

Table 4.1.1 Effect of micronutrients and humic acid on different stages of vine length (cm) of cucumber cv. Malini

Treatments (T)	Vine length (cm)								
	30 DAS			60 DAS			90 DAS		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	80.76	87.44	84.10	192.02	197.98	195.00 ^c	267.80	276.17	271.98 ^d
T ₂ - Zinc 60 ppm	100.45	59.19	79.82	193.67	200.47	197.07 ^c	271.19	280.36	275.77 ^c
T ₃ - Iron 75 ppm	73.90	72.04	72.97	184.02	188.34	186.18 ^d	260.01	266.10	263.06 ^e
T ₄ - Iron 100 ppm	65.22	85.35	75.29	195.27	193.94	194.60 ^c	273.05	270.81	271.93 ^d
T ₅ - Manganese 75 ppm	77.63	65.21	71.42	181.92	192.26	187.09 ^d	252.60	256.27	254.44 ^f
T ₆ - Manganese 100 ppm	83.32	89.27	86.29	177.94	180.71	179.32 ^e	262.27	276.97	269.62 ^d
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	85.62	86.15	85.88	216.84	221.09	218.96 ^b	300.36	307.06	303.71 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	83.43	79.01	81.22	232.29	256.67	244.48 ^a	322.43	357.75	340.09 ^a
T ₉ - Control (water spray)	68.83	75.62	72.23	168.38	162.76	165.57 ^f	250.39	241.64	246.01 ^g
Mean	79.91	77.70		193.59 ^b	199.36 ^a		273.34 ^b	281.46 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatments (T)	5.48	NS		2.30	6.85		3.21	9.57	
Humic acid (H)	2.58	NS		1.08	3.23		1.51	4.51	
(T×H)	7.75	NS		3.25	9.69		4.53	13.53	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.1.2 Effect of micronutrients and humic acid on number of primary branches per vine of cucumber cv. Malini

Treatments (T)	Number of primary branches per vine								
	30 DAS			60 DAS			90 DAS		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	4.08	4.50	4.29	8.18	8.29	8.24 ^d	14.13	14.86	14.50 ^c
T ₂ - Zinc 60 ppm	5.27	3.17	4.22	8.47	8.78	8.62 ^c	14.71	15.31	15.01 ^c
T ₃ - Iron 75 ppm	3.45	3.45	3.45	7.35	7.67	7.51 ^e	13.03	13.43	13.23 ^d
T ₄ - Iron 100 ppm	3.22	4.25	3.73	7.94	8.03	7.99 ^d	13.90	14.08	13.99 ^c
T ₅ - Manganese 75 ppm	3.30	2.83	3.06	6.59	7.28	6.93 ^f	12.12	12.47	12.30 ^e
T ₆ - Manganese 100 ppm	3.99	4.14	4.06	6.83	7.12	6.98 ^f	12.25	13.14	12.70 ^e
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	3.86	4.94	4.40	9.73	10.08	9.90 ^b	16.50	16.97	16.74 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	4.88	4.67	4.78	10.94	12.26	11.60 ^a	17.97	20.14	19.06 ^a
T ₉ - Control (water spray)	3.69	2.93	3.31	5.59	5.53	5.56 ^g	11.01	10.86	10.93 ^f
Mean	3.97	3.88		7.96 ^b	8.34 ^a		13.96 ^b	14.59 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatments (T)	0.36	NS		0.11	0.32		0.17	0.51	
Humic acid (H)	0.17	NS		0.05	0.15		0.08	0.24	
(T×H)	0.51	NS		0.15	0.45		0.24	0.72	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.1.3 Effect of micronutrients and humic acid on number of nodes per vine of cucumber cv. Malini

Treatments (T)	Number of nodes per vine								
	30 DAS			60 DAS			90 DAS		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	6.64	7.23	6.94	17.99	18.82	18.40 ^d	26.32	27.39	26.86 ^d
T ₂ - Zinc 60 ppm	8.36	6.32	7.34	19.12	20.08	19.60 ^c	27.61	28.63	28.12 ^c
T ₃ - Iron 75 ppm	6.68	5.83	6.26	15.25	15.74	15.49 ^f	24.90	25.73	25.32 ^e
T ₄ - Iron 100 ppm	5.29	6.96	6.13	16.66	16.78	16.72 ^e	26.48	26.33	26.41 ^d
T ₅ - Manganese 75 ppm	5.96	5.04	5.50	13.66	14.66	14.16 ^g	23.96	24.38	24.17 ^f
T ₆ - Manganese 100 ppm	6.60	7.19	6.90	13.68	14.02	13.85 ^g	24.29	26.10	25.19 ^e
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	7.24	7.46	7.35	23.10	23.76	23.43 ^b	31.02	31.79	31.40 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	7.30	6.95	7.13	25.43	28.60	27.02 ^a	33.35	37.28	35.32 ^a
T ₉ - Control (water spray)	4.96	5.51	5.23	12.17	11.56	11.87 ^h	22.05	21.52	21.79 ^g
Mean	6.56	6.50		17.45 ^b	18.22 ^a		26.67 ^b	27.68 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatment (T)	0.53	NS		0.23	0.69		0.32	0.96	
Humic acid (H)	0.25	NS		0.11	0.33		0.15	0.45	
(T×H)	0.74	NS		0.33	0.98		0.45	1.35	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.1.4 Effect of micro nutrients and humic acid on inter nodal length (cm), number of days taken to first flowering and 50% flowering of cucumber cv. Malini

Treatments (T)	Inter nodal length (cm)			Number of days taken to first flowering			Number of days taken to 50% flowering		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	9.52	9.98	9.75 ^d	29.58	29.23	29.41	37.85	36.15	37.00
T ₂ - Zinc 60 ppm	10.09	10.51	10.30 ^c	28.88	30.14	29.51	37.45	38.20	37.83
T ₃ - Iron 75 ppm	7.20	7.44	7.32 ^f	29.15	28.96	29.05	37.30	37.10	37.20
T ₄ - Iron 100 ppm	9.19	9.21	9.20 ^e	31.64	30.64	31.14	37.25	38.45	37.85
T ₅ - Manganese 75 ppm	6.84	7.37	7.10 ^f	29.00	31.50	30.25	36.55	36.80	36.68
T ₆ - Manganese 100 ppm	7.32	7.57	7.45 ^f	28.06	29.24	28.65	37.45	37.30	37.38
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	11.75	12.16	11.95 ^b	31.39	32.08	31.73	38.20	37.95	38.08
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	13.12	14.91	14.01 ^a	27.45	32.34	29.90	38.45	36.90	37.68
T ₉ - Control (water spray)	6.02	5.99	6.01 ^g	30.95	31.36	31.15	37.65	37.50	37.58
Mean	9.01 ^b	9.46 ^a		29.57	30.61		37.57	37.37	
	SEm ±	CD at 5%		SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatment (T)	0.12	0.36		0.89	NS		0.41	NS	
Humic acid (H)	0.06	0.17		0.42	NS		0.19	NS	
(T×H)	0.17	0.50		1.27	NS		0.58	NS	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.2.1 Effect of micro nutrients and humic acid on number of days taken to first harvest and last harvest of cucumber cv.Malini

