Site of Action of the Wildfire Toxin Produced by *Pseudomonas tabaci*. By J. G. TURNER (*School of Biological Sciences, University of East Anglia, Norwich NR4 7TJ, U.K.*).

Wildfire toxin was extracted and purified from culture filtrates of *Pseudomonas tabaci*. In the presence of ATP and Mg^{++}, the toxin inactivates glutamine synthetase (GS) from *Nicotiana tabacum*, the host of *Ps. tabaci*, as well as GS from eukaryote and prokaryote sources.

Tobacco-leaf GS was inactivated *in vivo* to < 5% of basal levels 4 h after infiltrating the leaves with a solution of wildfire toxin. GS activity did not recover in these leaves which became chlorotic and necrotic. Ammonia increased over a 48-h period in tissues where toxin had caused near-complete GS inactivation. Necrotic symptoms occurred when intracellular ammonium ion concentrations reached 20 to 30 mmol/l.

Small changes in tobacco-leaf soluble protein, amino acids, chlorophyll and NAD-dependent glutamate dehydrogenase activity were detected after GS-inhibition of toxin-treated leaves. It is proposed that GS is the site of action of wildfire toxin, and symptoms are due to the subsequent accumulation of ammonia, the substrate of the inhibited enzyme.

Detection of Small Numbers of Phytopathogenic Bacteria Using the Host as an Enrichment Medium. By Y. HENIS, Y. OKON, EDNA SHARON and Y. BASHAN. (*Department of Plant Pathology and Microbiology, The Hebrew University of Jerusalem, Rehovot 76-100, P.O. Box 12, Israel*).

Detached leaves of tomato cv. VF-198 and pepper cv. Maor were surface-sterilized in 0·5% NaClO for 3 min, washed with sterile water, placed on 0·5% water agar and inoculated with 1·0 ml suspension of 10–100 cells/ml of *Pseudomonas tomato* (tomato) or *Xanthomonas vesicatoria* (pepper). After incubation under fluorescent light at 24°C for 48–120 h, the leaves were again surface-sterilized and washed in sterile water. This procedure removed most of both bacterial pathogens and contaminants that developed on the leaf surface. The leaves were then homogenized in sterile water and aliquots of dilutions of the homogenate were plated on selective medium. After 48 h incubation typical fluorescent oxidase negative *Ps. tomato* or yellow *X. vesicatoria* colonies were counted. Bacterial counts increased significantly (10^5–10^7/g of leaves) inside the pathogen-inoculated leaves but not inside leaves inoculated with saprophytic *Ps. fluorescens*. Symptoms of bacterial speck of tomato and bacterial scab of pepper appeared in the detached, inoculated leaves after 5 d incubation in the Petri dishes. This method was successfully used to detect pathogens present in very small numbers in suspected commercial seed lots of tomato and pepper and in leaves from suspected fields.

The 49th Annual Meeting and summer conference of the Society for applied Bacteriology, Aberystwyth, 21-24 July, 1980.

J. Appl. Bact. 49:vi