Studies on the Antibiotic Substances from Actinomyces.

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The antibiotics obtained from actinomyces, such as streptomycin, chloromycetin, and aureomycin, seem to be very beneficial against typhoid infections.

During the systematic study on the antagonistic actinomyces in our laboratory, streptomycin and many streptothricin-like substances were isolated and crystallized. The present study deals with the activities of streptomycin and two streptothricin-like substances against *Eberthella typhosa* both in vitro and in experimental infection.

Materials: 1) Streptomycin used was HCl-calcium chloride double salt (Merck).

2) Roseomycin (No. 36 HCl-salt) was a representative substance of the so-called streptothricin type 1 (ST 1) of our laboratory, which was characterized in low toxicity, good diffusibility and low potency against gram positive organisms.

3) No. 259 HCl-salt was a representative substance of the so-called streptothricin type 2 (ST2), and characterized in high potency, less diffusibility and relatively high toxicity.

Experimental infections were made in mice weighing 15–23 g with *E. typhosa* (T-63 strain), suspended in 5 per cent mucin solution.

Results: 1) The activity ratio of streptomycin, roseomycin and No. 259 substance against *E. typhosa* T-63 strain tested by the dilution method was 1:1:10. In this respect, No. 259 substance was most effective. But when the activity was tested by the pulp disc method, both streptomycin and roseomycin showed higher potencies than No. 259 substance.

2) All these antibiotics effectively protected the mice in almost same doses. Therefore, No. 259 substance did not show remarkable results in proportion with its dilution unit.

3) From the facts mentioned above it was suggested that the effectiveness of drugs in vivo may be somewhat closely related to the diffusibility in vitro.