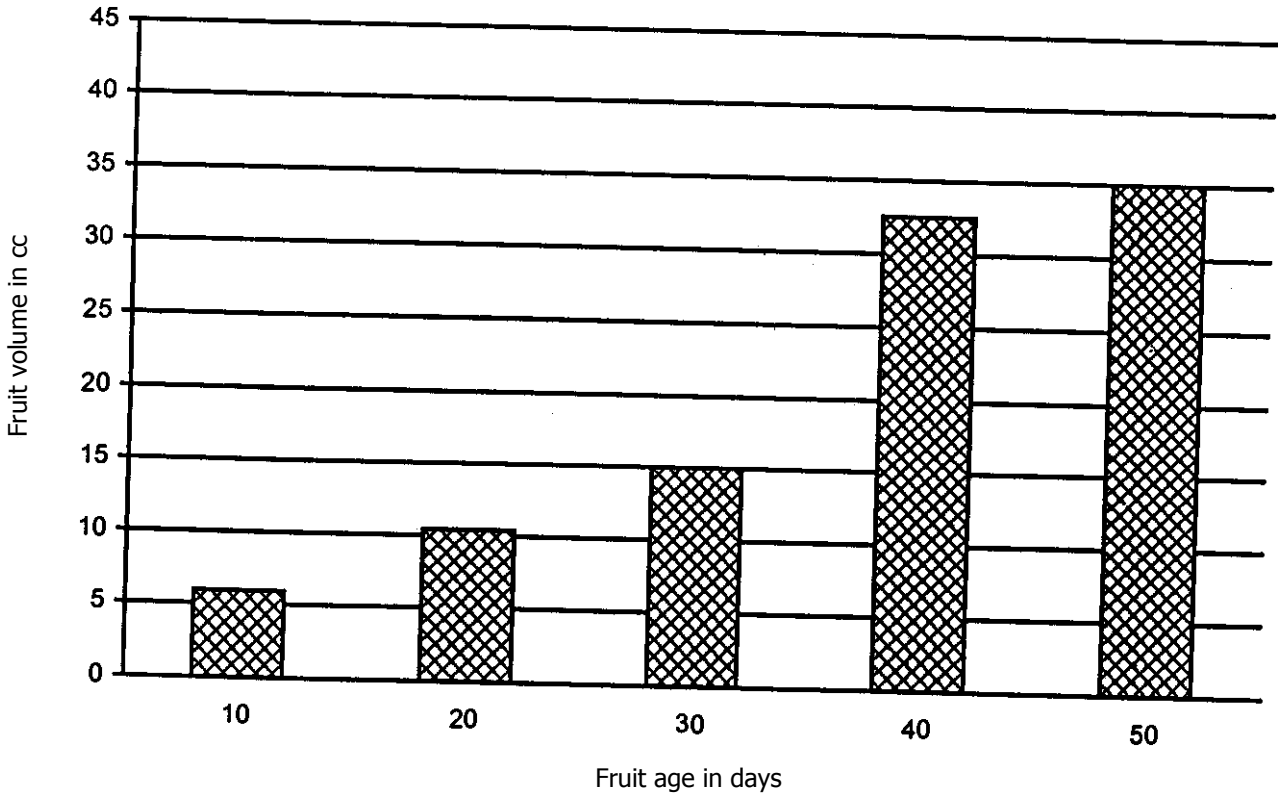


Fig. (21) Changes in fruit volume during the different stages of development (second crop).

stage of maximum moisture content (85.69%), while the maximum dry matter (16.87%) is detected at stage B (20 days old fruit) which is the stage of minimum moisture content (83.13%). The fruits of the second crop showed relatively higher moisture content than those of the first crop at the end of fruit life, fig. (26,27).

Changes in growth regulating substances:

The changes of auxins, gibberellins and abscisic acid at the different stages of development of the first crop fruits are listed in table (16) and illustrated graphically in fig. (28).

Changes in auxins:

The auxin concentration decreased sharply reaching a minimum value at stage D (72 days old fruit). After that the auxin concentration increased sharply at stage E (90 days old fruit).

The minimum (0.189 mg / 100g F.wt.) and the maximum (2.667 mg/100g F.wt.) amounts of auxins were detected at stages D (72 days old fruit) and A (18 days old fruit) of fruit development and comprised and 3.63 % and 51.33 % of the total auxin respectively.

Changes in gibberellins:

The gibberellins concentration increased sharply at stage B (36 days old fruit) reaching a maximum level (48.71 mg/100g F.wt.) followed by a sharp continuous decrease through the next stages of fruit development till attaining the minimum level (9.27 mg/100g F.wt) at stage E (90 days old fruit). The minimum and the maximum amounts of gibberellins comprised 8.02 % and 42.15 % of the total gibberellins respectively.

