

# Evaluation of Sugarcane Somaclones for Resistance to Red rot and Yellow Leaf Disease

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## ABSTRACT

Red rot caused by *Colletotrichum falcatum* and Sugarcane yellow leaf disease caused by *Sugarcane yellow leaf virus* are two of the major diseases in sugarcane causing severe losses in susceptible varieties. Twelve promising sugarcane somaclones developed from popularly grown varieties in the zone i.e., 2003V46, Co 86032, 2005T16 and two resistant clones (94V101, 97R167) identified for YLD were evaluated for resistance to red rot and yellow leaf disease at Agricultural Research Station, Perumallapalle during 2018-19 and 2019-20 under field conditions. Resistance to red rot disease was studied using four prevalent pathotypes in Andhra Pradesh (Cf 261, Cf 419, Cf 671 and Cf 997) by artificial inoculation *i.e.*, Cotton swab and Plug method. The clones were evaluated for YLD based on natural incidence of the disease. Among the twelve clones tested, almost all the clones showed resistant to moderately resistant (MR) reaction to the four red rot pathotypes tested and only one clone, 16T38 showed moderately susceptible reaction to the pathotype, Cf 671. For YLD disease, two prominent clones, 16T7 and 16T37 showed '0' grade for YLD disease with complete absence of symptoms on the leaves and also confirmed by molecular analysis of presence or absence of coat protein of the virus through RT-PCR. The somaclone, 16T7 was found to be best clone showing resistance to both red rot and YLD, highest cane yield, and HR brix%, can be recommended to the sugarcane farmers for cultivation.

**Keywords:** RT-PCR, Resistance, red rot, Sugarcane, Somaclones, Yellow leaf disease.