
OVERVIEW AND STUDY OF MANAGEMENT OF SUGARCANE RED ROT CAUSED BY COLLETOTRICHUM FALCATUM IN INDIAN SCENARIO

Dr. SHIVANAND S. HIREMATH
Subject Matter Specialist Plant Protection
ICAR Kle Krishi Vigyan Kendra Belgaum

Abstract

This work portrays two many years of dynamic exploration work in Colletotrichum falcatum an incitant of sugarcane red rot. Red rot is one of the real imperatives in the productive development of sugarcane, especially in India. The ailment radically impedes the yield and significantly disintegrates the juice quality, in this manner influencing both the producers and mill operators. RED ROT CAUSED by Colletotricum falcatum is the most critical illness of sugarcane in India. Selection of sound settles which are without blushed cut finishes, contracted hubs, borer gaps and harmed buds is required to advance upgraded germination on one hand and diminish the likelihood of red rot spread in fundamental field. At the point when red rot happens in a field, absolute evacuation of tainted bunches took after by their complete smoldering is justified to contain its expansion. The treatment of the influenced soil around the bunches with carbendazim (0.1%) or organo fluctuating compound (0.25%) is suggested.

Introduction

Systemic fungicides being insufficient, regulation of the malady is achievable through administrative aptitudes, for example, limited or deferred watering systems, evasion of mulch, advancement of waste channels to counterbalance stagnation, end of ratooning, appropriation of privately acknowledged yield rotation furthermore early reaping. Notwithstanding these control measures the discriminative decision and appropriation of red rot safe/tolerably safe sugarcane cultivars is fundamental.

Review

As per the scenario of Indian atmosphere, In our country, the initially reported pestilence happened in 1895–1901 and in ensuing years various significant episodes have been recorded as a general occasion in the sub tropical and tropical districts of the nation. In Tamil Nadu, red rot malady was initially seen in T-Edayar town in the South Arcot region amid 1974–75 in a pandemic structure on Co 658 (Lewin et al., 1976). The ailment influenced around 200 sections of land. Notwithstanding Co 658, different assortments/clones influenced were Co

449, N 65217, Co 7504, Co 7507, Co 6315 and N 67113. The ailment was additionally reported from Trichirappalli region on Co 658 in the same period. This was because of the development of seed material of this assortment from South Arcot area. Quickly, the industrial facilities were cautioned to halt developing Co 658 and Co 449 and field tolerant, high yielding and high sugared assortments like Co 6304 and Co C 671 was utilized to supplant Co 658, which was the transcendent assortment developed in numerous production lines. From 1977 to 1985 there was no

report of red rot in Tamil Nadu. Again in 1986, the discharged assortment Co C 8001 was influenced in a field at Pagandai town close Nellikuppam and in 1987, Co C 86062 was influenced under field condition at Akkadavalli town close Cuddalore. Around the same time, Co C 671 was likewise been influenced in Nesanur town. In 1988, red rot was found to contaminate the assortments Co C 86062 and Co C 671 at Kodukkur town and in 1989 and 1990, the assortments Co C 85061, Co Si 86071 and Co C 671 were influenced at Melpattampakkam, Radhapuram, Paravalur and Sethiathope zones of Cuddalore locale, bringing about loss of product and uneasiness among ranchers and industry. The intermittent way of the ailment represented an extraordinary danger to the sugar business around there specifically and for the state and at present the majority of the sugar factory ranges are polluted with the sickness pathogen. This issue was additionally seen in the as of late discharged assortments Co C 90063, Co C 91061 and Co C 92061 amid 1993 and Co 8021 and Co Si 96071 amid 1997 and Co Si 98071 amid l998 and Co 86032 amid 2Numerous miracle assortments have gone out of development because of red rot. The utilization of safe assortments is the least expensive down to earth system for infection control regularly connected as real segment of incorporated ailment administration procedure. Reproducing for resistance is inescapable to suitably deal with the ailment and keep away from epiphytotics of red rot. By supported endeavors of examination, numerous assortments have been created for delivering higher stick and sugar yield. It is lamentable that an assortment like Co C 671, which altered the sugar business, has been influenced all that much by red rot malady. Despite the fact that there are great assortments, they couldn't be developed constantly in light of their vulnerability to red rot. At the point when the sickness is seen in the field, ratooning is entirely precluded, prompting misfortune to the rancher and decrease of zone for the plant. On the off chance that 10 percent of plant yield is influenced and ratooning is kept, the evaluated misfortune every year would be around 5.06 million AUD (at 80 t/ha and AUD 38/t). On the off chance that both plant and ratoon are considered, the misfortune would be significantly more, regardless of the possibility that a base yield misfortune 5 t/ha is brought on.