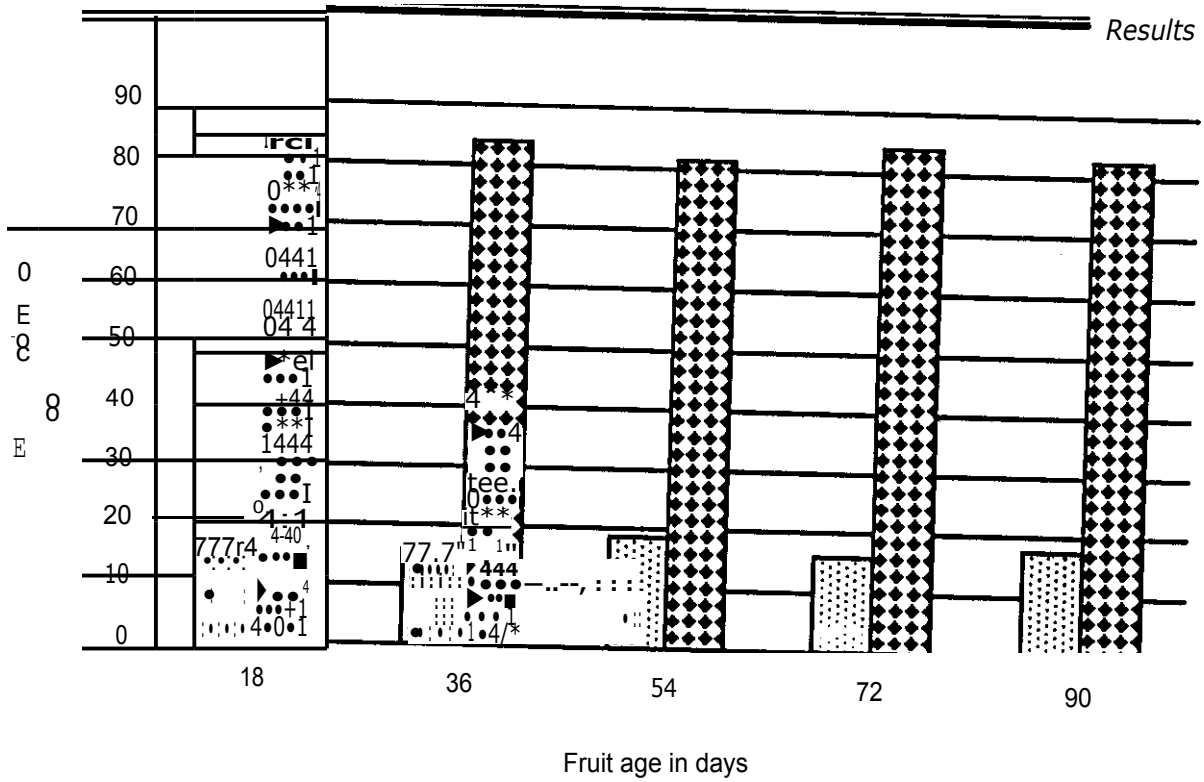


Fig. (26) Changes in dry matter and moisture content of fruit at the different stages of development (first crop).

