

**Size variations of *Guinardia flaccida* (Castracane) Peragallo in different zones of the Suez Canal**

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The variations in cell dimensions of the diatom *Guinardia flaccida* in 3 separate zones of the Suez Canal were examined in winter and summer. The observed variability is tentatively ascribed to the effect of temperature and salinity variations.

The sampled zones were: Suez Bay-S (S%.:41.2-41.7%), the Bitter Lake-B (S%.:44.6-45.8%) and Port Said-P (S%.:37.39%). Samples were collected in February (temp.:14-15°C) and July (temp.:29-30°C). Length-L and diameter-D of 100 cells from each zone were measured in both winter and summer. The data were statistically treated according to SNEDECOR (1956) and HAYSLETT (1970).

The cell dimensions of *Guinardia flaccida* were subjected to remarkable variations in the 3 zones of the Canal. The summer population at S exhibited significant increase in cell diameter and insignificant decrease in length compared to winter (Table 1 and Figs. 1&2). In B, both cell dimensions decreased significantly in summer. The P individuals were subjected to remarkable increase in cell length and decrease in diameter during summer. Analysis of variance indicated highly significant (HS) seasonal variations in the cell dimensions (Table 1).

Remarkable spatial variations in the length and diameter were also observed among the 3 populations in winter and summer. In winter, variations between the S and B populations were highly significant (Table 2), where B population tended towards the longer and wider individuals. The P population exhibited shorter lengths than those of both S and B, indicating a highly significant variation. (Table 2). Otherwise, the variations in the cell diameter between P and B were not significant (NS). In general, regional variations in the cell dimensions among winter populations were significant. The summer populations of S&B showed significant regional variations (Table 2). The B individuals were mostly longer and narrower. The P population exhibited highly significant variations in length compared to S&B (Table 2). However, cell diameter of P varied remarkably from that of B, while it was comparable to that of S.

The results indicate that variations in cell dimensions may be related to variations in temperature and salinity.

Zone	Parameter	F ratio
S	L	2.87 NS
	D	7.02 HS
B	L	10.39 HS
	D	344.63 HS
P	L	89.04 HS
	D	90.82 HS

Table 1- Seasonal variations. Analysis of variance of length & diameter in the 3 zones.

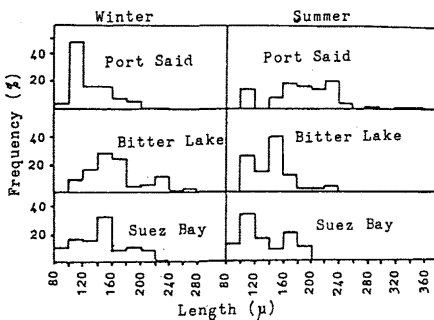


Fig. 1- Different components of cell length (% frequency) in the studied zones in winter and summer.

Parameter	S-B	B-P	P-S	S-B-P
Winter				
L	HS	HS	HS	HS
D	HS	NS	HS	HS
Summer				
L	HS	HS	HS	HS
D	NS	HS	NS	HS

Table 2- Spatial variations, analysis of variance of L&D in winter and summer.

REFERENCES

HAYSLETT, M.S., 1970. Statistics made simple. Publ. W.H.Allen, London.

SNEDECOR, 1956. Statistical methods. The Iowa State College Press, Iowa USA.

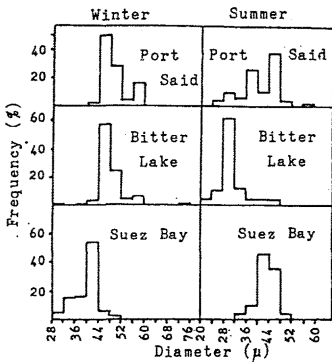


Fig. 2- Different components of cell diameter (% frequency) in the studied zones in winter & summer.