



# EFFECT OF *CHLORELLA VULGARIS* ON SWISS CHARD GROWTH PARAMETERS AND YIELD

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## MICROALGAE IN AGRICULTURE

•Application of microalgal fertilizers can improve soil physical properties, increase the nutrients available for plants and produce substances that promote plant development.

Aim of the study was to compare three strains of *C. vulgaris* on Swiss chard growth by monitoring various morphological traits in field conditions.

## MATERIAL AND METHODS

- Experimental field 45°24' N, 19°59' E;
- pH reaction 7.09 to 7.88,
- total carbonates 5.07% CaCO<sub>3</sub>,
- humus 3.77%, total nitrogen 0.19%,
- P<sub>2</sub>O<sub>5</sub> 188.05% and K<sub>2</sub>O 166.62%.
- The young leaves were treated with 5% microalgal suspension (strain 46, 63 and 71) by foliar spraying.
- Seven days later, yield component were measured.

## CONCLUSION

*C. vulgaris* strain 63 proved to be the most effective regarding morphological properties. The average leaf number, weight per leaf and total weight per plant were 15.7; 29.9 g leaf<sup>-1</sup> and 454.6 g plant<sup>-1</sup>, respectively. However, positive effects of *C. vulgaris* strains on morphological properties of Swiss chard indicated that all of investigated strains (C45, C63 and C71) could be good potential growth promoters.

## RESULTS

Average leaf number (No plant <sup>-1</sup> )			
Treatments:	july	august	september
H <sub>2</sub> O	6.3 ± 0.80 bc*	8.1 ± 1.43 c	10.0 ± 0.88 c
C45	7.2 ± 0.26 b	8.6 ± 1.02 c	10.2 ± 0.51 c
C63	9.7 ± 1.47 a	10.2 ± 1.55 b	15.7 ± 0.80 a
C71	9.8 ± 0.86 a	12.0 ± 1.13 a	11.8 ± 0.51 b
LSD test	1.19	2.69	0.82
Average leaf length (cm plant <sup>-1</sup> )			
Treatments:	july	august	september
H <sub>2</sub> O	18.901 ± 1.33 c	18.773 ± 0.88 c	18.819 ± 0.45 d
C45	29.502 ± 0.98 b	29.577 ± 0.82 b	29.62 ± 0.70 c
C63	31.224 ± 1.79 ab	29.937 ± 0.25 b	38.586 ± 3.14 a
C71	32.739 ± 2.17 a	33.966 ± 0.80 a	36.092 ± 2.11 b
LSD test	1.5	0.86	2.27
Average leaf weight (g leaf <sup>-1</sup> )			
Treatments:	july	august	september
H <sub>2</sub> O	16.5 ± 1.51 c	13.0 ± 0.69 c	8.3 ± 1.02 d
C45	21.2 ± 1.84 b	19.2 ± 1.55 b	19.9 ± 0.42 c
C63	26.6 ± 3.92 a	24.8 ± 2.62 a	29.9 ± 2.01 a
C71	27.3 ± 2.87 a	26.0 ± 0.87 a	23.2 ± 1.28 b
LSD test	3.35	1.92	1.53
Total leaf weight (g plant <sup>-1</sup> )			
Treatments:	july	august	september
H <sub>2</sub> O	103.4 ± 9.11 c	104.2 ± 9.85 c	83.2 ± 7.32 d
C45	151.4 ± 11.86 b	163.3 ± 5.95 b	203.6 ± 14.28 c
C63	248.5 ± 15.40 a	243.5 ± 14.21 a	454.6 ± 32.36 a
C71	246.9 ± 10.37 a	247.7 ± 3.69 a	264.2 ± 25.14 b
LSD test	20.0	15.58	25.67