Treatments (T)	Number of days taken to first harvest			Number of days taken to last harvest		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	47.42	46.70	47.06 ^b	74.20	76.83	75.51 ^c
T ₂ - Zinc 60 ppm	49.08	45.58	47.33 ^b	72.98	78.84	75.91 ^c
T ₃ - Iron 75 ppm	51.41	45.11	48.26 ^c	74.57	76.48	75.52 ^c
T ₄ - Iron 100 ppm	48.52	48.65	48.59 ^b	79.18	78.49	78.84 ^b
T ₅ - Manganese 75 ppm	48.11	48.04	48.07 ^c	68.70	69.45	69.07 ^e
T ₆ - Manganese 100 ppm	51.28	47.02	49.15 ^c	66.59	74.08	70.34 ^d
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	47.26	46.46	46.86 ^a	77.65	94.12	85.88 ^a
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	46.19	46.14	46.17 ^a	89.63	83.73	86.68 ^a
T ₉ - Control (water spray)	50.72	51.53	51.12 ^d	69.40	67.30	68.35 ^e
Mean	48.89 ^b	47.25 ^a		74.77 ^b	77.70 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatment (T)	0.77	2.28		1.37	4.10	
Humic acid (H)	0.36	1.08		0.65	1.93	
(T×H)	1.08	3.23		1.94	5.80	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.2.2 Effect of micro nutrients and humic acid on number of fruits per vine and mean fresh weight of fruit (g)

Treatments (T)	Number of fruits per Vine			Mean fresh weight of fruit (g)		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	19.44	18.81	19.12 ^c	221.26	222.68	221.97 ^c
T ₂ - Zinc 60 ppm	18.32	21.54	19.93 ^c	219.51	226.21	222.86 ^c
T ₃ - Iron 75 ppm	20.56	20.46	20.51 ^b	214.76	221.96	218.36 ^d
T ₄ - Iron 100 ppm	21.40	21.65	21.52 ^b	219.90	222.47	221.19 ^d
T ₅ - Manganese 75 ppm	16.56	16.98	16.77 ^d	207.64	217.65	212.64 ^e
T ₆ - Manganese 100 ppm	12.55	19.62	16.09 ^d	222.27	231.87	227.07 ^c
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	18.57	28.26	23.42 ^a	275.19	267.74	271.46 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	26.51	26.15	26.33 ^a	281.65	280.10	280.88 ^a
T ₉ - Control (water spray)	14.94	12.82	13.88 ^e	180.31	180.58	180.45 ^f
Mean	18.76 ^b	20.70 ^a		226.94 ^b	230.14 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatments (T)	1.13	3.36		1.73	5.17	
Humic acid (H)	0.53	1.58		0.82	2.44	
(T×H)	1.59	4.75		2.45	7.31	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.2.3 Effect of micronutrients on fruit length (cm) and fruit diameter (cm) of cucumber cv. Malini

Treatments (T)	Fruit length (cm)			Fruit diameter (cm)		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	18.10	18.45	18.27 ^d	3.11	3.18	3.14 ^d
T ₂ - Zinc 60 ppm	19.0	18.90	18.95 ^c	3.09	2.82	2.96 ^d
T ₃ - Iron 75 ppm	19.10	19.70	19.40 ^c	3.06	3.12	3.09 ^d
T ₄ - Iron 100 ppm	19.5	19.85	19.67 ^c	3.39	3.37	3.38 ^c
T ₅ - Manganese 75 ppm	17.05	17.80	17.42 ^e	2.91	3.35	3.13 ^d
T ₆ - Manganese 100 ppm	17.20	17.45	17.32 ^e	3.25	3.35	3.30 ^c
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	20.40	21.25	20.82 ^b	3.13	3.87	3.50 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	21.30	22.40	21.85 ^a	4.88	4.79	4.83 ^a
T ₉ - Control (water spray)	16.55	16.05	16.30 ^f	2.29	2.76	2.52 ^e
Mean	18.68	19.09		3.23	3.40	
	SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatments (T)	0.34	1.02		0.28	0.84	
Humic acid (H)	0.16	NS		0.13	NS	
(T×H)	0.48	NS		0.40	NS	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.3.1 Effect of micro nutrients and humic acid on fruit yield per vine (kg), fruit yield per plot (kg) of cucumber cv. Malini

Treatments (T)	Fruit yield per vine (kg)			Fruit yield per plot (kg)		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	4.92	4.83	4.87 ^d	100.06	103.48	101.77 ^d
T ₂ - Zinc 60 ppm	4.72	5.57	5.15 ^c	100.99	119.25	110.12 ^c
T ₃ - Iron 75 ppm	5.36	5.34	5.35 ^c	111.84	112.39	112.11 ^c
T ₄ - Iron 100 ppm	5.71	5.73	5.72 ^c	113.95	119.39	116.67 ^c
T ₅ - Manganese 75 ppm	4.42	4.56	4.49 ^e	90.29	94.28	92.29 ^e
T ₆ - Manganese 100 ppm	3.47	5.40	4.43 ^e	72.57	115.09	93.83 ^e
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	4.76	7.34	6.05 ^b	98.96	159.12	129.04 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	7.07	7.16	7.11 ^a	154.73	168.49	161.61 ^a
T ₉ - Control (water spray)	4.04	3.60	3.82 ^f	80.96	75.11	78.03 ^f
Mean	4.94 ^b	5.50 ^a		102.70 ^b	118.51 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatment (T)	0.20	0.59		6.37	19.00	
Humic acid (H)	0.09	0.28		3.00	8.96	
(T×H)	0.28	0.84		9.01	26.87	

H₁ = Humic acid 0.5 per cent

H₂ = Humic acid 0.75 per cent

DAS = Days after sowing

Table 4.3.2 Effect of micro nutrients and humic acid on fruit yield (t/ha) and marketable yield (t/ha) of cucumber cv. Malini.

