# Parasitism of banana by *Heterodera oryzae*

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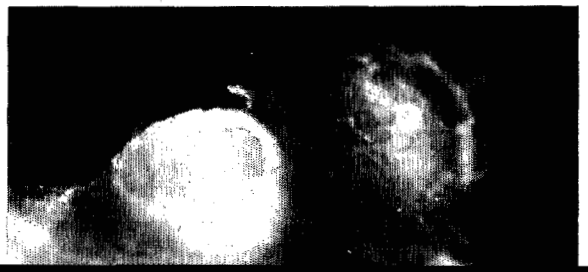
SUMMARY

A large population of an unidentified species of *Heterodera* was found parasitizing banana in Senegal, the first report of parasitism of banana by a member of this genus. Under greenhouse conditions this isolate reproduced well on both banana and rice. *H. oryzae* from the type locality in the Ivory Coast also reproduced on banana. The isolate from banana responded positively to rice root exudates. No morphological or cytological differences were found between the banana isolate and *H. oryzae*. Reciprocal matings between the banana isolate and *H. oryzae* were successful producing progeny which reproduced on rice. It is concluded that the isolate from banana is conspecific with *H. oryzae*.

RÉSUMÉ

*Parasitisme d'* Heterodera oryzae *envers le bananier*

Une population importante d'un *Heterodera* a été trouvée sur bananier au Sénégal, première observation d'une espèce du genre sur ce végétal. Une expérimentation en serre a permis de préciser que cette population se reproduit sur bananier et sur riz et que *H. oryzae* (population topotype) se reproduit sur bananier ; d'autre part la population isolée de bananier répond positivement aux exsudats radiculaires de riz. Aucunes différences morphobiométriques ou cytologiques n'ont pu être notées entre ces deux populations. Les fécondations croisées entre individus des deux populations ont été positives et ont donné des descendants se reproduisant sur riz. De ces observations, l'auteur conclut que la population isolée du bananier appartient à l'espèce *Heterodera oryzae*.



Groups of five cysts of the banana isolate were placed in each of twelve small watch glasses. Six of these were filled with the water in which four-day-old rice seedlings had been placed for 24 hours ; the remaining six were filled with sterile distilled water. Every 24 hours the number of juveniles per dish was recorded and the liquids replaced. Results are given in Figure 2. A mean number of 362 juveniles emerged per dish during the seven days duration of the experiment in the dishes containing crude rice root exudates ; a mean of 222 emerged in water. Thus, rice root exudates provoked a positive response of emergence in the banana isolate similar to that reported for *H. oryzae*.

in this study fall between the maximum and minimum lengths reported by these authors.

## Cytology

No differences in chromosome number or morphology were observed between the banana isolate (Fig. 1D) and *H. oryzae* as described by Netscher (1969). In both cases, n=9.

## Mating experiments

Second-stage juveniles were collected from cysts from greenhouse cultures of *H. oryzae* and

containing the males were covered with sterile fine sand and incubated at room temperature. Eight days later one dish was sacrificed and the female examined. Two eggs were found in the uteri and sperm in the region of the uteri. The remaining dishes were incubated for 21 days after which the females were removed from the root segments, cut open, and eggs present were removed and allowed to develop. The first juvenile hatched 22 days after males and females were placed together. Viable juveniles were obtained in seven of the eighteen *H. oryzae* males x females of the banana isolate and in both *H. oryzae* females x males of the banana isolate. Thus, viable offspring were produced in 45% of the attempted crosses and in both reciprocal crosses of the two isolates. One

The experiment was repeated, the only difference being that all virgin females from each isolate attached to 1 cm root segments were placed in a single watch glass, covered with fine sand, and 50 males of the other isolate were added. These watch glasses were incubated at room temperature in the dark for two weeks after which all females and/or cysts were examined for the presence of eggs or juveniles. All eggs and juveniles recovered from each cross were placed together in a small quantity of water and placed in a depression in the soil in a pot containing four ten-day-old rice seedlings. Forty days later the rice plants in the two pots were examined for cysts or females. Several white females with attached egg masses were found on the roots in both pots, estab-

Ten juveniles each from two of the successful crosses in the first experiment were fixed

## References

Cadet, P., Merny, G. & Reversat, G. (1975)