Geminiviruses, so named because the isometric particles occur as pairs, contain circular, single-stranded DNA (ssDNA) less than half the size (mol wt $7-8 \times 10^5$) of that in other ssDNA viruses. The diameter of individual particles is about 18 nm. Early work suggested that each paired particle carried two nucleic acid components, but analyses of the physical composition of geminiviruses showed only one DNA molecule per paired particle. S. Haber, M. Ikegami, N. B. Bajet, and R. M. Goodman now report that the geminiparticles of bean golden mosaic virus contain a divided genome, with circular ssDNA components of the same physical size (indicating only one molecule per particle) but of different nucleotide sequences. The authors believe this is the first evidence of a divided genome in a DNA virus. (Nature 289:324-326)

□ □ □

Using *Cuscuta campestris* inoculated onto pea (*Pisum sativum* 'Alaska'), Y. Tsivion identified two mechanisms by which a parasitic plant inhibits lateral shoots of the host. The first mechanism is based on competition between sinks for a common pool of photosynthate produced by the host; the parasite is a stronger sink than the axillary buds and accumulates nutrients at the expense of the buds. The second mechanism is based on competition between the parasite and the roots for assimilate, which weakens the roots and their capacity to absorb water and nutrients and to synthesize growth factors for shoots. This second mechanism accounts for a bud above a stem girdle (no living phloem) being inhibited by a parasite established below the girdle. (New Phytol. 87:91-99)

□ □ □

Young apple trees often grow poorly and have discolored roots, fewer lateral roots, and diminished root hair development when transplanted into soil where apple trees had been grown previously. G. W. F. Sewell presents several lines of circumstantial evidence that this apple replant problem results from soilborne pythiaceous fungi. When tested for pathogenicity, all isolates of *Pythium sylvaticum* and certain isolates of other *Pythium* spp. from apple caused growth reductions comparable to the growth increases resulting after fumigation of apple orchard soils with chloropicrin. The fact that diseased trees show no characteristic symptoms other than poor growth is consistent with *Pythium* damage to the roots. (Ann. Appl. Biol. 97:31-42)

□ □ □

Methods for detecting *Xanthomonas campestris* in crucifer seeds that involve germinating the seeds for 3 wk to record the incidence of black rot or enriching the pathogen by incubating the seeds in sterile water, then plating them on agar media, are time-consuming and of questionable accuracy. N. W. Schaad and R. C. Donaldson compared methods that involved either incubating or washing the seeds in liquid media, then plating liquid samples or seeds onto an agar medium or staining liquid smears by immunofluorescence. The best method was washing the seeds for 1 min in 0.85% NaCl (saline), then assaying the liquid for *X. campestris* by plating the liquid onto an agar medium and by immunofluorescence staining. Washing with distilled water caused up to 90% cell mortality of *X. campestris*. Major advantages of the method are that the liquid can be frozen and stored for later assay and that staining by immunofluorescence does not require viable cells. The authors outline the procedure step by step. (Seed Sci. Technol. 8:383-391)

□ □ □

Two classes of extrachromosomal DNA have been identified in brewer's yeast (*Saccharomyces cerevisiae*): a circular mitochondrial DNA with a contour length of about 25 μm (mtDNA) and a cytoplasmic, covalently closed (plasmid-like) DNA with a length of 2 μm (2 μm DNA). V. L. Larionov, A. V. Grishin, and M. N. Smirnov in the U.S.S.R. have described a third class of extrachromosomal DNA in ribosomes of *S. cerevisiae*, 3 μm long and circular, covalently closed (3 μm DNA). The authors suggest that ribosomal RNA genes in yeast have both chromosomal and extrachromosomal locations. The 3 μm DNA was shown to exist as two types of molecules (S and L) in a ratio of about 1:1. The S and L types are proposed as corresponding to the type I and type II linear ribosomal DNA of yeast described earlier by T. D. Petes (Proc. Natl. Acad. Sci. 76:410) but interpreted by Petes as being a single cluster on chromosome II. Larionov and associates submit that the 3 μm DNA replicates autonomously and is not associated with chromosomes. (Gene 12:41-49)

□ □ □

Brome mosiac virus (BMV) can be transmitted to wheat by *Puccinia graminis* f. sp. *tritici*, according to M. Barbara von Wechmar in South Africa. Symptoms of BMV appeared within 5 or 6 days after wheat was inoculated with spores of the stem rust fungus taken from plants previously inoculated mechanically with BMV. Spore inoculum was transferred by shaking a virus-infected plant with rust above a virus-free plant; the ensuing virus infection was strong and uniform. BMV was detected by ELISA in crushed spores, and the author believes the virus probably occurs inside the rust spore. This apparently is the first report of a plant-pathogenic virus infecting a plant-pathogenic fungus and using the fungus to enter a common host. The virus was detrimental to the rust, indicated by the lower spore-producing ability of the rust pustule. (Phytopathol. Z. 99:289-293)

Recent reports from fields related to plant pathology for inclusion in *Scientific News* may be sent to R. James Cook, 367 Johnson Hall, Washington State University, Pullman, WA 99164.

