

An initial study of the inactivation of *Pseudomonas aeruginosa* in seawater and its comparison with the usual bacterial indicators of faecal pollution.

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SUMMARY.

The population decrease of Total Coliforms (T.C.), Faecal Coliforms (F.C.), Faecal Streptococci (F.S.) and *Pseudomonas aeruginosa* in the marine environment was studied. The organisms were discharged as components of urban sewage from a submarine outfall. The results show that the inactivation process of *P. aeruginosa* is similar to F.S.; both of these decreasing more slowly than T.C. and F.C.

RESUME.

On a réalisé un étude du disparition des populations de Coliformes Totaux, Coliformes Fécaux, Streptocoques Fécaux et *Pseudomonas aeruginosa* provenants des rejets d'eaux résiduaires domestiques au milieu marin apportées par un émissaire. Les resultats obtenus indiquent que le procès de disparition de *P. aeruginosa* est similaire au procès des S.F., et la disparition de tous les deux est plus lente que la de C.T. et. C.F.

TEXT.

The risk of *P. aeruginosa* ear infections associated directly with swimming that gives relevance and importance to the study of *P. aeruginosa* in recreational waters or marine playgrounds (Cabelli et al. 1976; Hoadley, 1977; Pipes, 1982). The source of these potential pathogens in superficial water layer is human and animal faeces and sewage (Hoadley, 1977; Bonde, 1977).

The four inactivation parameters are plotted against drift time. There is an obvious parallel between the decrease of F.S. and *P. aeruginosa*, these are clearly different from the T.C. and F.C., that showing a more marked inactivation. These figures agree with the statements of Cabelli et al. (1976) that F.C. and *P. aeruginosa* do not

have parallel inactivation curves, while *P. aeruginosa* and F.S. clearly do. The relationship between the bacterial indicator concentrations and those of *P. aeruginosa*, confirm this hypothesis, since, relationship between the concentrations of F.S. and *P. aeruginosa* is more directly proportional than the relationships between T.C. or F.C. and *P. aeruginosa*. On the other hand the corresponding value for *P. aeruginosa*, where a concentration of 200 F.C./100 ml is 12.5/100 ml; this is in agreement with Cabelli et al. (1976). A value of 100-200 F.S./100 ml corresponds to 4-7 *P. aeruginosa*/100 ml.

The level of *P. aeruginosa* of 100/100 ml, is significant, above which, according to Hoadley (1968), swimmers will be exposed to infective doses, and this level would correspond to values for F.S. of  $5-6 \times 10^3/100$  ml and, for F.C., of  $6-7 \times 10^3/100$  ml. The results show that whenever the samples contain F.C. of more than 1000/100 ml, *P. aeruginosa* is present, this coincides with Bonde (1977).

#### CONCLUSIONS.

*P. aeruginosa* like F.S. is inactivated more slowly than the bacteria of the coliform group. This study shows that *P. aeruginosa* would be much better represented by F.S., in that its values would seem to provide an estimate of the probable content of *P. aeruginosa* in water better than the coliforms.

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