Treatments (T)	Fruit yield (t/ha)			Marketable yield (t/ha)		
	H ₁	H ₂	Mean	H ₁	H ₂	Mean
T ₁ - Zinc 40 ppm	160.00	163.71	161.85 ^d	145.59	152.38	148.98 ^d
T ₂ - Zinc 60 ppm	167.70	171.40	169.55 ^c	150.88	160.63	155.75 ^c
T ₃ - Iron 75 ppm	146.27	148.55	147.41 ^f	129.83	134.01	131.92 ^f
T ₄ - Iron 100 ppm	151.40	155.70	153.55 ^e	140.65	143.67	142.16 ^e
T ₅ - Manganese 75 ppm	135.71	140.00	137.85 ^g	123.07	126.15	124.61 ^g
T ₆ - Manganese 100 ppm	142.84	144.50	143.67 ^f	121.90	132.82	127.36 ^g
T ₇ - Zinc 40 ppm+ Iron 75 ppm +Manganese 75 ppm	175.70	181.41	178.55 ^b	191.16	205.06	198.11 ^b
T ₈ - Zinc 60 ppm+ Iron 100 ppm +Manganese 100 ppm	188.56	199.12	193.84 ^a	196.21	238.59	217.40 ^a
T ₉ - Control (water spray)	118.00	121.20	119.60 ^h	103.40	108.71	106.06 ^h
Mean	154.02 ^b	158.40 ^a		144.74 ^b	155.78 ^a	
	SEm ±	CD at 5%		SEm ±	CD at 5%	
Treatments (T)	1.89	5.62		1.80	5.38	
Humic acid (H)	0.89	2.65		0.85	2.54	
(T×H)	2.67	7.95		2.55	7.62	

H₁ = Humic acid 0.5%

H₂ = Humic acid 0.75%

DAS = Days after sowing

Table 4.4 Cost of cultivation, gross return, net return and B: C ratio as influenced by Micronutrients and humic acid in cucumber cv. Malini

Treatments	Fixed cost+ Input cost+ Labour cost	Treatment cost (Rs/ha)	Total cost Of cultivation (Rs/ha)	Yield (t/ha)	Gross return (Rs/ha)	Net return (Rs/ha)	B:C Ratio
T ₁ -Zn-40 ppm+ HA-0.5%	522366	3400	525766	160.00	1600000	1074234	2.04
T ₂ -Zn - 40 ppm+ HA-0.75%	522366	6400	528766	163.71	1637100	1108334	2.09
T ₃ - Zn- 60 ppm + HA- 0.5%	522366	3800	526166	167.70	1677000	1150834	2.18
T ₄ - Zn- 60 ppm+ HA-0.75%	522366	6800	529166	171.40	1714000	1184834	2.23
T ₅ - Fe- 75 ppm + HA- 0.5%	522366	3480	525846	146.27	1462700	936854	1.78
T ₆ - Fe- 75 ppm+ HA-0.75%	522366	6480	528846	148.55	1485500	956654	1.80
T ₇ - Fe- 100 ppm+ HA- 0.5%	522366	3960	526326	151.40	1514000	987674	1.88
T ₈ - Fe -100 ppm+ HA-0.75%	522366	6960	529326	155.70	1557000	1027674	1.94
T ₉ - Mn- 75 ppm+ HA- 0.5%	522366	3350	525716	135.71	1357100	831384	1.58
T ₁₀ -Mn-75 ppm+ HA-0.75%	522366	6350	528716	140.00	1400000	871284	1.64
T ₁₁ -Mn-100 ppm+ HA- 0.5%	522366	3700	526066	142.84	1428400	902334	1.71
T ₁₂ -Mn- 100 pp+ HA- 0.75%	522366	6700	529066	144.50	1445000	915934	1.73
T ₁₃ - Zn-40 ppm+ Fe-75ppm+Mn-75 ppm+ HA-0.5%	522366	4230	526596	175.70	1757000	1230404	2.34
T ₁₄ - Zn-40 ppm+ Fe-75 ppm +Mn- 75 ppm+ HA-0.75%	522366	7230	529596	181.40	1814000	1284404	2.43
T ₁₅ - Zn-60 ppm+ Fe-100 ppm+Mn-100 ppm +HA-0.5%	522366	5460	527826	188.50	1885000	1357174	2.57
T ₁₆ - Zn-60 ppm+ Fe-100 ppm+ Mn-100 ppm+HA0.75%	522366	8460	530826	199.12	1991200	1460374	2.75
T ₁₇ - Control+ humic acid -0.5%	522366	3000	525366	118.00	1180000	654634	1.24
T ₁₈ - Control+ humic acid- 0.75%	522366	6000	528366	121.20	1212000	683634	1.29

- Zn- Zinc Fe- Iron Mn- Manganese HA- Humic acid
- Price of cucumber 10 Rs. Per kg