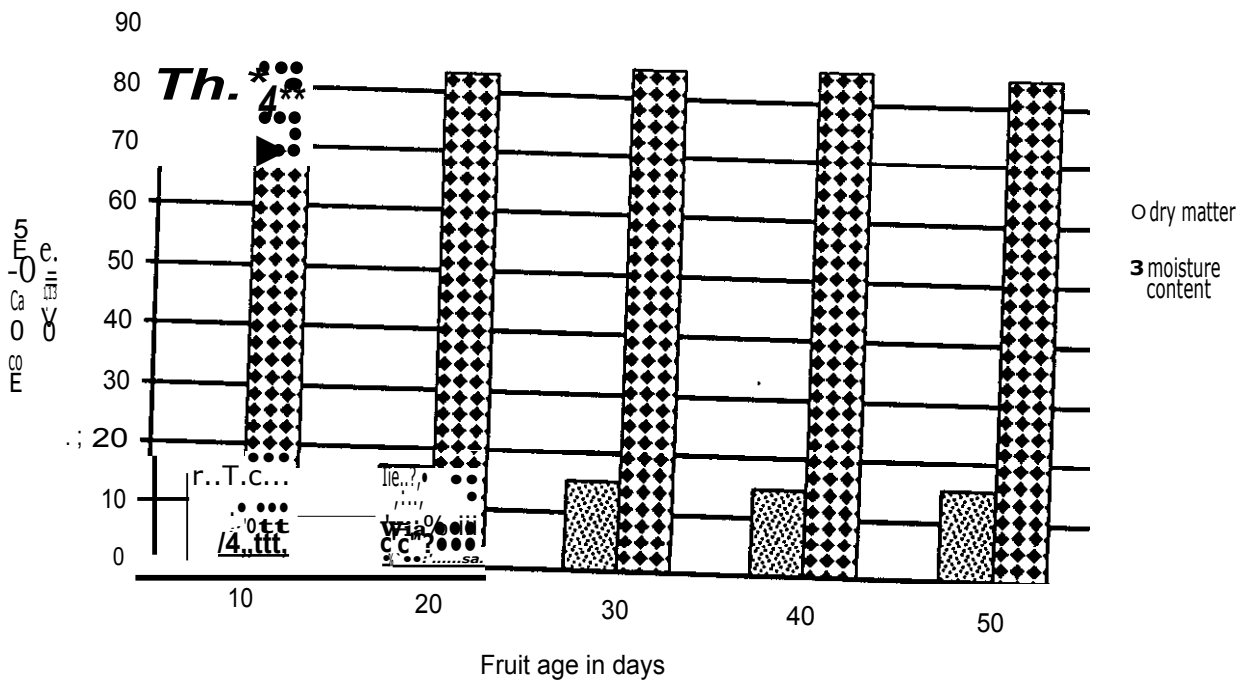
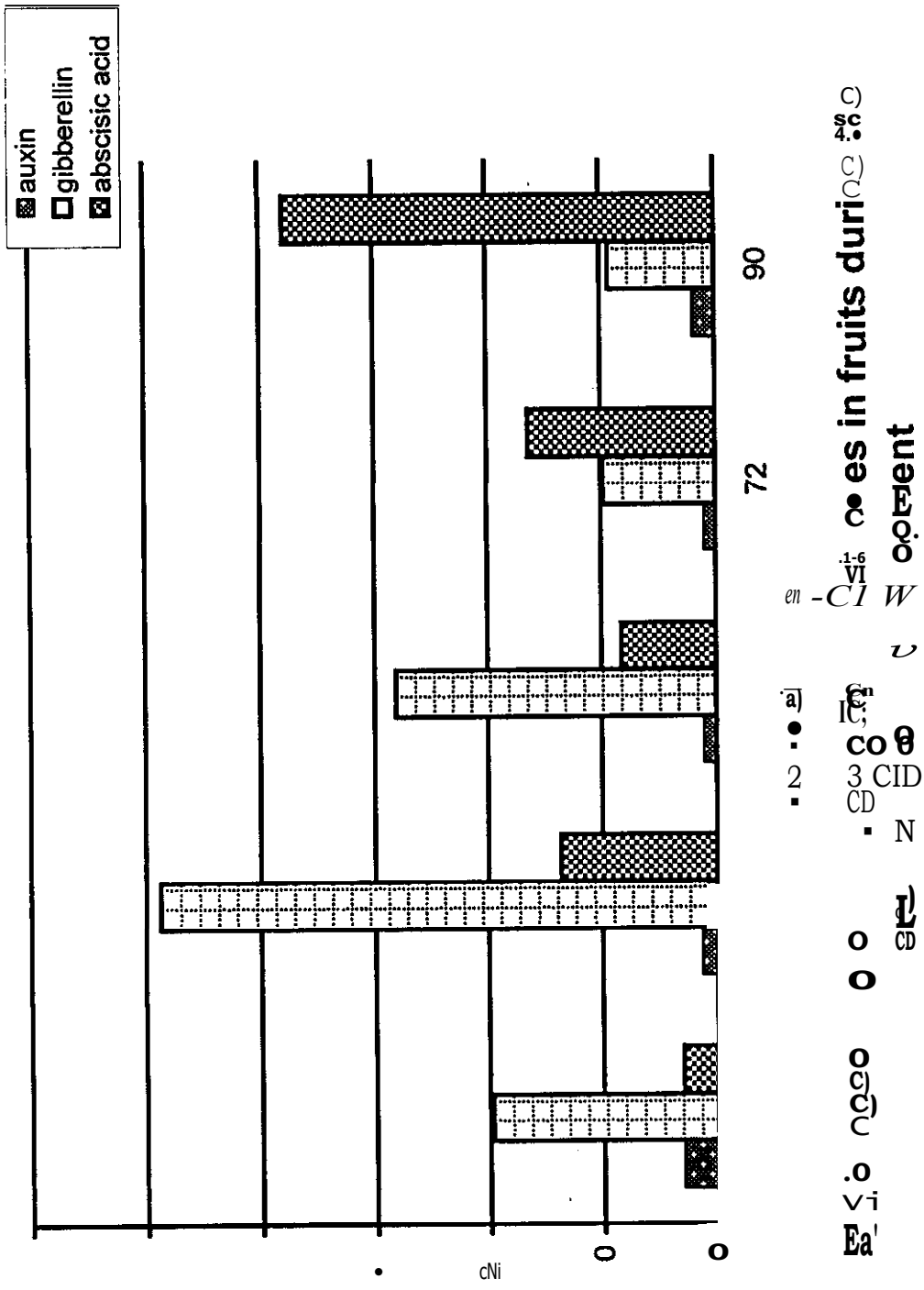


Fig. (27) Changes in dry matter and moisture content during the different stages of development (second crop)

Table (16): The values of auxins, Gibberellins and abscisic acid of *Ficus carica* fruit during the different stages of fruit development. Values listed are expressed as mg/100g fresh weight fruits. Each value is a mean of three determinations.

