

OCURRENCE OF *Phomopsis helianthi* IN ARGENTINA AND URUGUAY

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SUMMARY

Phomopsis has been described in Yugoslavia (Muntañola-Cvetković *et al.*, 1980) as a fungus responsible of the reduction of sunflower yields. However, during the last two decades in Argentina, *Phomopsis* was not considered as a limiting pathogen of sunflowers fields.

At the XI International Sunflower Conference held in Mar del Plata, Argentina, in 1985, a paper of Mihaljčević was presented on the pathogenesis of *Phomopsis* isolates from wild sunflower. In 1992, National University of Entre Ríos (UNER) carried on a special project on the disease.

This report discusses the occurrence of two natural infections recorded during three seasons (2003-2005) in two neighboring locations, one in the central-eastern Argentina (Guaaleguay) and another in Uruguay (Mercedes), which are separated by the Uruguay River.

The aims of this study were:

- a. To determine and register the spreading of *Phomopsis* in field conditions.
- b. To observe the distribution of the disease.
- c. To determine whether hybrids possess genetic tolerance to this pathogen.
- d. To make a contribution to sunflower disease map in South America.

As a result of observations under field conditions, we can say that in Uruguay severe attacks of *Phomopsis* are decisive for sunflower yield reduction. The behavior of commercial hybrids was: tolerant - 27%, intermediate - 30%, susceptible - 43%. The distribution of *Phomopsis* is increased.

In Argentina, the presence of *Phomopsis* is low or null.

Key words: sunflower, *Phomopsis*, *Helianthus* species, diseases

INTRODUCTION

Phomopsis has been reported in Yugoslavia (Muntañola-Cvetković *et al.*, 1980) as one a fungus responsible of the reduction of sunflower yields.

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At the XI International Sunflower Conference, held in Mar del Plata, Argentina, in 1985, Mihaljčević presented a paper on the pathogenesis of *Phomopsis* isolates from wild sunflower.

During the last two decades in Argentina, *Phomopsis* was not considered as a limiting pathogen of sunflower fields.

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The aims of this study were:

- To determine and register the spreading of *Phomopsis* in field conditions.
- To determine whether hybrids possess genetic tolerance to this pathogen.
- To make a contribution to sunflower disease mapping in South America.

MATERIALS AND METHODS

Occurrence of natural infection of *Phomopsis* was recorded during the seasons 2003-2005 in two neighboring locations, one in central-eastern Argentina, Gualeguay, and another in Uruguay, Mercedes.

Trials of sunflower hybrids from ASAGIR (Argentine Sunflower Association) and seeds companies are regularly inspected by phytopathologists from the beginning of the flowering stage (R5) till after physiological maturity (R9) (Schneiter and Miller, 1981) for reaction to *Phomopsis*.

Disease severity was rated by Maširević scale (1999). **1.** Healthy stem, **2.** Stem with spots, **3.** Stem with spots, spots covering stem diameter, **4.** Stem enveloped with dark brown spots, **5.** Broken stem.

RESULTS

In the 2003 and 2004 growing seasons in Argentina, ASAGIR inspection of diseases detected *Phomopsis* symptoms in Gualeguay area.

In the same seasons, INIA reported attacks in Uruguay and a map was prepared of risk of the disease.

During the 2004/05 season in Argentina, the presence of *Phomopsis* was null in the sunflower trial network.

In Uruguay, repeated attacks have occurred causing severe damage.

The photographs in Figures 1 and 2 show the external and internal canker and canker relationship with crop residues.

In Uruguay, the reaction of commercial hybrids was: tolerant - 27%, intermediate - 30%, susceptible - 43%.

In Uruguay (Mercedes), severe attacks of *Phomopsis* were decisive for sunflower yield decreases.

The distribution of *Phomopsis* is increased in Uruguay.

In Argentina, the presence of *Phomopsis* is low or null.



