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Factors Influencing the Thermal Death Time of Microorganisms

C. H. Werkman

Iowa State College

FACTORS INFLUENCING THE THERMAL DEATH TIME OF MICROÖRGANISMS

C. H. Werkman

While it has been shown that the time required to destroy a bacterial suspension lengthens with increase in the number of organisms present no detailed study of the relationship has been made. The present paper details the results of such a study made on *Staphylococcus aureus* with methyl mercuric nitrate.

If organisms subjected to unfavorable conditions die off in conformity to the logarithmic concept (where k_1, the velocity coefficient of death, $= \frac{1}{T} \ln \frac{B}{b}$ T, time; B, bacteria when T = o; b, bacteria after t.) if the number be increased by x-fold the time required to kill (T_2) should show the following relationship:

$$T_2 = T_1 \frac{(1 + \ln x)}{\frac{\ln B_1}{\ln b_1}}$$

The experimental results do not consistently fit this equation, particularly when the numbers of bacteria become great. With small numbers of bacteria agreement is reasonably good.

The effect of concentration of methyl mercuric nitrate may be expressed within limits by the power function:

$T = AC^{-n}$ when A and n are constants and C is the concentration.

Iowa State College
Ames

EPIDEMIOLOGY OF POLIOMYELITIS (INFANTILE PARALYSIS) WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN IOWA

Henry Albert

The study of the epidemiology of infantile paralysis must take into consideration three types of the disease, namely:

1. The mild abortive type representing a systematic infection.
2. The non-paralytic meningic type representing invasion of the central nervous system by the virus.
3. The paralytic type indicating destruction of the cells in the anterior horn of the spinal cord.