

ANTHRACNOSE RESISTANCE IN *STYLOSANTHES SEABRANA*

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Abstract

Resistance to anthracnose, caused by *Colletotrichum gloeosporioides*, in 18 accessions of *Stylosanthes seabrana* was assessed for the first time. Despite the local development of a severe anthracnose epidemic, only low levels of anthracnose were recorded on 15 of the accessions of *S. seabrana* at a field site in north Queensland. Both of the commercial *S. seabrana* cultivars, Primar and Unica, were highly resistant.

Key words: *Colletotrichum gloeosporioides*, anthracnose resistance, *Stylosanthes seabrana*.

Stylosanthes spp. are widely used for improving native pastures in tropical and subtropical Australia. Anthracnose disease, caused by *Colletotrichum gloeosporioides*, has been a major limitation to the expansion and persistence of *Stylosanthes*-based pastures. New pathogenic races of *C. gloeosporioides* have caused the demise of cultivars of *S. humilis*, *S. guianensis* and *S. scabra* in Australia (5). Due to their adaptation to soils and climate marginal to other species, two cultivars, Primar and Unica, of the newly described *S. seabrana* (formerly *S. sp. aff. scabra*) have been released (4). This paper evaluates resistance of accessions of *S. seabrana* at a field site in north Queensland with a history of severe anthracnose epidemics.

Materials and methods

Seedlings of 16 accessions and two cultivars of *S. seabrana*, two accessions and three cultivars of *S. scabra*, and *S. hamata* cv. Amiga were transplanted to field plots at Southedge Research Station (17°0'S, 145°20'E). A randomised block design was used to accommodate three replicate plots (10 plants/plot) of each accession/cultivar. Leaf disease severity was assessed on the top 10-15 cm length of each plant on a ten-point scale (2).

Results and discussion

High levels of anthracnose were recorded on leaves (86% tissue damage) of the susceptible *S. scabra* cv. Fitzroy. Moderate levels of anthracnose were present on *S. scabra* CPI 55860, Q10042 and cv. Seca (14%, 21% and 11% tissue damage, respectively). Nine of the 18 accessions of *S. seabrana*, including the two cultivars Primar and Unica, were highly resistant to anthracnose (% tissue damage). Six accessions had severity levels similar to those of *S. scabra* cv. Seca and three were susceptible (35% tissue damage).

Jansen and Edye (6) classified *S. seabrana* into two groups based on morphological characters. Accessions in one group were generally prostrate and low yielding. Those in the second group, which included cvv. Primar and Unica, were erect, with high dry matter and seed yields. In our work, all accessions from the second group were highly resistant to anthracnose. The three most susceptible accessions were from the first group, though some accessions from this group were highly resistant.

S. seabrana and *S. viscosa* are the two diploid progenitors of the allotetraploid *S. scabra* (1). The high levels of anthracnose resistance in *S. seabrana* may be utilised in improving resistance in the agronomically important genus *S. scabra*. The Australian *C. gloeosporioides* population represents only a small part of the overall genetic diversity found in its center of origin in South America (3). The possibility of specialisation of *C. gloeosporioides* towards *S. seabrana* is being assessed.

Conclusions

High levels of anthracnose resistance were present amongst the accessions of *S. seabrana*. The two cultivars of *S. seabrana*, Primar and Unica, were amongst the most resistant.

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