



Fig. 2. Typical results of assays for killer activity in (a) transformed killer-negative variants of strain T 158 C, (b) in the laboratory (killer-sensitive) strain AH 215 and (c) in the industrial (killer-sensitive) strain AS- 4/H2. Each petri dish contains the selection medium (pH 4.7) plus the super-sensitive strain S 6-1. Transformed cells (transferred with a sterile toothpick onto the surface of the indicator plate) are indicated by a zone of growth inhibition of the super-sensitive cells bounded by a ring of dead cells (visualised by using 0.03% methylene blue). The width of the rings of the inhibition zone and of the dead cells indicate the strength of killer activity.

actidion (0.1 mg/ml). After the removal of the actidion, the cells were therefore, inactivated.

This model was chosen because it is a simple system of electrical transformation. The electrical field hindered expression of the host protoplasts.

The protoplasts were exposed to a selective field of 40 μ s duration at either 4°C or 25°C. The killer-negative cells could be regenerated by using the super-sensitive strain S 6-1. It was found that the majority of the cells transformed (Fig. 2) exhibited weak killer activity when incubated at 4°C. Since the number of cells on the number of cells [1,2], the occurrence of weak killer activity had received electropermeabilisation. The electrically-transmitted signal through the structure of the cells was uptake.

Similar yields were obtained when the field pulse was added in the medium. It was found that the field pulse was not necessary for the plasmids.

Variations in the field pulse as well as of the temperature resulted in a number of clones. Pulsing the field pulse resulted in a number of clones (about 2% showed killer activity). 25% exhibiting temperature-dependent killer activity. Previous results showed that the temperature-dependent killer activity was induced by the field induction of the membrane [12].

In the second experiment, we investigated the electrical