

CONTROL OF CITRUS CANKER WITH ANTIBIOTICS

THE effect of streptomycin sulphate in controlling canker disease of citrus, caused by *Xanthomonas citri* (Hasse) Dowson, is being reported elsewhere by the authors.¹ The antibiotic when sprayed in aqueous solutions at 500 and 1,000 p.p.m. together with 1% glycerin was found to be absorbed within eight hours by the leaves and persisted in the tissues up to 21 days. Spraying the chemical at 15-day intervals checked the disease spread on three-year old acid lime [*Citrus aurantifolia* (Christm.) Swingle] plants. In the present communication results obtained from subsequent field tests carried out to compare more antibiotic preparations for controlling citrus canker are reported.

The experiment was laid out in a commercial orchard in Pinnaluru, South Arcot District. A block of 48 five-year old acid lime plants was selected for the purpose. The plants were treated by randomized replicated experimental design, with six treatments and eight replications. The samples of Phytomycin, an agricultural spray material containing 20% streptomycin nitrate as active ingredient, which has been reported to be effective against several bacterial diseases of crop plants in U.S.A.,²⁻⁴ and Thiostrepton, another antibacterial antibiotic, were obtained from the Squibb Institute for Medical Research, New Brunswick, N.J., U.S.A. A pharmaceutical grade of streptomycin sulphate with 740 units/mg. (Glaxo Laboratories) was used in the experiments. 1% Bordeaux mixture was prepared in the usual manner and sprayed for comparison. The methods of recording and evaluation of disease intensity were essentially the same as was detailed earlier.¹ The chemicals were sprayed in aqueous solutions with 1% glycerin, using a Primus sprayer, at fortnightly intervals. Infection counts were taken prior to each spraying and the results are represented graphically in Fig. 1.

At the commencement of the experiment,

early in August, there was severe canker infection on the plants, but soon after there was heavy reduction in the disease intensity in all plants

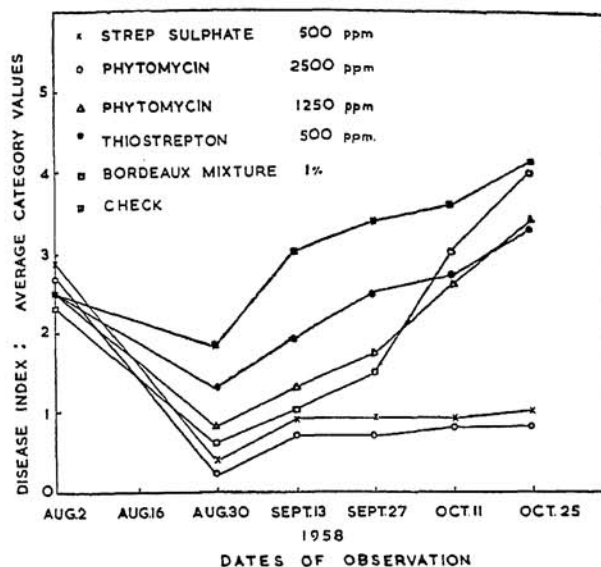


FIG. 1. Effect of antibiotics on citrus canker: Disease incidence expressed as category values.*

* Grading and category values used are: No infection = 0; 0-10% = 1; 10-30% = 2; 30-50% = 3; 50-75% = 4; > 75% = 5.

S.E. 0.34
C.D. at 5% level 0.67

due to leaf drop. With the new flush by the end of August the disease started spreading rapidly in the orchard. Among the treatments, Phytomycin (2,500 p.p.m.) and streptomycin sulphate checked down considerably the progress of the disease, while the others were not much effective (Fig. 1). In the case of Bordeaux mixture spray, there was initial heavy reduction in disease intensity due to leaf drop, but subsequent growth of new flush was arrested for some period. When the new flush was on in September-October the disease became almost as severe as in the check plants.

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† Phytomycin at 1,250 p.p.m. however did not have any effect.

1. Rangaswami, G., Rao, R. R., and Lakshmanan, A. R., "Studies on the control of citrus canker with streptomycin," *Phytopathology*, 1959 (Accepted for publication).
2. Epps, W. M., *Plant Disease Rept.*, 1957, 41, 148.
3. Altman, J. and Davis, B. H., *Ibid.*, 1958, 42, 417.
4. Bonde, R. and Johnson, B., *Ibid.*, 1958, 42, 781.