

DBT-NCC study reports phytoplasma associated with Sugarcane Grassy Shoot disease

New Delhi, Jan 14: Phytoplasmas are extremely small bacteria that differ from most other bacteria by their characteristic lack of a cell wall, and the consequent absence of a specific shape. They are parasites of plants and insects, being transmitted from one plant to another mainly by sap sucking insects. Phytoplasmas have been associated with diseases affecting several plant species, including many economically important food crops.



Sugarcane Grassy Shoot is one such disease associated with phytoplasma, which occurs in sugarcane-growing countries throughout the world. It adversely influences this cash crop by leading to losses anywhere from 5% to 70%. The term, “grassy shoot” arises from the typical grassy appearance that results from the severe proliferation of tillers caused by the phytoplasma infecting the sugarcane. Phytoplasmas associated with the SCGS disease are related to Rice Yellow Dwarf (RYD) phytoplasmas, which are predominant in the sugarcane-growing areas of the Indian subcontinent and South-East Asia.

Early last year, a research group from the National Centre for Cell Science (DBT-NCCS) in Pune, led by Dr. Amit Yadav, project scientist on the NCMR project, had reported the first phytoplasma whole genome sequences from India. This group has successfully sequenced the whole genomes of the phytoplasmas associated with two plant diseases, Sugarcane Grassy Shoot (SCGS) and Bermuda Grass White leaf (BGWL). The latter is a destructive disease of the widely used lawn grass.

Recently, Dr. Yadav and his research team published another paper reporting a novel phytoplasma taxon associated with SCGS disease. This team studied samples of sugarcane and bermudagrass collected from Pune, which exhibited the typical grassy shoot and white leaves symptoms. Their studies led to the first description of a phytoplasma species from India, and the first description of a phytoplasma species based on genome sequences, called '*Candidatus* Phytoplasma sacchari'. A paper based on these research outcomes was published in the prestigious International Journal of Systematic and Evolutionary Microbiology (IJSEM) recently.

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