Figure 1: A frequent symptom, external stem canker evolving



Figure 2: The stem and the plant are completely wilted



Figure 3: Longitudinal section of the stem showing Phomopsis affects

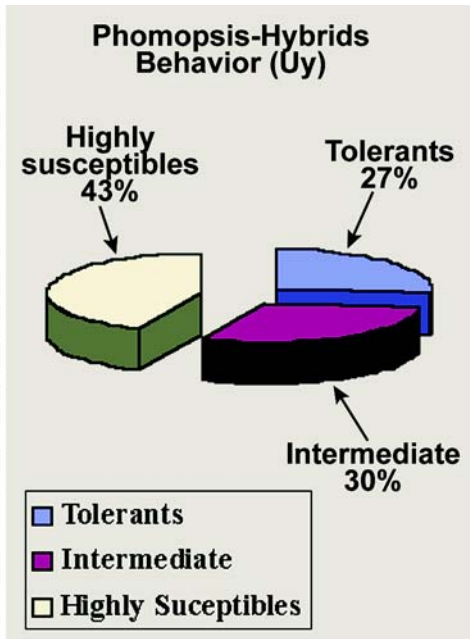


Figure 4: Behavior of commercial hybrids according to Maširević scale

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PRESENCIA DE *Phomopsis helianthi* en ARGENTINA Y URUGUAY

RESUMEN

Phomopsis fue identificado en Yugoslavia (Marić, Maširević, and Mihaljčević, 1980) como uno de los patógenos responsables de la reducción de rendimientos en girasol.

En Sur America, en 1985 Mihaljčević, M., Muntañola-Cvetković, M. en la XI Internacional Sunflower Conference, Mar del Plata informan sobre la patogenicidad de aislamientos de *Phomopsis* y estudios de inoculación con el patógeno aislado a partir de silvestres.

En 1992 la Facultad de Ciencias Agrarias de UNER desarrollo un proyecto específico sobre *Phomopsis*.

En la Republica Argentina durante las últimas dos décadas *Phomopsis*, no fue considerado uno de los patógenos limitantes de los rendimientos del cultivo girasol.

El presente informe reporta la presencia de dos infecciones naturales registradas durante 2003/04/05 en dos localidades vecinas: una ubicada en el centro-este de Argentina (Gualeguay) y en una localidad del Uruguay (Mercedes) ambas están separadas por el Río Uruguay.

Los objetivos de este informe fueron:

Registrar el ataque de *Phomopsis* en condiciones de campo.

Observar la difusión de la enfermedad .

Determinar tolerancia genética de híbridos, para este patógeno.

Realizar un aporte al mapa de enfermedades de girasol en America del Sur.

Como resultado de estas observaciones, establecemos diferencias en cuanto a nivel de infección natural de *Phomopsis*, comprobamos que en Argentina la presencia de *Phomopsis* es baja a nula , mientras que en Uruguay el severo ataque *Phomopsis* fue responsable de la disminución de rendimiento en la campaña 2004/05. El comportamiento de los híbridos comerciales fue diferente 27 % son tolerantes 30 % intermedio y 43% fue susceptible al patógeno.

**PRESENCE DE *Phomopsis helianthi* EN ARGENTINE -
URUGUAY.**

RÉSUMÉ

Phomopsis a été identifié en Yougoslavie en 1980 Marić and Maširević, and Mihaljčević il est un des pathogène responsable de la baisse des rendements en tournesol.

En 1985, a Mar del Plata. XI Internacional Sunflower Conference Sud America, Argentina, Mihaljčević, M Muntañola-Cvetković, ont présenté un rapport sur l

Identification de *Phomopsis* en tournesol sylvestre.

En 1992 la Facultad de Ciencias Agrarias de UNER a développé un Project pour l'étude du *Phomopsis*.

Pendant vingt ans, en Argentina, *Phomopsis* n'a pas été considéré important maladie que il n'était pas enregistré à la campagne.

Le rapport montre l'apparition de la maladie en cultures aux cotes du fleuve Uruguay, aux années 2003/04/05, illets apparus a Gualeguay, Argentine et a Mercedes, Uruguay.

Les objectifs rapports sont,

Enregistrer la maladie sur les plantes a la campagne. Observation de la diffusion de la maladie. Déterminer la résistance des hybrides contre *Phomopsis*. Contribuer à compléter la carte de maladies du tournesol de l'Amérique du Sud.

Finalement on peut dire qu'en Argentine la présence de *Phomopsis* est basse, presque nulle.

A Uruguay la maladie est plus importante. Les résultats des hybrides commerciaux ont été les suivants, le 43% a été susceptible au pathogène, le 30% a en rendement moyen et le 27% a été tolérant au pathogène.