Stage	Age in days	Auxins	Gibberellins	Abscisic acid
A	18.000	2.6670	19.700	1.8760
B	36.000	0.7320	48.710	13.608
C	54.000	0.5180	28.100	8.2300
D	72.000	0.1890	9.7900	16.370
E	90.000	1.0870	9.2700	37.880



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Changes of abscisic acid:

The abscisic acid concentration increased sharply at stage B (36 days old fruit), followed by a sudden decrease through the next stages. After that the concentration increased sharply reaching a peak at stage E (90 days old fruit).

The minimum (1.876 mg / 100g F.wt.) and the maximum (37.88 mg/100g F.wt.) amounts of abscisic acid detected at the stages A (18 days old fruit) and E (90 days old fruit) of fruit development and comprised 2.4% and 48.59 % of the total abscisic acid respectively.

Changes in carbohydrate content:

The sugar content of the fruit are recorded in table (17) and illustrated graphically in fig. (29)

Changes in reducing sugars:

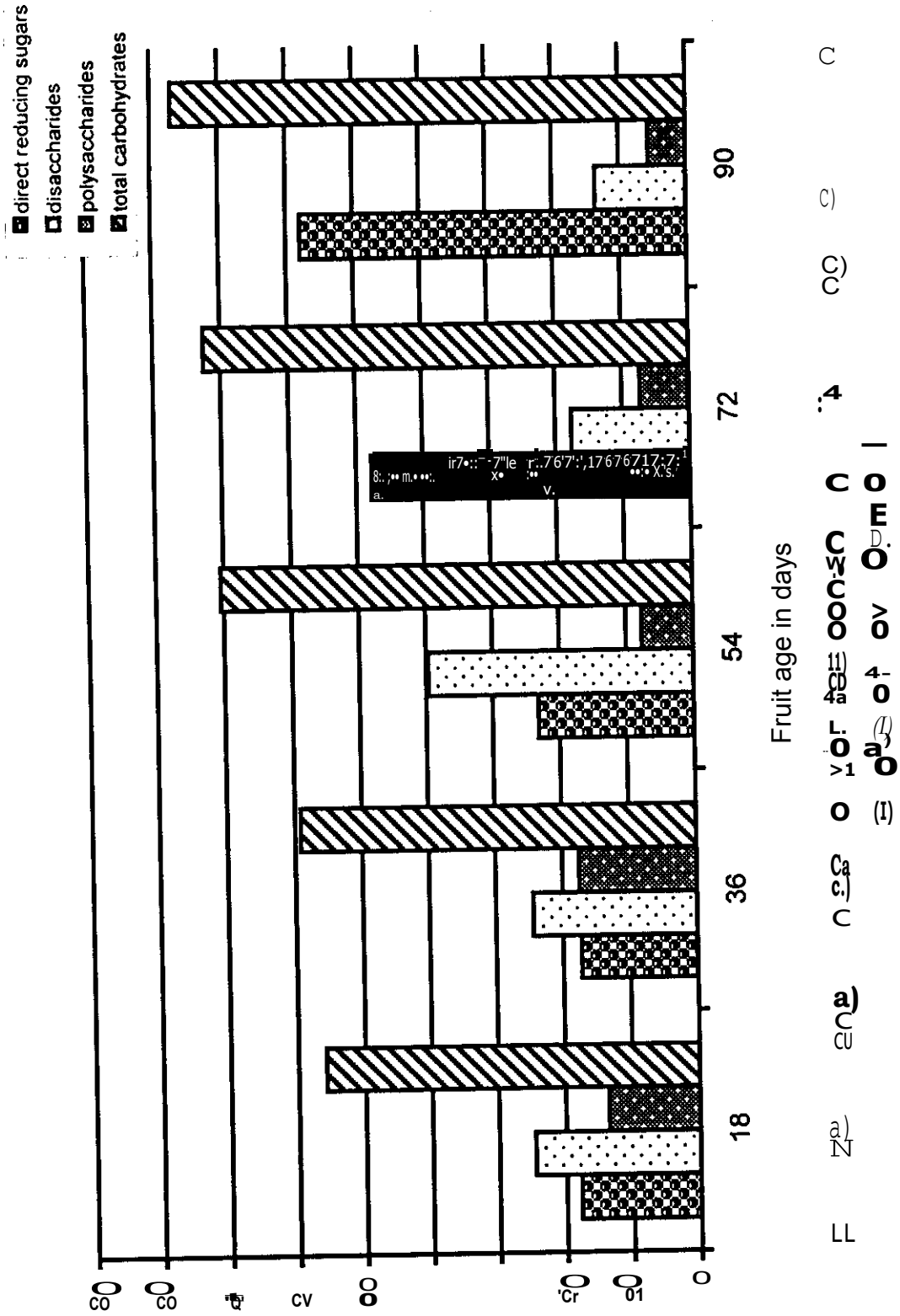
The reducing sugar content of the fruit increased generally through the different stages of fruit development. Although a drop to a minimum level (34.46 mg/g D.wt) occurred at stage B (36 days old fruit) which was followed by an increase again till a maximum value (115.74mg/g D.wt) at stage E (90 days old fruit).

