Variation factors of bananas susceptibility to crown rot in Cameroon

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Introduction

In Cameroon, the main quality defects affecting bananas exported towards Europe are related to crown rot of bananas, a post-harvest disease. When harvest, crown are healthy, but after few days of shipment, the fungal infection develops superficially and internally affecting the crowns, then pedicels and ultimately the banana pulp (Figure 1 & 2). This post-harvest disease is caused by a broad unspecific and opportunist parasitic complex. Within this complex, Colletotrichum musae is the most pathogenic species. Clusters formation in the packing station involve cut sections that are ways of penetration for pathogens. Fruits contamination can occur within the field, but mainly occurs in the washing tanks in the packing station. Chemical control currently performed is not satisfactory and has to face with: (i) fungicide resistance occurring in fungal populations, (ii) the presence of fungicides residues in fruits skin, (iii) environmental contamination with fungicide mixtures rejected in packing stations.

The aim of this study was to evaluate whether production zones and seasonal variations of the year had an influence on the susceptibility of bananas to crown rot.

Materials and methods

Two plots of different altitude Ekona (500m, average temperature 22°C) and Dia-dia (80m, average temperature 27°C) were selected. The susceptibility of bananas (Musa acuminata, AAA, subgroup Cavendish, cv. Grande-Naine) to crown rot was evaluated through the artificial inoculation of clusters with Colletotrichum musae (10⁴ conidia/ml). Statistically different values of INS are represented with letters a & b). INS mean is the result 1 year assessment, and standard-errors are represented by vertical bars.

Results and discussion

Site influence on banana susceptibility to crown rot

Fruit susceptibility to crown rot is consistently higher in low-altitude Dia-dia plantation than fruit produced in high-altitude Ekona plantation (Figure 5).

Season influence on banana susceptibility to crown rot

Levels of fruits susceptibility to crown rot are high during rainy season compared with dry season in both sites of production especially in low-altitude zone (Figure 6).

Conclusions

These results provided evidence for wide variation in the susceptibility of banana to crown rot as previously reported for fruit susceptibility to wound anthracnose (Chillet et al., 2000). Highland site and dry season seem less favourable to disease severity and can be more adopted for untreated bananas export. This hypothesis must be checked by experiments in many plantation of different altitudes in order to confirm altitude influence.

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