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Stem cankers on sunflower (*Helianthus annuus*) in Australia reveal a complex of pathogenic *Diaporthe* (*Phomopsis*) species

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The identification of *Diaporthe* (anamorph *Phomopsis*) species associated with stem canker of sunflower (*Helianthus annuus*) in Australia was studied using morphology, DNA sequence analysis and pathology. Phylogenetic analysis revealed three clades that did not correspond with known taxa, and these are believed to represent novel species. *Diaporthe gulyae* sp. nov. is described for isolates that caused a severe stem canker, specifically pale brown to dark brown, irregularly shaped lesions centred at the stem nodes with pith deterioration and midstem lodging. This pathogenicity of *D. gulyae* was confirmed by satisfying Koch's Postulates. These symptoms are almost identical to those of sunflower stem canker caused by *D. helianthi* that can cause yield reductions of up to 40 % in Europe and the USA, although it has not been found in Australia. We show that there has been broad misapplication of the name *D. helianthi* to many isolates of *Diaporthe* (*Phomopsis*) found causing, or associated with, stem cankers on sunflower. In GenBank, a number of isolates had been identified as *D. helianthi*, which were accommodated in several clades by molecular phylogenetic analysis. Two less damaging species, *D. kochmanii* sp. nov. and *D. kongii* sp. nov., are also described from cankers on sunflower in Australia.

Keywords: DIAPORTHE GULYAE; DIAPORTHE KOCHMANII; DIAPORTHE KONGII; ITS; PHYLOGENY; SUNFLOWER TAXONOMY; TEF-1ALPHA

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