The minimum and maximum amounts of reducing sugar contents comprised 29.14% and 75.20% of total carbohydrates respectively.

The results also showed that, the reducing sugars comprised the main fraction of the total carbohydrate at the different stages of development.

Table (17):The change in the carbohydrate contents in *Ficus carica* fruit during the different stages of fruit development. Values are expressed as mg/g dry weight of fruit. Each value is a mean of three determinations.

Stage	Age in days	DRV	Disaccharides	TRV	Poly-saccha rides	Total carbohy d rates
A	18.000	35.460	49.140	84.600	27.000	111.60
B	36.000	34.46	48.800	83.260	34.980	118.24
C	54.00	46.260	79.290	125.55	15.300	140.85
1)	72.000	95.400	35.100	130.50	14.580	145.08
E	90.000	115.74	27.000	142.74	11.160	153.90



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Changes in sucrose:

The rate of sucrose accumulation decreased generally through the different stages of fruit development. This decrease was interrupted by a sharp increase to a maximum level (79.29 mg/gD.wt) occurred at stage C (54 days old fruit), followed by a sharp decrease again till a minimum value (27mg/g D.wt) at stage E (90 days old fruit).

The minimum and maximum amounts of sucrose contents comprised 17.54% and 56.40% of total carbohydrates respectively.

Changes in polysaccharides:

The polysaccharides content showed general decrease through the different stages of fruit development, interrupted by a sharp increase occurred at the stage B (36 days old fruit).

The minimum (11.16 mg/g D.wt) amount of polysaccharides was observed at stage E (90 days old fruit), while the maximum amount (34.98 mg/g D.wt) was detected at stage B (36 days old fruit).

The minimum and maximum amounts of polysaccharides comprised 7.25% and 29.58% of total carbohydrates respectively.

Also the results showed that the polysaccharides content constitute the lowest percent of the total sugars at the different stages of fruit development except stage B (36days old fruit).

Changes in total carbohydrates:

The results present in table (17) indicate that the amount of total carbohydrates was markedly increased through the different stages of fruit development with the increase in fruit age.

The minimum (111.6 mg/g D.wt) and the maximum (153.9 mg/g

D.wt) amounts of total carbohydrates contents were detected at stages A (18 days old fruit)and B (36days old fruit) respectively.

Changes in nitrogen contents:

The changes in nitrogen content of fruit, at the different stages of growth are indicated in table (18) and the results are represented graphically in fig. (30).

Changes in amino nitrogen:

The amino nitrogen content of the fruit showed slight changes through the different stages of fruit development. The amino nitrogen content decreased towards the fruit maturity stage.

The minimum (0.33 mg/g D. wt) and the maximum (0.69mg/g D. wt) levels were detected at stages A (18 days old fruit) and B (36 days old fruit). These values comprised 3.01% and 6.17% of the total nitrogen content.

Also the results showed that the amino nitrogen content constitutes the lowest fraction of the total nitrogen at the different stages of fruit development.