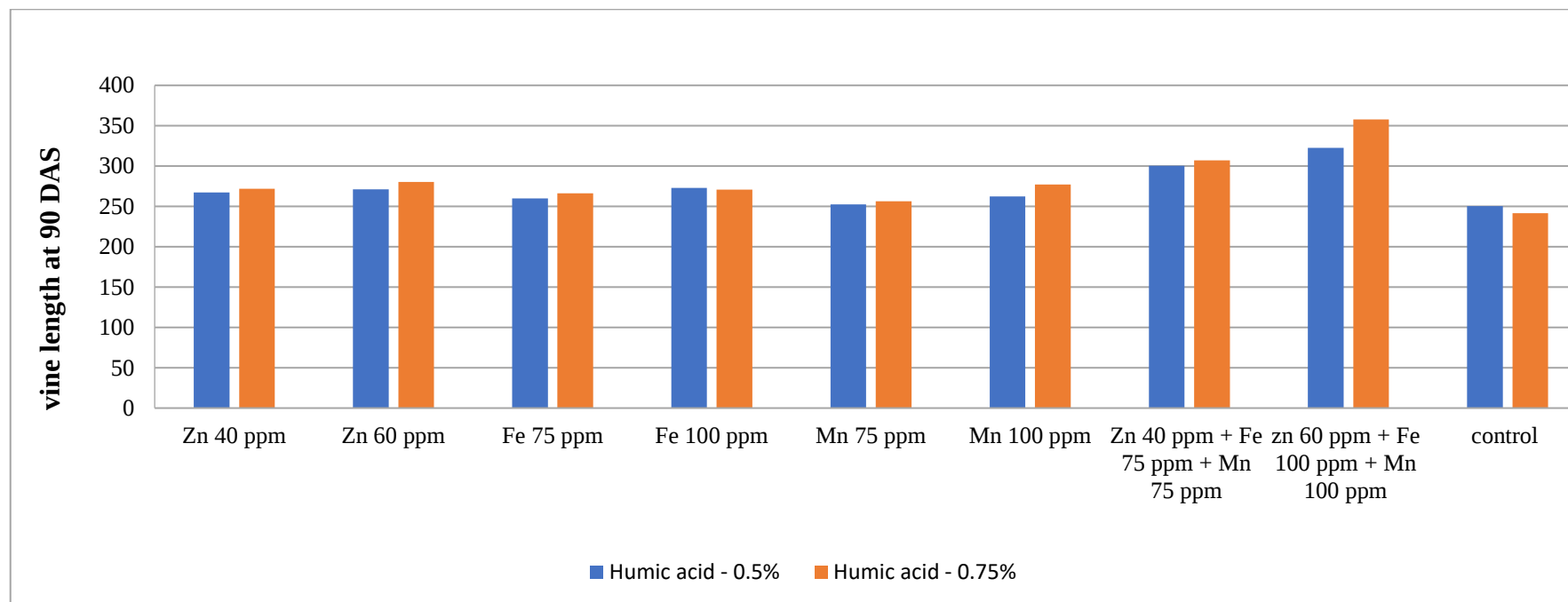


Fig 4.1.1 Effect of micronutrients and humic acid on vine length (cm) at 90 DAS of cucumber cv. Malini.

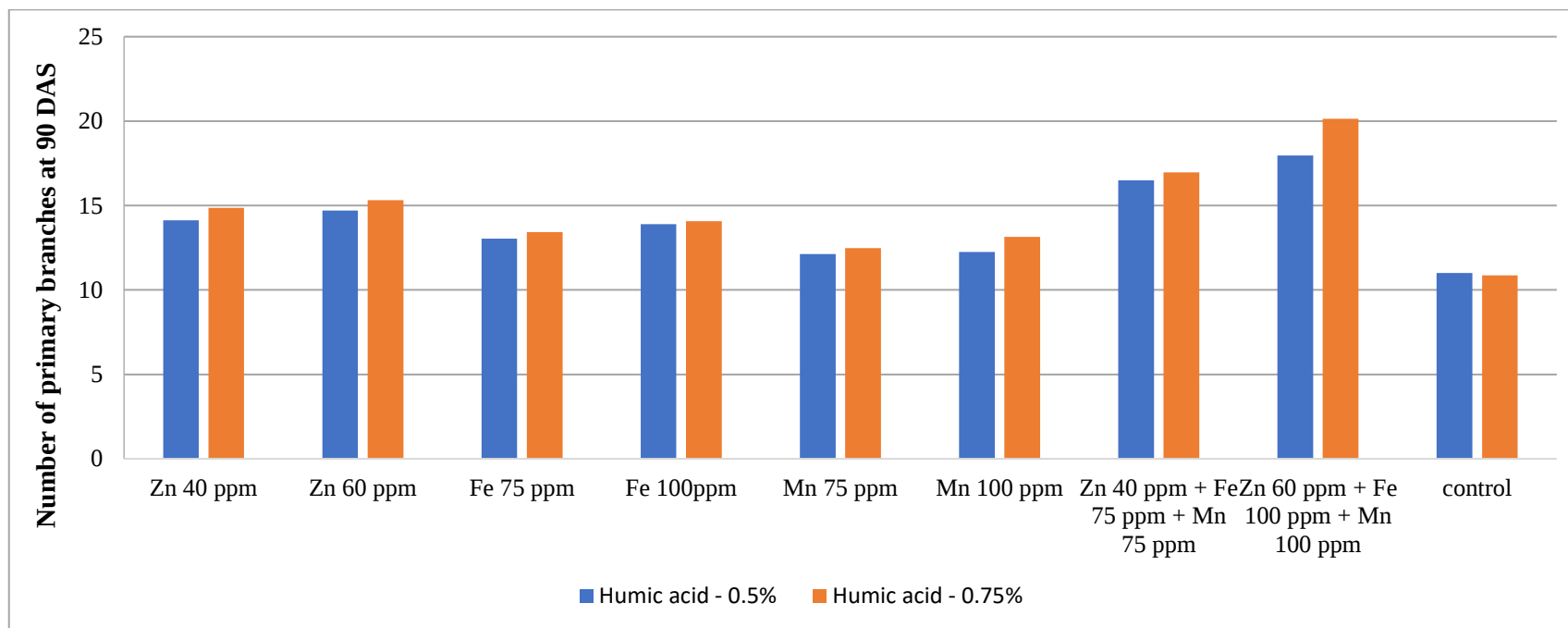


Fig 4.1.2 Effect of micronutrients and humic acid on number of primary branches per vine at 90 DAS of cucumber cv. Malini.

