

Evaluation of sugarcane genotypes for resistance to pineapple disease (*Ceratocystis paradoxa*)

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SUMMARY

The sett rot disease of sugarcane caused by an ascomycetous fungus *Ceratocystis paradoxa* (de seynes) Moreau, was first studied exhaustively by De Seynes (1886) in France where it had been previously known to cause rotting of pineapple fruits. Selection of resistant clones/ varieties is the best method of overcoming any plant disease problem. Experiment was hence, taken up to identify resistant cultivars, as the sett rot incidence is high especially in the sugarcane belt of northern Karnataka. Fifteen sugarcane cultivars were screened for their reaction to sett rot. None of the genotypes exhibited resistance against the disease. The variety Co-7804 recorded highest sett rot (63.18%) and lowest was in Co-7219(46.32%). Cross-inoculation studies revealed that three varieties Co-8011, Co-740 and Co-6304 exhibited moderate resistance.

Key words: *Ceratocystis paradoxa*, Cultivar, Cross-inoculation, Resistance.

The sett rot disease of sugarcane caused by an ascomycetous fungus *Ceratocystis paradoxa* (De Seynes) Moreau, was first studied exhaustively by De Seynes (1886) in France where it had been previously known to cause rotting of pineapple fruits. The disease was termed as 'Pineapple disease' because the affected setts emitted a smell, a characteristic of slightly rotted pineapple fruits. This odour is due to the production of ethyl acetate formed consequent to metabolic activity of the fungus. The pathogen primarily affects setts. However, occasionally it also affects stalks of growing cane especially when infection is aided through injuries and borer holes (Padmanabhan and Jaleel Ahmed, 1970, Manzo, 1975; Natarajan and Subba Raja, 1976).

Selection of resistant clones/ varieties is the best method of overcoming any plant disease problem. In earlier works of Waraitch and Kumar (1981), who screened 30 varieties against Pineapple disease, only CoS 718 and Bo 76 were found resistant. They opined that quick germinating varieties should be preferred in endemic areas as they escape early infection. Usage of resistant cultivar would drastically reduce the disease incidence with minimal environmental repercussions of the usage of pesticides for its control. Hence, it was felt need work to identify resistant cultivars, as the sett rot incidence is high especially in the sugarcane belt of northern Karnataka.

MATERIALS AND METHODS

Fifteen sugarcane cultivars were screened for their

reaction to sett rot following procedure suggested by Waraitch and Kumar (1981). Setts of each cultivars (*viz.*, CoC -671, Co-85002, Co-86032, Co-92020, Co-88028, Co-87025, Co-7804, Co-8011, CoM-88121, Co-8014, Co-7704, Co-89014, Co-740, Co-7219 and Co-6304) were cut to 20 two eye budded setts with the bottom most node located six cm from the cut end. Twenty seed canes were prepared for each cultivars and these were inoculated by dipping setts in seven day old culture of *C. paradoxa* grown on PDA. The seed pieces were then laid end to end and planted in field plots measuring four m² for each cultivar.

The trial was laid out in randomized block design with three replications in an area of 180 m². Germination was recorded on 30th DAP. After 35 days the setts were removed and sliced into half and the linear spread of infection was measured. The per cent lesion spread based on the entire length of the setts was calculated. The cultivars were classified into resistant (R), moderately resistant (MR) and susceptible (S) based on the per cent lesion spread. (as suggested by Padmanabhan and Jaleel Ahmed, 1970).

Screening of cultivars for resistance to isolates

Varieties were screened for their sett rot incidence and resistance by following same procedure of inoculation with different isolates enlisted in Table 2.

Sett rot samples were collected from eleven locations during 2003-04 in Bagalkot, Belgaum, Bellary, Bidar, Dharwad, Koppal and Haveri districts. Isolates of