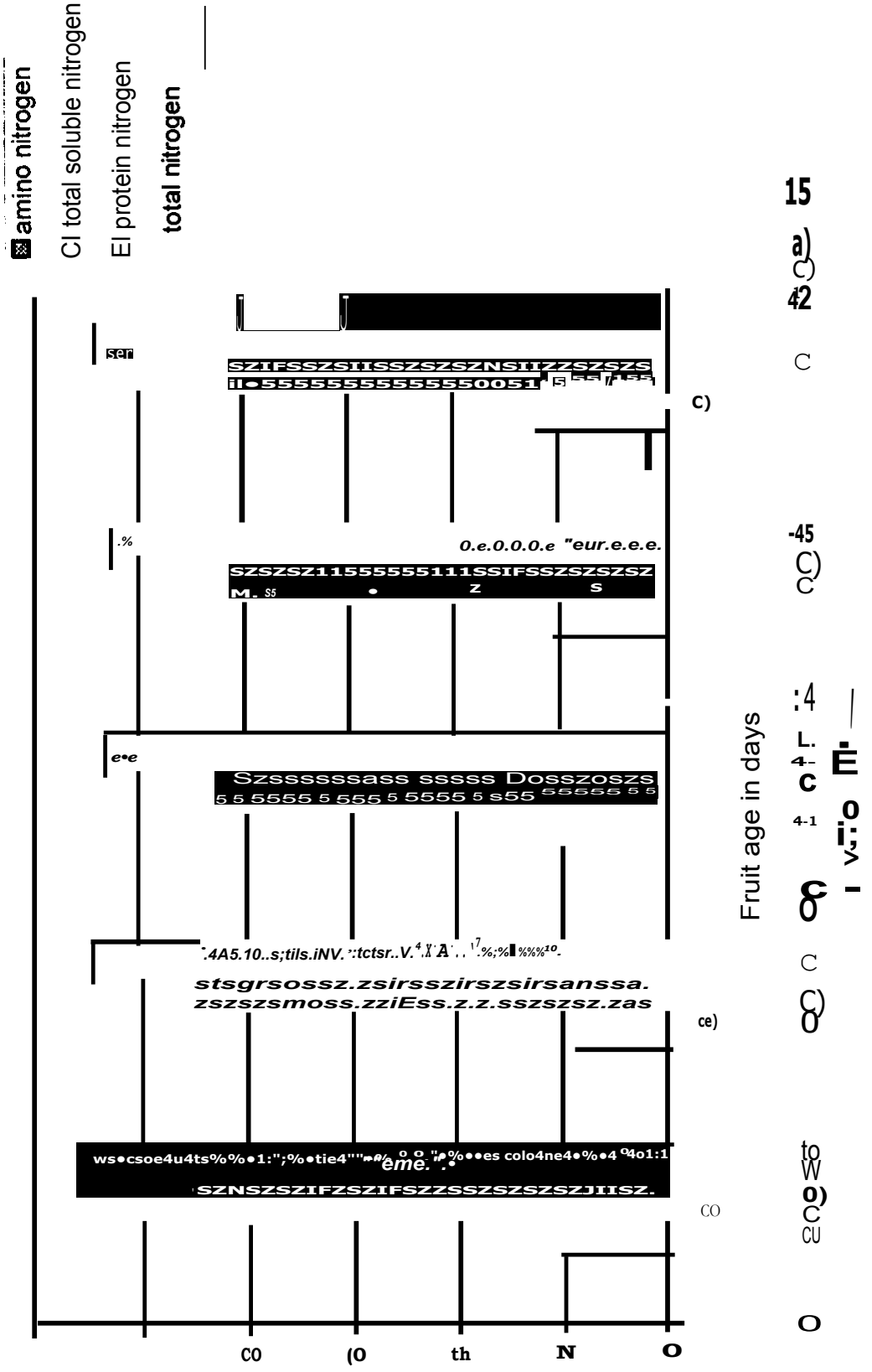
Changes in total soluble nitrogen:

The total soluble nitrogen of the fruit decreased through the early stages then increased at the late stages of fruit development.

The minimum (1.75 mg/g D.wt) and the maximum (2.38 mg/g D.wt) levels of total soluble nitrogen were observed at stages B (36 days old fruit) and E (90 days old fruit) respectively. These values comprised 16.03% and 22.08% of the total nitrogen content.

Table (18): The fluctuations in nitrogen concentration in fruits during the different stages of their development. Values are expressed as mg/g dry weight. Each value is a mean of three determinations.

Stage	Age in days	Amino-nitrogen	Other soluble nitrogen	Total soluble nitrogen	Protein-nitrogen	Total nitrogen
A	18.00	0.691	1.362	2.053	9.147	11.20
B	36.00	0.620	1.130	1.750	9.170	10.92
C	54.00	0.491	1.422	1.913	8.727	10.64
D	72.00	0.382	1.718	2.100	8.400	10.50
E	90.00	0.325	2.055	2.380	8.400	10.78



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Changes in Protein —nitrogen:

The rate of protein synthesis through the different stages of fruit development was slightly changed. The amount of protein— nitrogen decreased through the different stages of fruit development.

The minimum (8.4 mg/g D.wt) and the maximum (9.15mg/g D.wt) amounts were detected at stages E (90 days old fruit) and A (18 days old fruit) respectively. These values comprised 77.92% and 81.67% of the total nitrogen content.

Also the results showed that protein-nitrogen comprised the highest percent of the total nitrogen at the different stages of development.

