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Preliminary data for overwintering of *Diaporthe helianthi* (anam.: *Phomopsis helianthi*) causing brown spot (stem cancer) of sunflowers in Eastern Hungary

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Almost two decade passed since a destructive sunflower pathogen *Diaporthe helianthi* Muntanola-Cvetkovic, Mihaljcevic & Petrov (anamorph: *Phomopsis helianthi* Muntanola-Cvetkovic, Mihaljcevic & Petrov) has observed (Mihaljcevic et al., 1980) and mycological described in Yugoslavia (Muntanola-Cvetkovic et al., 1981). First record of brown spot (stem cancer) was published by Németh et al. (1981) in Hungary. Since than this fungus has became the most serious problem of the sunflower growers to manage. Early experiences showed that the fungus can remain viable and infective only on infected stem pieces that overwintered above the soil surface, no pathogen was reisolated from stem pieces buried in the ground 5, 15, or 30 cm deep (Vörös et al., 1983). Both *Phomopsis* conidiomata (pycnidia) and *Diaporthe* ascomata (perithecia) can overwinter on stem fragments of sunflowers depending on ecological influences. *In vitro* only beta-conidia were found (Franic-Mihajlovic et al., 1994) however sterile alpha-conidia can also occur *in vivo*. The role of ascospores as the main source of primary inoculum is argued. Ascospores first appear mainly in June (Jinga et al., 1987). Ascospore traps was described for monitoring *Diaporthe helianthi* epidemics (Delos et al., 1995).

In a fungicide application experiment we observed an early epidemic of *Diaporthe-Phomopsis* disease with leaf necrotic symptoms on 12 June 1998. Later on a heavy epidemic developed on stems causing serious losses in yield in spite of fungicide applications. In the case of early infection seems more reasonable to apply fungicides preventively at an early growth stage (BBCH 16-18) than stage of inflorescence emergence (BBCH 51-55). Two spraying is more advantageous because effectiveness of the early treatment is over by the harvesting stage (Kövics, unpublished).

Aims of our present experiments to identify the overwintered forms of fungus and primary sources of inocula which can contribute to an early epidemic situation. Stem debris were collected from five sunflower plots of trans-Tisza region (Eastern Hungary) in early March 1999. Conidiomata and spores of 100 samples were examined by light microscopy. 30 conidiomata and conidia were measured by each samples for identification.

All pycnidia produced beta-conidia except Debrecen/01 sample which yielded alpha-conidia beside beta-ones. We also observed pycnidia and conidia of *Phoma macdonaldi* the causing agent of black stem at 1/3 of samples.

Infested stem residues were put in wet chambers to stimulate an early ascomata and ascospores production. After 10 days incubation period formation of perithecia and ascospores have started. Another part of samples serve for weekly monitoring of ascomata/ascocpores production *in vivo* which is in progress by ascospore traps.