In the event that the sickness happens in 5 for every penny of the aggregate stick region, the misfortune in yield would be around 11 250 t for every year for both plant and ratoon crops. Along these lines, the malady could bring about an aggregate yield loss of 0.17 million tons which is esteemed at 6.46 million AUD every year to the cultivating group while there would be lost 15,188 tons of sugar at state level. The ailment has dispensed with a portion of the best high sugared assortments that are hard to supplant.

Symptoms

Red rot may affect any of the vegetative parts of the sugarcane plant, the first external and visible symptom in third or fourth leaves turns orange yellow in colour then afterwards the fifth and six leaves dry up and finally the second, first and 0 leaves wither. The stalk may sometimes show reddish to purplish discoloration of the rind. Diagnostic symptoms can only be observed by splitting the stalk lengthwise. The affected tissues soon develop a characteristic, slightly acidic, starchy odour and turn dull red, interrupted with occasional whitish patches elongated at right angles to the long axis of the stalk. In addition to the stalk symptoms, the disease appears on the backside of the leaf mid rib as red elongated lesions with ashy gray centre. Pathogen Went (1893) observed only the asexual (conidia) stage of the red rot fungus and described it as Colletotrichum falcatum. Spegazzini (1896) in Argentina described the perfect stage and named it Physalospora tucumanensis Speg. However, this species was not recognised as the perfect stage until it was rediscovered in Lucisiana by Carvajal and Edgerton (1944). Later, Arx and Mueller (1954) re-examined the taxonomic status and named it Glomerella tucumanensis (Speg.) Arx and Mueller. In India, Chona and Srivastava (1952) reported production of perithecia on dried autoclaved sugarcane leaves in culture and in nature. Chona and Bajaj (1953) found perithecia on some cane varieties. However, the role of the sexual stage of the fungus on the epidemiology of red rot is unknown in India (Singh and Singh, 1989). Pathogenic variability A great deal of variation of C. falcatum has been reported in India and abroad. In the beginning two district dark and light type races were recognised (Abbott, 1935). Many isolates were intermediate of these two races. The light race produced abundant spores and proved more virulent than the dark one. The failure of Co 213 in North India during 1938–41 was due to the appearance of light race of the pathogen (Chona and Padwick, 1942). Kalaimani T et al.

Hypothesis

Rules to sugar industrial facilities Sugar factories must take assortments from different territories just with appropriate phytosanitory authentications from able powers. Assortments for which the response to Tamil Nadu

disengages of red rot pathogen is not known must be erased from the varietal planting records. High sugar assortments that are powerless to red rot should just be developed in sickness free circumstances. The rate of territory planted to these assortments ought to be kept up at any rate with the goal that destruction will be simple if a flare-up of red rot is taken note. To entirety up, the accompanying measures will reduce the red rot issue:

• Irrigation management

• Rouging and drenching soil with fungicides

• Trash burning

• Avoiding ratoons in affected fields

• Crop rotation

• Varietal movement only with phytosanitory certificates.

• Selection of resistant varieties

• Healthy nursery programme

• Selection of healthy setts

Conclusion

Future push No uncertainty, noteworthy exploration work has been completed throughout the years on numerous measurements of red rot, yet a few question marks exist, especially in the zones of the study of disease transmission and administration of the illness. In this way, look into needs should be centered around the accompanying viewpoints:

• top to bottom studies on the study of disease transmission, with specific reference to part of the beginning contamination, sexual stage and ecological components, in this way encouraging the improvement of infection forecast models. Kalaimani T et al. Proc Aust Soc Sugar Cane Technol Vol 34 2012 8

• The range of winning races in C. falcatum should be classified utilizing sub-atomic markers.

• Concerted endeavors should be dispatched on sub-atomic science of host-parasite cooperations to comprehend the operational instrument included in pathogenesis

• Search for more up to date fungicides and prompted imperviousness to red rot by abusing chemicals and miniaturized scale living beings for customizing down to business methodology for coordinated ailment administration.

• Detailed studies on hereditary premise of resistance should be embraced utilizing ordinary and different procedures of accuracy. Hereditary base of present day cultivars being thin, more noteworthy endeavors are required to expand this base for compelling sickness administration. Further, with the business sector economy on the iron block in the nation, all the sugar processing

plants are compelled to attempt development projects requiring more stick for squashing and for survival. In this way, there is a dire need to build the territory under sugarcane or to expand the per unit generation at the present level so that the limit usage by processing plants can be kept up. At this crossroads, this can be accomplished just with the advancement of red rot safe and additionally high sugared assortments furthermore by developing suitable administration practices to contain the proper management

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