Changes in total nitrogen:

The results revealed that the amount of total nitrogen accumulated in the fruit slightly changed through the different stages of growth.

The minimum (10.5 mg/g D.wt) and the maximum (11.2mg/g D.wt) levels were detected at stages D (72 days old fruit) and A (18 days old fruit) respectively.

Changes in mineral content:

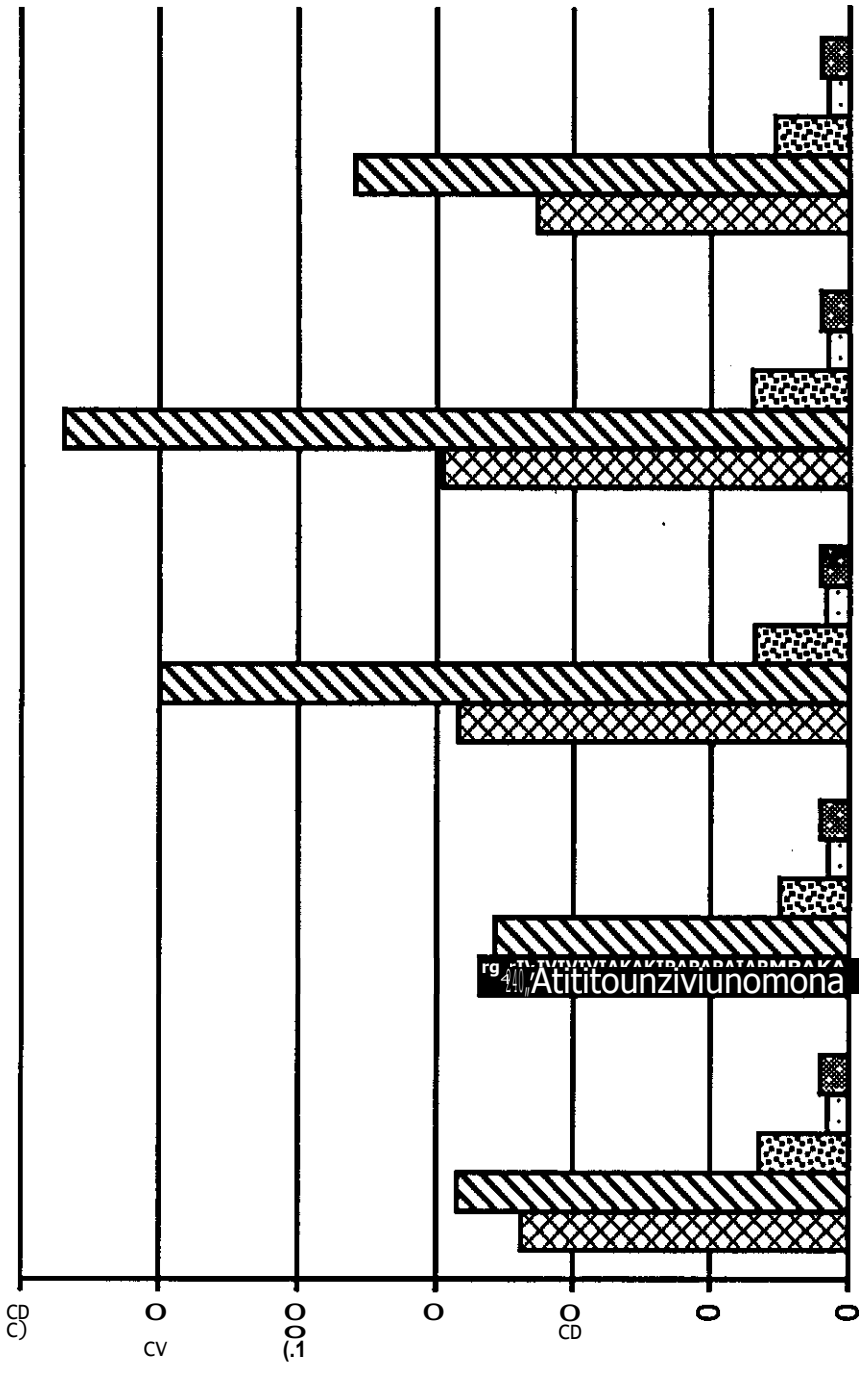
Concentrations of The macro nutrients (Ca, K, Na, Mg and P) and the micro nutrients (Fe, Mn, Zn and Cu) in *Ficus carica* fruits are presented through the growing season 2001 in table (19) and illustrated graphically by figures (31, 32).

Changes in calcium content:

Results obtained revealed that calcium constitutes the second major mineral in the fruit. The calcium content generally increased

Table (19): The concentrations of primary nutrients and secondary nutrients during the different stages of fruit development. Values listed are expressed as part per million. Each value is a mean of three determinations.