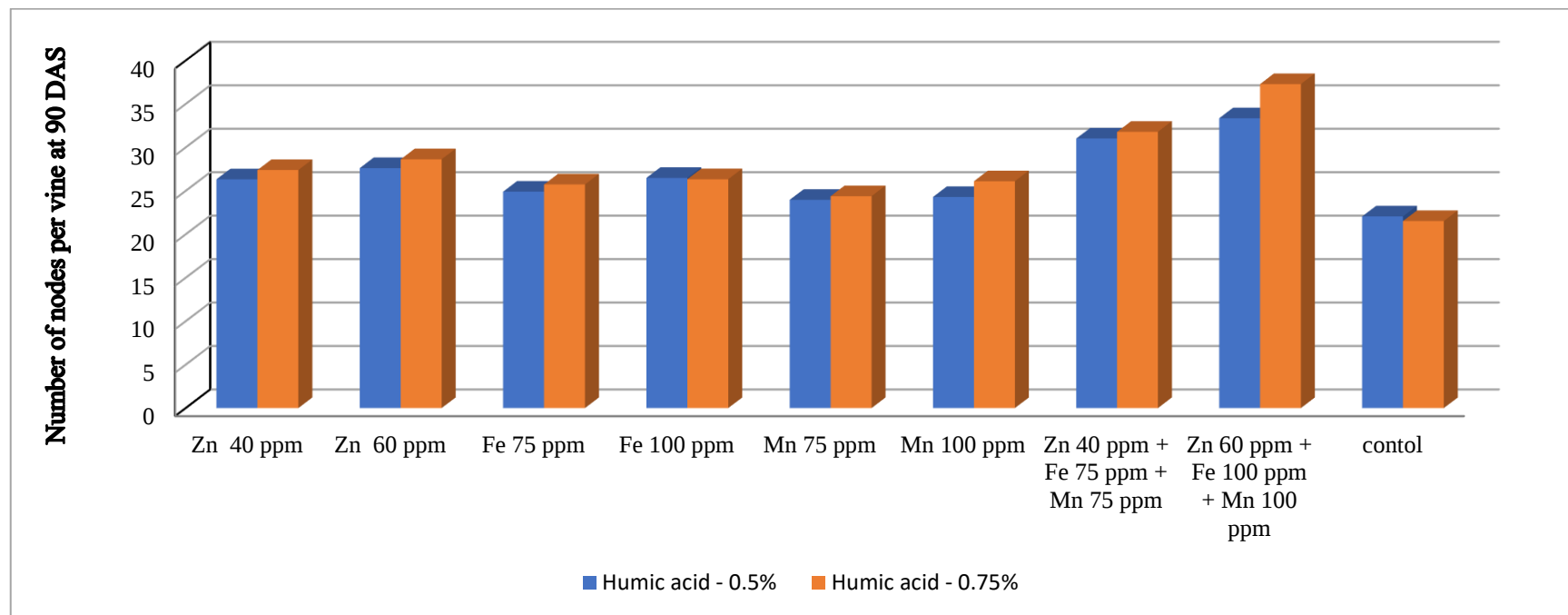


Fig 4.1.3 Effect of micronutrients and humic acid on number of nodes per vine at 90 DAS of cucumber cv. Malini.

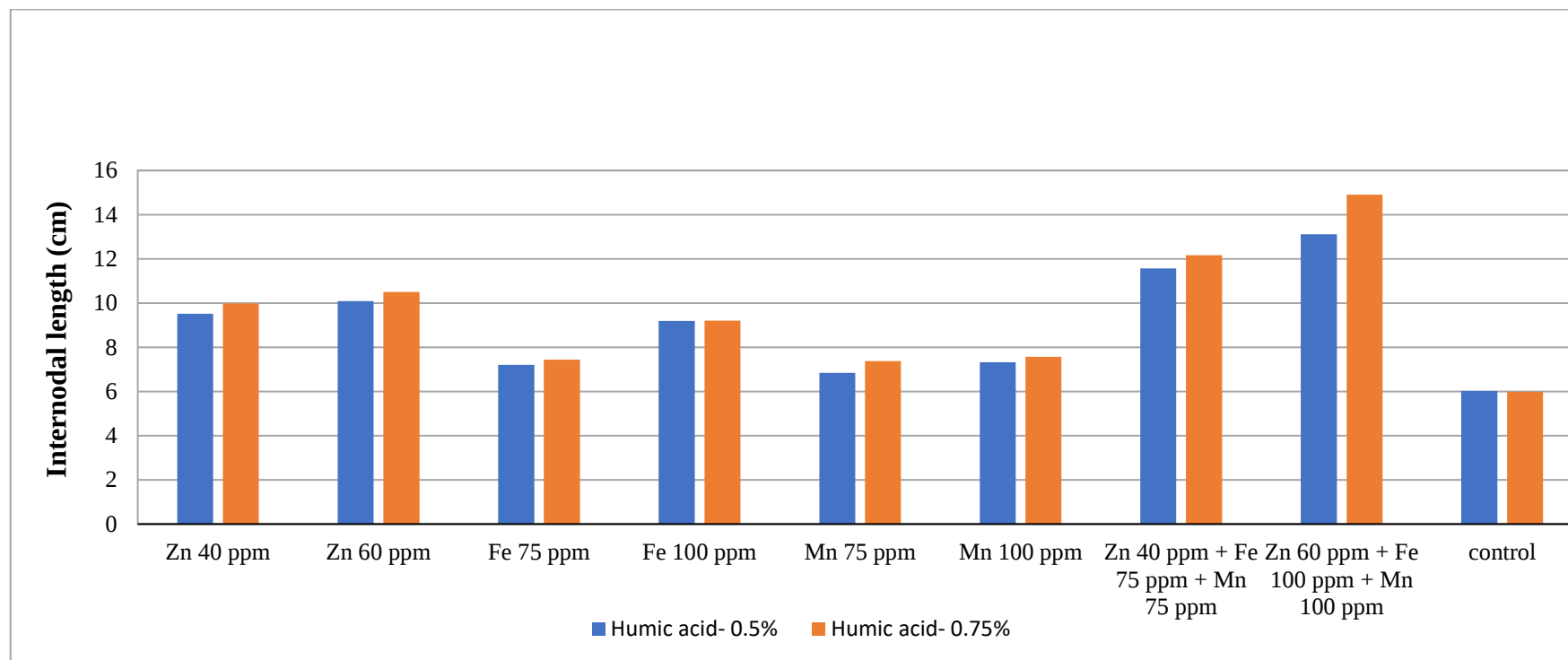


Fig 4.1.4 Effect of micronutrients and humic acid on internodal length (cm) of cucumber cv. Malini.

