First Report of Natural Occurrence of Zucchini Lethal Chlorosis Tospovirus on Cucumber and Chrysanthemum Stem Necrosis Tospovirus on Tomato in Brazil. Tatsuya Nagata, EMBRAPA-Hortaliças, Cx. Postal 218, Brasília, DF, 70359-970, Brazil; Renato de O. Resende, Dept. Biologia Celular, Univ. Brasília, 70970-000, Brazil; Elliot W. Kitajima, Dept. Fitopatol., Univ. São Paulo, Cx Postal 09, Piracicaba, SP, 13418-900, Brazil; Helcio Costa, Dept. Fitopatol., Univ. Federal Viçosa, 36570-000, Viçosa, MG, Brazil; Alice K. Inoue-Nagata, EMBRAPA-Recursos Genéticos e Biotecnologia, Cx. Postal 2372, Brasília, DF, 70770-900, Brazil; and Antonio C. de Ávila, EMBRAPA-Hortaliças, Cx. Postal 218, Brasília, DF, 70359-970, Brazil. Plant Dis. 82:1403, 1998; published online as D-1998-1009-01N, 1998. Accepted 1 October 1998.

During a field survey in 1994, five cucumber (*Cucumis sativus*) cv. Hokushin plants showing symptom of yellowing, mottling, and vein banding on the leaves were collected from a commercial field of the Federal District. By electron microscopy, quasi-spherical particles with double membrane, typical tospovirus-like particles were found in the infected leaf material. All samples strongly reacted with antibody of zucchini lethal chlorosis tospovirus (ZLCV), but not with antibodies of other tospoviruses reported in Brazil (1): tomato spotted wilt virus (TSWV), tomato chlorotic spot virus (TCSV), groundnut ringspot virus (GRSV), chrysanthemum stem necrosis virus (CSNV), or iris yellow spot virus-onion isolate ($IYSV_{-BR}$). The virus was identified as ZLCV, which was first isolated in 1994 from zucchini (*Cucurbita pepo*) in São Paulo State, Brazil. Tomato (*Lycopersicon esculentum*) plants showing stem necrosis and necrotic spots and rings on the leaves were collected in Viçosa, Minas Gerais State. By electron microscopy, molecular studies, and enzyme-linked immunosorbent assay with antibodies of the six tospoviruses occurring in Brazil, the virus was identified as CSNV. This virus was first reported in 1995 on a *Chrysanthemum* sp. in São Paulo State and recently reported in the Netherlands from *Dendranthema indicum*. This is the first report of the natural occurrence of ZLCV and CSNV on cucumber and tomato, respectively.

Reference: (1) A. C. de Ávila et al. 1998. Pages 32-34 in: Int. Symp. on Tospoviruses and Thrips in Floral and Vegetable Crops, 4th.

Banana Streak Badnavirus and Cucumber Mosaic Cucumovirus in Farmers' Fields in Zanzibar. D. R. Vuylsteke and J. d'A. Hughes, International Institute of Tropical Agriculture, PMB 5320, Ibadan, Nigeria; and K. Rajab, Plant Protection Division, P.O. Box 1062, Zanzibar. Plant Dis. 82:1403, 1998; published on-line as D-1998-1013-02N, 1998. Accepted for publication 6 October 1998.

Symptoms resembling those of viral leaf streak disease, caused by banana streak badnavirus (BSV), were observed in May 1998 on two banana (*Musa* spp.) landraces grown from farmer-collected propagules in a farmer's field at Kiboje Uchukuni, Zanzibar. Those showing symptoms were "French plantain" cv. Mzuzu and "Cavendish" banana cv. Mtwike. Leaf symptoms were expressed as chlorotic streaks and blotches. Leaf samples were indexed by immunosorbent electron microscopy with BSV and cucumber mosaic cucumovirus (CMV) antibodies, using partially purified preparations (2). The two landraces tested positive for BSV, corroborating the occurrence of BSV in Zanzibar. In addition, cv. Mtwike was found to be coinfected with CMV. No other viruslike particles were seen by electron microscopy. Although BSV has been reported in Zanzibar (1), it was only from symptoms in the *Musa* field genebank at Kizimbani Research Station. BSV has been found in many *Musa* collections worldwide, particularly in the widely grown cv. Mysore. This report confirms the presence of BSV in farmers' fields and is also the first report of CMV infecting banana in Zanzibar.

References: (1) A. J. Dabek and J. M. Waller. Trop. Pest Management 36:157, 1990. (2) M. Diekmann and C. A. J. Putter. Musa spp. FAO/IPGRI Technical Guidelines for the Safe Movement of Germplasm No. 15. FAO/IPGRI, Rome, Italy, 1996.