APS SUSTAINING ASSOCIATES

ABBOTT LABORATORIES, North Chicago, IL
AG-TECH INSTRUMENT CO., Savannah, GA
AMERICAN ASSOCIATION OF NURSERYMEN, INC., Washington, DC
AMERICAN CYANAMID CO., Princeton, NJ
AMERICAN HOECHST CORP., Somerville, NJ
ARIZONA AGROCHEMICAL CO., Phoenix, AZ
BASF WYANDOTTE CORPORATION, Parsippany, NJ
BOOTS HERCULES AGROCHEMICALS CO., Wilmington, DE
BUCKMAN LABORATORIES, INC., Memphis, TN
BUTLER COUNTY MUSHROOM FARM, INC., Worthington, PA
CAMPBELL INSTITUTE FOR AGRICULTURAL RESEARCH, Cinnaminson, NJ
A. L. CASTLE, INC., Morgan Hill, CA
CHAPMAN CHEMICAL COMPANY, Memphis, TN
CHEVRON CHEMICAL COMPANY, Richmond, CA
CHEVRON CHEMICAL COMPANY, San Francisco, CA
CIBA-GEIGY CORP., Agricultural Division, Greensboro, NC
DEKALB AG RESEARCH, INC., Dekalb, IL
DEL MONTE CORP., San Leandro, CA
DIAMOND SHAMROCK CHEMICAL CO., Cleveland, OH
DIFCO LABORATORIES, Detroit, MI
DOW CHEMICAL CO., Midland, MI
E. I. DU PONT DE NEMOURS & CO., Wilmington, DE
FERRY-MORSE SEED CO., San Juan Bautista, CA
FMC CORP., Agricultural Chemical Division, Middleport, NY
FUNK SEEDS INTERNATIONAL, INC., Bloomington, IL
GREAT LAKES CHEMICAL CO., W. Lafayette, IN
JOSEPH HARRIS CO., INC., Moreton Farm, Rochester, NY
H. J. HEINZ CO., Pittsburgh, PA
ICI AMERICAS, INC., Goldsboro, NC
ILLINOIS CROP IMPROVEMENT ASSOCIATION, INC., Urbana, IL
ILLINOIS FOUNDATION SEEDS INC., Champaign, IL
KALO LABORATORIES, INC., Kansas City, MO
ELI LILLY & CO., Elanco Products Co. Division, Indianapolis, IN
MALLINCKRODT, INC., St. Louis, MO
MERCK & CO., INC., Rahway, NJ
MOBAY CHEMICAL CORPORATION, Kansas City, MO
MOBIL CHEMICAL COMPANY, Richmond, VA
NOR-AM AGRICULTURAL PRODUCTS, Woodstock, IL
NORTHRUP KING & CO., Minneapolis, MN
OCCIDENTAL CHEMICAL CO., Lathrop, CA
OLIN CORPORATION, Agri Division, Little Rock, AR
P-A-G & CARGILL SEEDS, Aurora, IL
PENNWALT CORP., Tacoma, WA
PFISTER HYBRID CORN CO., El Paso, IL
PFIZER, INC., Chemical Division, TEKCHEM, Brooklyn, NY
PFIZER GENETICS, INC., St. Louis, MO
PIONEER HI-BRED INTERNATIONAL, INC., Johnston, IA
PPG INDUSTRIES, INC., Pittsburgh, PA
RHONE-POULENC INC., Monmouth Junction, NJ
ROHM AND HAAS CO., Philadelphia, PA
SANDOZ, INC., East Hanover, NJ
O. M. SCOTT & SONS, Marysville, OH
STAUFFER CHEMICAL CO., Mountain View, CA
SUN PETROLEUM PRODUCTS COMPANY, Philadelphia, PA
TROPICAL AGRICULTURE RESEARCH SERVICES (SIATSA), United Brands Co., La Lima Cortes, Honduras, C.A.
UNIROYAL CHEMICAL, Bethany, CT
THE UPJOHN CO., Kalamazoo, MI
YODER BROTHERS, Barberton, OH

1981 Advertisers Index