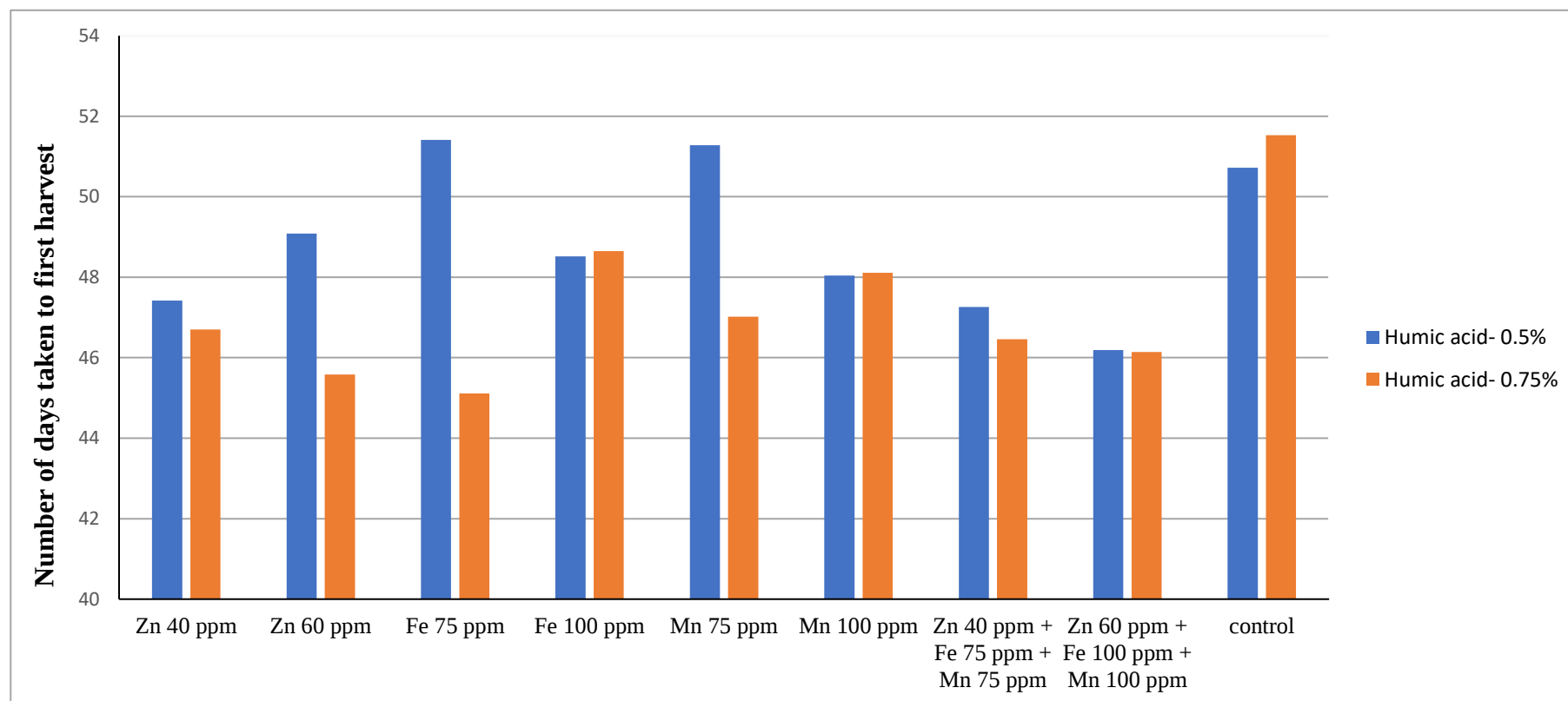


Fig 4.2.1 Effect of micronutrients and humic acid on number of days taken to first harvest of cucumber cv. Malini.

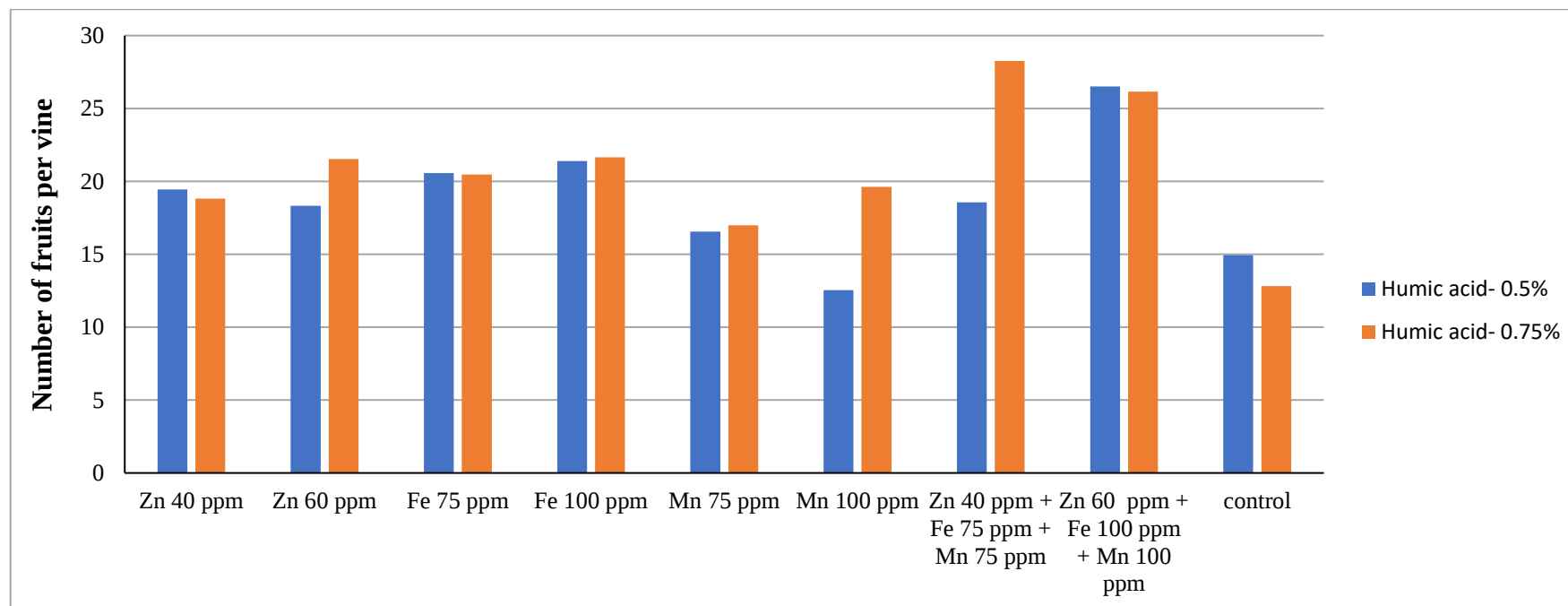


Fig 4.2.2 Effect of micronutrients and humic acid on number of fruits per vine of cucumber cv. Malini.

