International Symposium on

Sugarcane Research Since Co 205 : 100 Years and Beyond (SucroSym 2017)

PROCEEDINGS

September 18-21, 2017
Coimbatore, India

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Organized by

ICAR - Sugarcane Breeding Institute, Coimbatore
Tamil Nadu Agricultural university, Coimbatore
South Indian Sugar Mills Association (SISMA), Tamil Nadu
Society for Sugarcane Research and Development, Coimbatore

ISBN:- 978-93-85267-12-3

Single budded setts of 27 sugarcane clones were planted in 5 kg capacity of pots containing sterilized soil and maintained in glasshouse. One month after planting, pots were inoculated with *P. zeae* @ 5000 juveniles / pot. Three replications each for inoculated and uninoculated control were maintained. Three months after inoculation, observations on nematode multiplication in soil and root population were recorded. Each plant was carefully uprooted and the root system cut and washed free of soil. Roots were processed by root maceration technique. Soil samples were processed by Cobb's wet-seiving and sedimentation technique. The nematodes were extracted by Modified Baermann method and the soil population of plant parasitic nematodes was assessed. The lesion index of the root was estimated by measuring the length of roots with lesioned tissue and is expressed as percentage.

A total of 27 germplasm / clones were screened against lesion nematode, *P. zeae*. Among them 20 clones were found to be tolerant (C 33004, C 33005, C 33008, C 33018, C 33025, C 33028, C 33035, C 33042, C 33049, C 33050, C 33051, C 33056, C 33060, C 33062, C 33074, C 33075, C 33105, C 33114, C 33122 and CoC 24) and six clones were found to be susceptible (C 33024, C 33032, C 33046, C 33064, C 33082, and C 33108). The clone C 260628 was found to be moderately resistant. Studies on resistance to *P. zeae* showed sugarcane clones Co 88020, Co 89009 and Co 89034 as resistant to *P. zeae* (Mehta *et al.*, 1994). Novaretti *et al.* (1988) reported that sugarcane clone NA 56-79 was tolerant to *P. zeae*. In Brazil, sugarcane clone cv. sp 70-1143 was found to be resistant to both *P. zeae* and *Meloidogyne javanica* (Novaretti, 1992) while the clone IAC 77-52 was found to be tolerant to *P. zeae* (Dinardo *et al.*, 1996). Similar work conducted in other cropshas resulted in improved resistant cultivars. For example, Thompson *et al.*, 2011 reported that increased resistance to root-lesion nematodes was achieved in Australian chickpea by hybridising commercial cultivar (*Cicer arietinum*) with wild relatives (*C. reticulatum* and *C. echinospermum*). Wild relatives of sugarcane were also reported to be highly resistant to Pachymetra root rot (Croft *et al*, 2015). Thus, introgression of resistant genes of these wild species and other close relatives of sugarcane has the potential to provide the industry with improved varieties that could help manage many difficult-to-control soil pathogens.

Bhuiyan et al. 2014. Proc Aust Soc Sugar Cane Technol 36:166–176
Croft et al. 2015. Proc Aust Soc Sugar Cane Technol 37:218–226
Dinardo-Miranda, et al. 1996. Nematologia Brasilenia, 20: 52-58.
Mehta et al. 1994. Afro-Asian Journal of Nematology, 4: 109-111.
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Thompson et al. 2011. Australas Plant Pathol 40:601–6011.

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SUGARCANE WILT: UNDERSTANDING PATHOGEN VARIABILITY, CHARACTERIZATION AND PATHOGENICITY

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Sugarcane, perennial grass of the family *Poaceae*, mainly cultivated for sugar and its byproducts viz., ethyl alcohol, straw, bagasse and the plant itself can be used as livestock fodder. Most of the world's sugarcane is grown in subtropical and tropical areas. India is the second largest producer of sugarcane next only to Brazil. The sugarcane plant is affected by many diseases which are caused by

were more prone to wilt as compared to the normal irrigated plots. Transmission of vascular streaks crossing 1-3 nodes both up and down from the inoculated internode was observed in drought induced plots. Some cultivars like Co 86002 showed only partial wilt symptoms in both the plots with all the *F. sacchari* isolates. The observation revealed that sugarcane varieties exhibited a differential reaction to *F. sacchari* isolates. Wilt induced canes were subjected to pathogen re-isolation, characterization to confirm the *F. sacchari*. The study on pathogenicity indicated that, once the pathogen enters into the cane by different sources of inocula, it causes wilt in the crop. Under favorable environmental conditions like drought or other stresses, the pathogen causes severe symptoms. Although the disease could not be reproduced earlier by several workers, we have clearly found that, plug method of inoculation to induce the disease in the field by imposing abiotic stresses to the crop. This study conducted at SBI has given new understanding on wilt disease spread, *F. sacchari* characterization, variability and pathogenicity. Further research works are required to validate the new screening technique to assess *F. sacchari* pathogenicity and reproduction of the disease at different locations.