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## First report of Cucumber mosaic virus in *Echium candicans* in France

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Loïc Cardin, Benoît Moury. First report of Cucumber mosaic virus in *Echium candicans* in France. *Plant Disease*, 2007, 91 (11), pp.1516. 10.1094/PDIS-91-11-1516C . hal-02663285

**HAL Id: hal-02663285**

**<https://hal.inrae.fr/hal-02663285>**

Submitted on 31 May 2020

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ISSN: 0191-2917

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# plant disease

Editor-in-Chief: R. Michael Davis

Published by The American Phytopathological Society

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November 2007, Volume 91, Number 11

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DOI: 10.1094/PDIS-91-11-1516C

## Disease Notes

### First Report of *Cucumber mosaic virus* in *Echium candicans* in France

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*Echium candicans* (Linn.) Herb. Banks (Pride of Madeira or Viper's Bugloss), family Boraginaceae, is a perennial shrub used in gardens for the ornamental quality of its deep blue inflorescences, especially in coastal areas near the Mediterranean Sea. Mosaic symptoms were observed in leaves of *E. candicans* in the Alpes Maritimes Department of southeastern France, St Jean Cap Ferrat in 1994, Menton in 2002, and Antibes in 2005. Symptoms exhibited in a range of inoculated plants including *Nicotiana tabacum* cvs. Xanthi and Samsun, *Chenopodium quinoa*, *C. amaranticolor*, *Vigna unguiculata* cv. Black, and *Cucumis sativus* cv. Poinsett were typical of *Cucumber mosaic virus* (CMV). Occurrence of CMV in one sample from each of the three localities was confirmed by the observation of isometric particles (approximately 30 nm) with the electron microscope in crude sap preparations from the infected plants, positive reactions in double-antibody sandwich (DAS)-ELISA to polyclonal antibodies raised against CMV (1), and the nonpersistent transmission of the virus from infected Xanthi to virus-free Xanthi plants by *Myzus persicae*. In double-immunodiffusion analysis, the three isolates were shown to belong to the CMV subgroup II (1,2). To determine if CMV was responsible for the symptoms observed, the isolate from Antibes was multiplied in Xanthi plants after isolation from local lesions on *V. unguiculata* and mechanically inoculated to 3-year-old plants of *E. candicans* tested to be free from CMV before the mechanical inoculation. One month after inoculation, mild mosaic symptoms were observed in young leaves and CMV was detected by DAS-ELISA in 10 of 10 inoculated plants. To our knowledge, this is the first report of CMV in *E. candicans*.

**References:** (1) J.-C. Devergne and L. Cardin. Ann. Phytopathol. 7:225, 1975. (2) M. J. Roossinck. J. Virol. 76:3382, 2002.

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