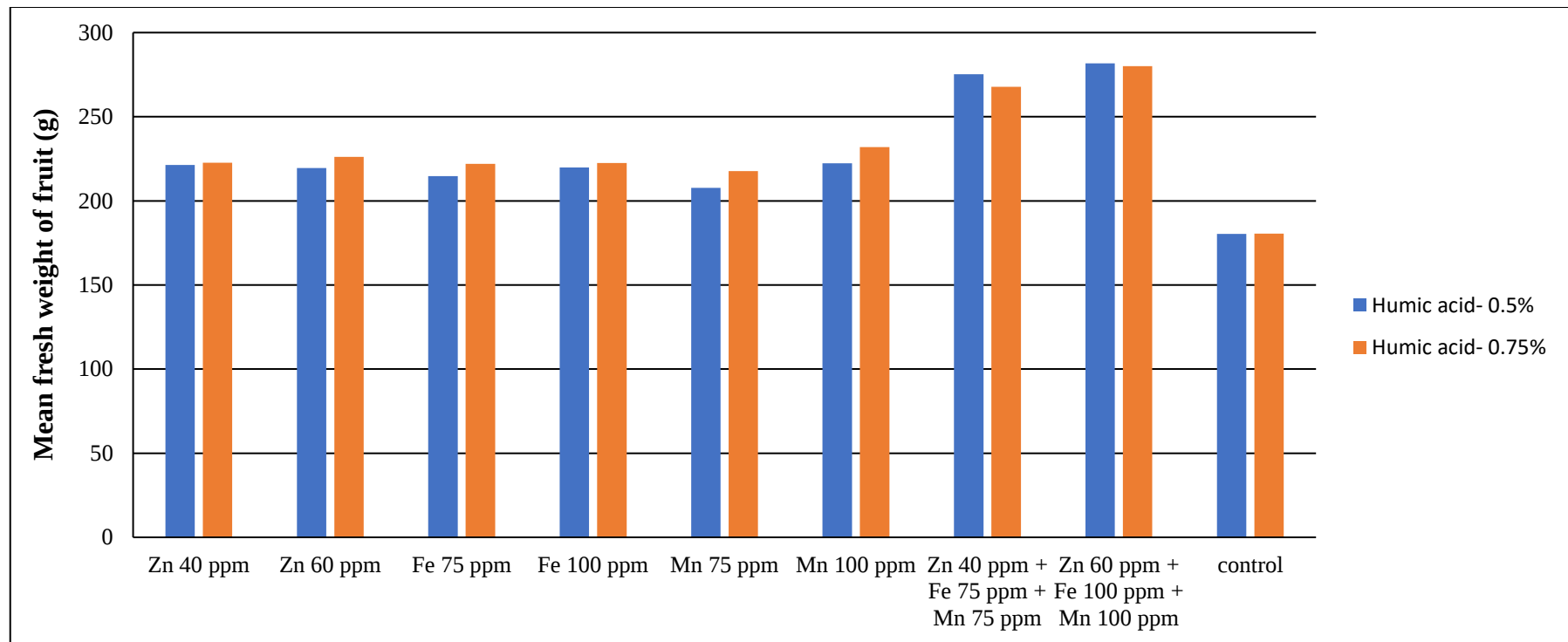


Fig 4.2.3 Effect of micronutrients and humic acid on mean fresh weight of fruit (g) of cucumber cv. Malini.

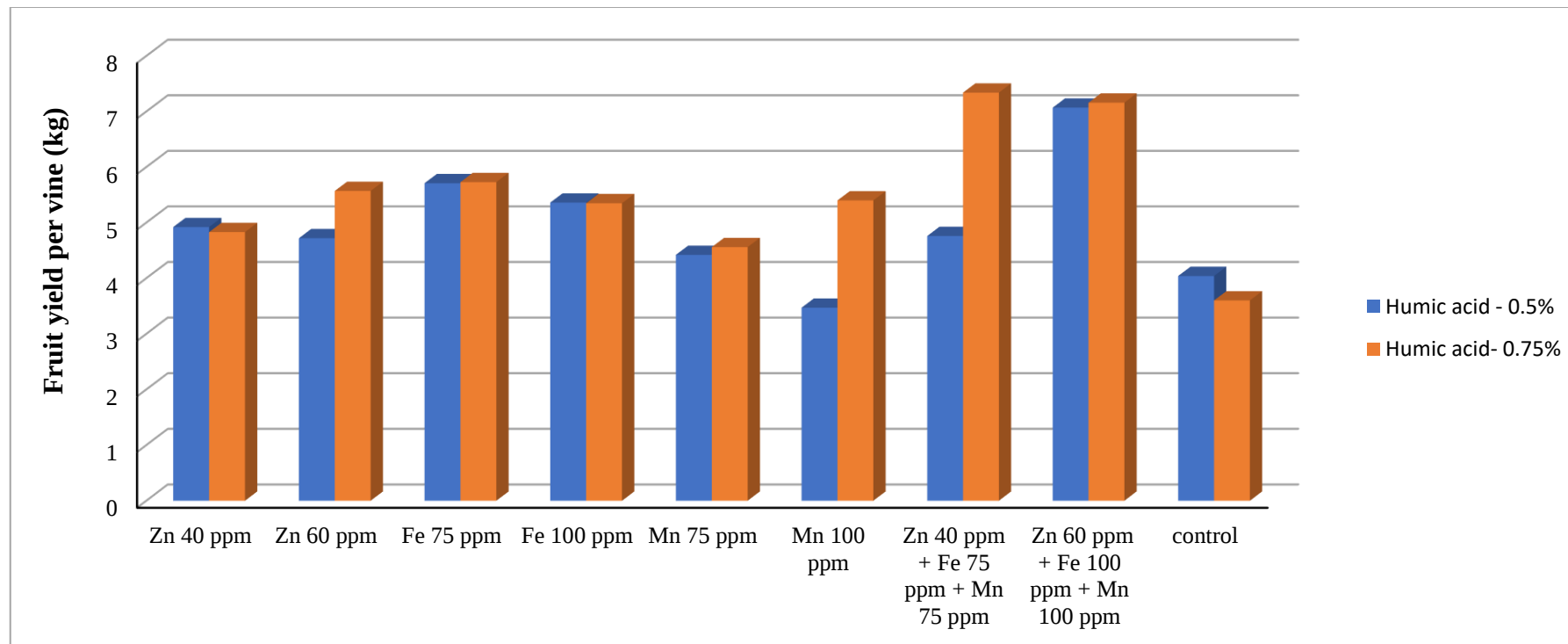


Fig 4.3.1 Effect of micronutrients and humic acid on fruit yield per vine (kg) of cucumber cv. Malini.

