

**Relation between densities of indicator organisms and  
*Staphylococcus aureus* in sea water**

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The distribution of *Staphylococcus aureus* and its relation to the indicators of faecal pollution were studied at 17 stations in the coastal area of Split (Central Adriatic) during the summer period in 1989. Areas with different degrees of pollution (from very low to high) were chosen for the study.

The average values of *S.aureus* concentration ranged from 16 to 1000/100 ml, total coliforms from 20 to 100000/100 ml, faecal coliforms from 4 to 25100/100 ml and faecal streptococci from 2 to 7900/100 ml sea water (Fig.1).

The relation of *S.aureus* with each of the studied groups of indicators was analysed. In the total number of samples no correlation was established with total coliform and faecal coliform, and scarcely a significant one with faecal streptococci. However the analysis of *S.aureus* and indicators of faecal pollution in samples with different degrees of pollution showed different results (Tab.1). Faecal coliforms were used as the criterion to evaluate the degree of pollution of the studied area which was accordingly divided into less polluted area up to 100 FC/100 ml) and more polluted one (over 100 FC/100 ml).

Table 1. Correlations established between concentrations of *Staphylococcus aureus* and indicator organisms.

	<100 FC/100 ml			>100 FC/100 ml			Total samples		
	r	n	P	r	n	P	r	n	P
TC	-0.11	43	-	0.49	20	0.05	0.07	63	-
FC	0.10	50	-	0.41	23	0.05	0.17	73	-
FS	-0.05	50	-	0.61	23	0.01	0.24	73	0.05

In cases of low polluted sea water no correlation between *S.aureus* and indicators of faecal pollution was established whereas in more polluted sea water there was a correlation between them.

The highest correlation coefficient was established between *S.aureus* and faecal streptococci, the indicator of faecal pollution with the longest period of survival (1,2). It could be explained by the fact that *S.aureus* is more chlorine resistant in sea water (3), which probably causes its longer period of survival in relation to indicator organisms.

#### References

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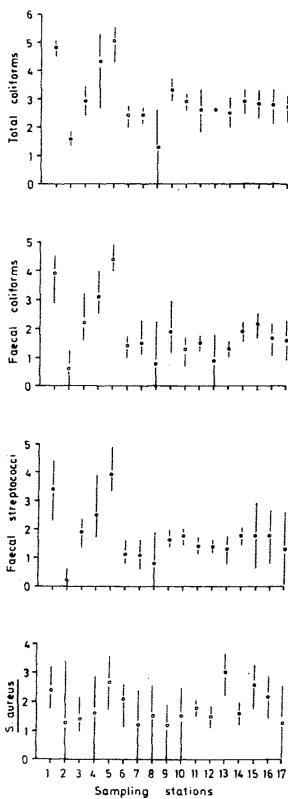


Fig.1. Ranges and mean values of indicator organisms and *Staphylococcus aureus* (log n/100 ml).