

## RATOON STUNTING DISEASE OF SUGARCANE IN SRI LANKA

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**Abstract :** Causative bacterium of Ratoon Stunting Disease (R.S.D.) of sugarcane was isolated and characterized in this study. The study of the life cycle of this bacterium, carried out using a micromanipulator under the phase contrast microscopic field, indicated the characteristic cell division of the bacterium. The bacterium has the ability to survive on an inneret glass surface without any nutrient up to about 19 days. Results also indicated that the hot water treatment currently employed to prepare R.S.D. free seed cane is not effective and that this organism is resistant to moderate concentrations of phenol and lysol. The disease surveys indicated that the R.S.D. incidence in hot water treated primary nursery was found to be 25% and that of secondary nursery was 33%. The yield reduction in sugarcane plant crop due to R.S.D. infection was found to be about 10%.

### 1. Introduction

The Ratoon Stunting Disease (R.S.D.) of Sugarcane has been recorded since 1961 in Sri Lanka. Hutchinson<sup>5</sup> reported that the infection was present in every stalk which he observed during his visit in the island.

The disease causes significant yield losses, especially when cane is growing under water stress conditions. The yield reduction is more severe in ratoon crops than in plant crops.

The electron microscopic studies<sup>3,10</sup> showed that a coryneform bacterium is always associated with the diseased sugarcane plants. The bacterium was isolated and its pathogenicity tested for the first time in 1980.<sup>1</sup> Davis *et al*<sup>2</sup> proposed a new genus *Clavibacter* for some phytopathogenic coryneform bacteria. Accordingly causative bacterium of R.S.D. was classified as *Clavibacter xyli* sub sp. *xyli* sp nov. sub sp. nov.<sup>2</sup>

The disease diagnosis of R.S.D. is often confused as the external and internal symptoms are not specific. Therefore electron microscopic method<sup>3</sup> or phase contrast microscopic method<sup>9</sup> are used for reliable diagnosis.

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