First Report of Fusarium Wilt on Paris Daisy (*Argyranthemum* [*Dendranthema*] *frutescens*). A. Garibaldi, A. Minuto, and M. L. Gullino, DI.VA.P.R.A. - Patologia vegetale, Via Leonardo da Vinci 44, 10095 Grugliasco, Italy. Plant Dis. 82:1403, 1998; published on-line as D-1998-1020-03N, 1998. Accepted for publication 19 October 1998.

Paris daisy (*Argyranthemum frutescens*) is an economically important crop on the Riviera Ligure (Northern Italy), where approximately 10 million plants per year are produced for export. In September 1997, a serious wilt of plants (cv. Camilla) grown in plastic pots (14 to 18 cm in diameter) was observed. The leaves of the affected plants turned yellow unilaterally and eventually wilted. Both yellowing and wilting progressed acropetally. Eventually, affected plants were completely wilted and the stems showed dark blue-black necrosis. An intense brown discoloration of the vascular system was evident, particularly after yellowing of the foliage was visible. *Fusarium oxysporum* was consistantly isolated from diseased plants on Komada's medium (1). Two monoconidial isolates of *F. oxysporum* freshly isolated from *A. frutescens* wilted plants were used for artificial inoculation of healthy cv. Camilla plants in order to complete Koch's postulates. Rooted cuttings were inoculated by a root dip (for 30 s, with 5×10^7 CFU per ml) and by infesting soil (1×10^3 CFU per ml of soil). Inoculation was carried out on 20 plants belonging to five cultivars. Noninoculated plants of each cultivar served as control. Plants were maintained in a glasshouse at 22 to 23°C. Symptoms developed 13 to 14 days after and were similar to those observed on naturally infected plants. *F. oxysporum* was consistantly reisolated from artificially inoculated plants. Fusarium wilt of *A. frutescens* is favored by temperatures higher than 20°C. To our knowledge, this is the first report of Fusarium wilt on *A. frutescens*.

Reference: (1) H. Komada. Rev. Plant Prot. Res. 8:114, 1975.

First Report of Flag Smut of Wheat Caused by *Urocystis agropyri* in the United Kingdom. C. E. Sansford and P. A. Beales, Central Science Laboratory, York, UK, YO41 1LZ, E-mail: <c.sansford@csl.gov.uk>; and J. D. S. Clarkson, National Institute of Agricultural Botany, Huntingdon Rd., Cambridge, UK, CB3 0LE. Plant Dis. 82:1403, 1998; published online as D-1998-1014-01N, 1998. Accepted for publication 13 October 1998.

An isolated occurrence of flag smut of wheat, caused by *Urocystis agropyri* (G. Preuss) J. Schröt., was confirmed in the county of Essex, UK, in autumn-sown winter wheat (*Triticum aestivum* L.) cv. Riband grown from certified seed. The origin of the infection is unknown. Symptoms were first observed on 22 May 1998. The presence of *U. agropyri* was confirmed on the basis of the macroscopic symptoms on the host and the morphology of the pathogen (2). Long gray-black streaks parallel with the veins were observed on leaf blades, especially the flag leaf, and on leaf sheaths. The streaks consisted of lines of fungal sori developing between the leaf veins, giving a striped appearance. Eruption of the sori through the epidermis of the leaves had caused them to fray, exposing dark brown to black powdery spore masses. Microscopic examination revealed spore balls measuring 20 to 28 µm in diameter containing 1 to 3 spores per ball. Spores were dark brown measuring 12 to 17.5 µm in diameter and were surrounded by light brown sterile cells measuring 7 to 7.5 µm. Affected plants were stunted to about half the height of healthy plants. Some affected plants tillered excessively and in some cases the ear failed to emerge from the boot. Some diseased leaves were twisted and, where the host epidermis had ruptured to expose the spore masses, the affected parts had the appearance of being covered in black soot. All of the symptoms are typical of flag smut on wheat. Flag smut has been observed on grasses in every continent except Antartica. However, the distribution of the pathogen on wheat is more limited. Flag smut of wheat is known to occur in at least some of the countries of the European Union as well as (e.g.) the USA, Canada, and Australia. This finding is significant because it had been considered that *U. agropyri* on wheat had reached the limits of its ecoclimatic zone, since it requires specific environmental conditions for infection and disease development, particularly a mild winter and an arid summer (1). The climatic conditions in Essex between September 1997 when the affected crop was planted and May 1998 when symptoms were first observed were considerably drier and warmer than normal, thus favoring the pathogen. This is the first report of *U. agropyri* on wheat in the UK.

References: (1) R. F. Line. 1998. Pages 49-60 in: Bunts and Smuts of Wheat: An International Symposium. No. Am. Plant Prot. Org., Ottawa. (2) J. E. M. Mordue and J. M. Waller. 1981. *Urocystis agropyri*. CMI Descriptions of Pathogenic Fungi and Bacteria, No. 716. Kew, England.

(*Disease Notes* continued on next page)