

CHAPTER 5
CONCLUSION

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The present work, “Studies on the effects of a fertilizer factory effluent on *Capsicum annuum* L. a ‘food adjunct’ of Solanaceae”, was carried out to assess the effect of the effluent on plants. The industrial effluent selected for the present study was from FACT Ammonium sulphate plant at *Udyogamandal* near *Alwaye, Ernakulam, Kerala*. The different parameters included for effluent analysis were colour, pH, suspended solids, dissolved solids, free ammonia, ammoniacal nitrogen, nitrates, DO, BOD, COD, oil and grease, chlorides, phosphates, phenolic compounds, cyanides, sulphides, sulphates, total residual chlorides, fluorides, boron, arsenic, percent sodium, copper, lead, chromium, nickel, zinc, hexavalent chromium, and total chromium. The impact of the effluent on the *Capsicum* plants was studied. The test materials were treated with different concentrations of the effluent *viz.* 25%, 50%, 75% and 100%. A control was also maintained. The various parameters for the study included morphology, cytology, biochemistry and yield.

Analysis of the result of morphological and biochemical variations observed in the treated population with respect to control indicates the conclusions (Table, 5.1) which are as follows:

- Majority of the morphological parameters studied were significantly reduced due to the treatment with higher concentrations of effluent.
- The negative impact of 25% and 50% effluent was least on all the treated plants and in addition these concentrations had stimulatory effect on growth, chlorophyll and carbohydrate contents of the test materials.
- All the plants studied were found to be affected and suppressed by higher concentrations of the effluent.

- The order of tolerance among the plants studied was Wild > Ujwala > Jwalamukhi > Jwalasakhi.

Considering the above conclusions a suggestion is made that upto 50% diluted effluent can safely be utilized for irrigation purpose to this genotype, with respect to these parameters.

Table.5.1.Compilation of the results

Parameters	Ujwala								Jwalamukhi								Jwalasakhi								Wild													
	25%		50%		75%		100%		25%		50%		75%		100%		25%		50%		75%		100%		25%		50%		75%		100%							
	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-						
1. Germination						1		1						1		1						1		1						1		1						
2. Radicle length						1		1						1		1					1		1					1		1		1						
3. Length hypocotyle	1								1						1					1											1							
4. Height (30)						1		1						1		1					1		1															
5. Height (60)														1		1																						
6. Height (90)														1		1																						
7. Height (harvest)								1						1		1																						
8. No.leaf (30)								1							1					1		1																
9. No.leaf (60)											1		1		1					1		1																
10. No.Branches (30)																																						
11. No.Branches (60)														1		1						1		1		1												
12. No.fruits																																						
13. Weight fruits						1		1					1		1							1		1														
14. Length fruits						1		1					1		1																							
15. No.seeds/fruits						1		1					1																									
16. Length roots								1					1																									
17. phytomass										1		1																										
18. Chlorophyll a (V)																																						
19. Carotene (V)																																						
20. Chlorophyll b (Fl)											1																											
21. Carbohydrate (V)								1		1																												
22. Carbohydrate (Fl)								1		1																												
23. Carbohydrate (Ft)														1																								
Total	1					3		9		2	5	1	3	2	1	10					13	2		2	4	1	9			14	3		2	2	2	2	1	4

+ Significant increase from control; - Significant decrease from control