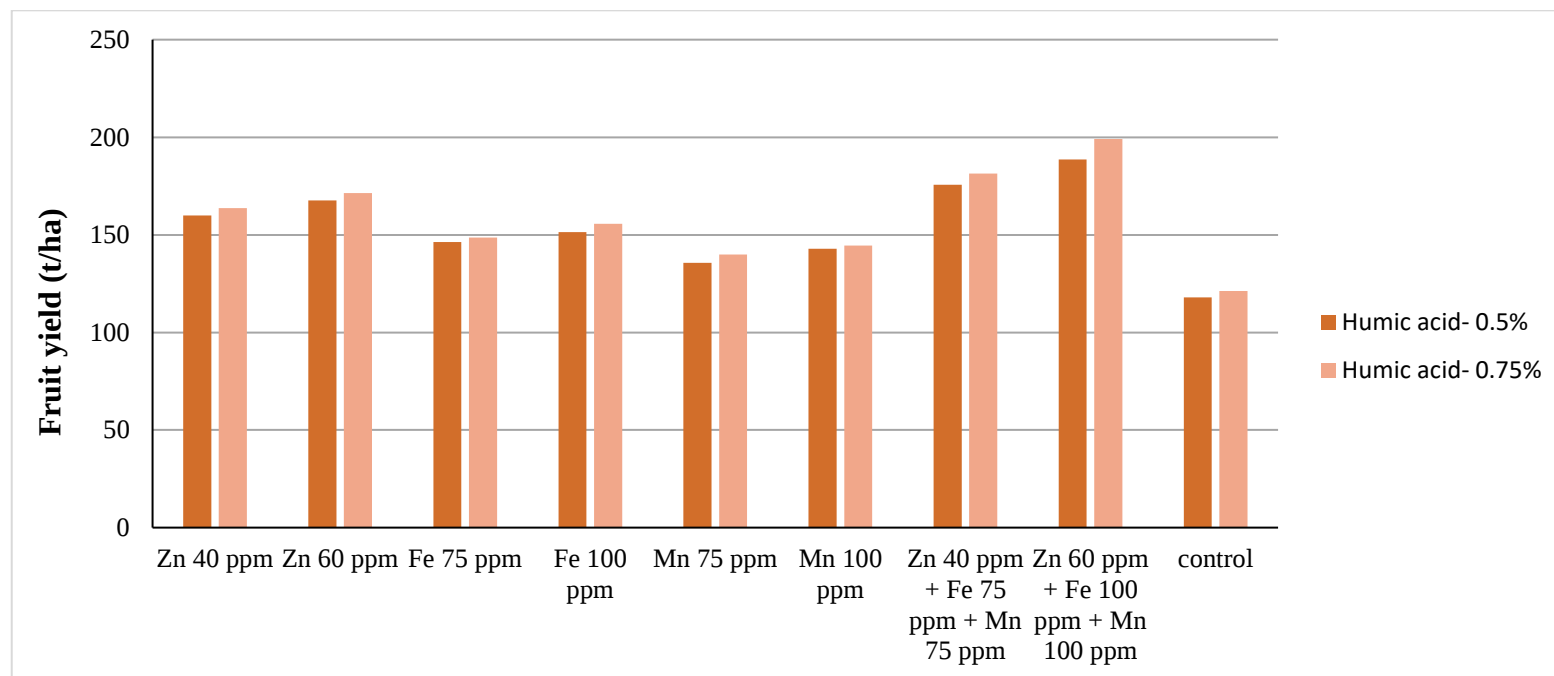


Fig 4.3.2 Effect of micronutrients and humic acid on fruit yield (t/ha) of cucumber cv. Malini.

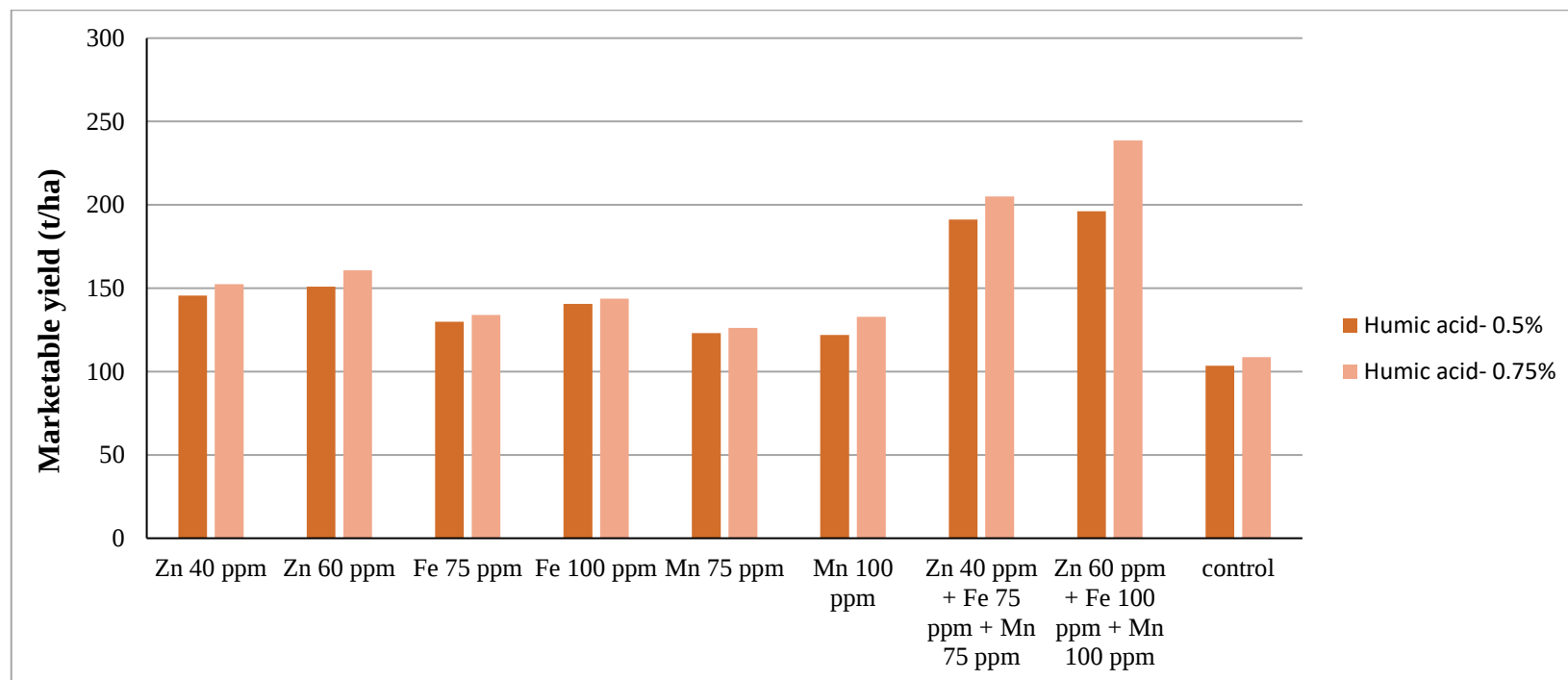


Fig 4.3.3 Effect of micronutrients and humic acid on marketable yield (t/ha) of cucumber cv. Malini.