	Age in days	Macro nutrients concentration (PPm)					Micro nutrients concentration (ppm)			
		Ca	K	Na	Mg	P	Fe	Mn	Zn	Cu
A	18.000	**119.04**	**142.35**	**32.2**	**4.22**	**1.52**	**2.45**	**1.31**	**0.60**	**0.33**
B	36.000	**134.4**	**128.7**	**24.84**	**4.29**	**1.41**	**2.24**	**1.41**	**0.60**	**0.37**
C	54.000	**142.08**	**249.6**	**34.04**	**4.25**	**2.41**	**2.62**	**1.63**	**0.64**	**0.14**
D	72.000	**147.84**	**284.7**	**34.96**	**4.14**	**1.72**	**2.54**	**1.54**	**0.58**	**0.25**
E	90.000	**113.28**	**179.4**	**26.68**	**3.98**	**1.42**	**2.83**	**1.82**	**0.76**	**0.48**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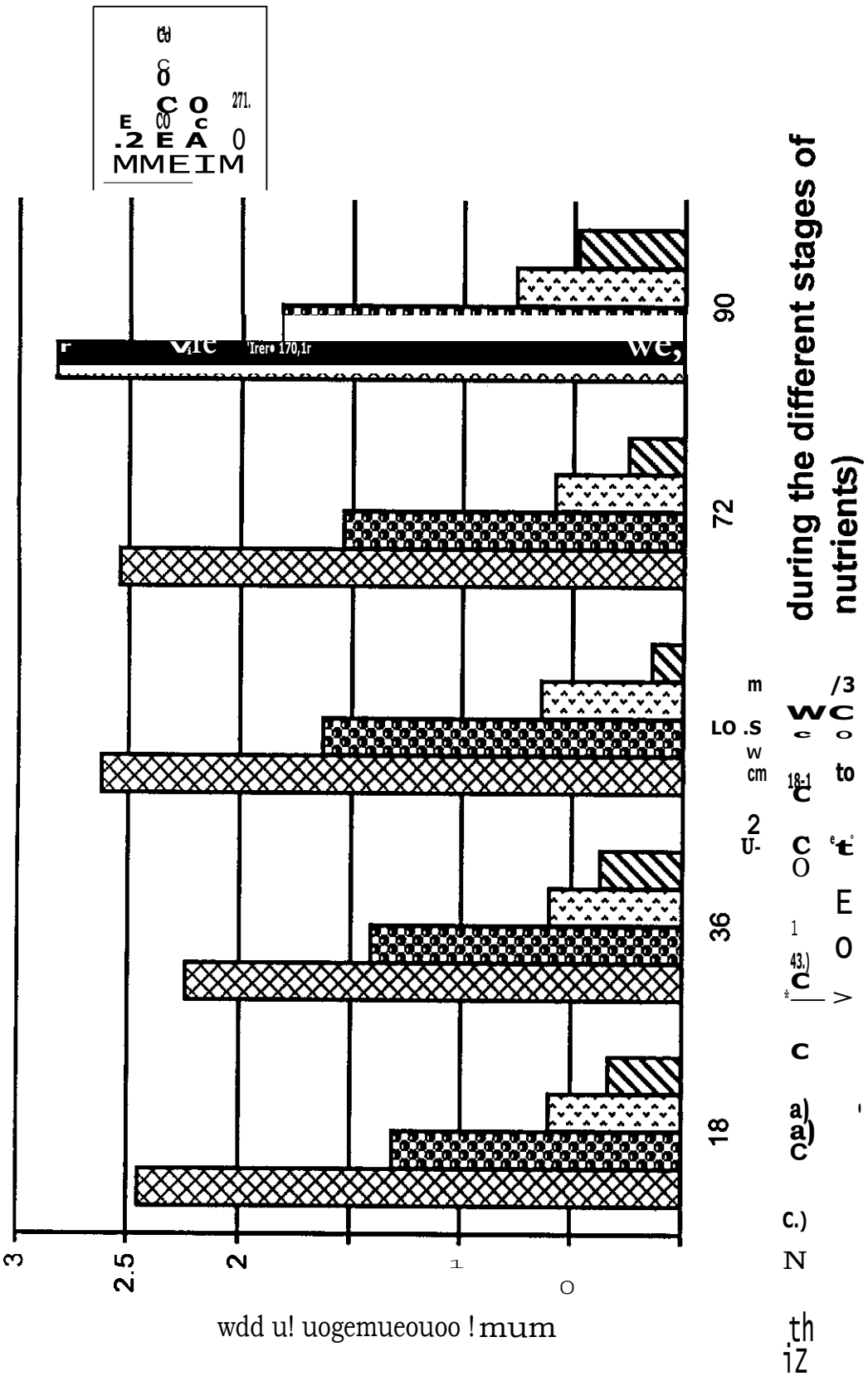

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