Gujarat. In 1986, a severe epidemic of sugarcane wilt disease was noticed in Madhi, Bardoli and Chalthan areas of South Gujarat.

Soil samples (46 from Madhi, 26 from Bardoli and 34 from Chalthan) were collected from wilt-infected fields. Examination of the soil samples revealed the presence of 2880 nematodes from soil around severely-infected plants and 105 from soil around apparently healthy plants from the same field. The nematodes were identified by CAB International Institute of Parasitology, CABI, UK, as Tylencho-


This is the first report of the occurrence of plant parasitic nematodes on sugarcane crop in Gujarat. The study indicates that these nematodes play a role in predisposing sugarcane to infection by wilt fungus. Similar observations on association of plant parasitic nematodes, viz., Hoplolaimus indicus, Tylencho-
rhychnus nudus and Helicotylenchus di-
hystera with two species of fungi, Fusarium monili-
formae and Cephalosporium sacchari, causative agents of wilt disease in sugarcane, have been re-
ported from Bihar1. In the Bihar study it was also 
shown that simultaneous occurrence of the nema-
tode H. indicus and the fungus F. moniliformae significantly increased wilt disease incidence than occurrence of fungus alone. It is possible that upon infection of the roots by the nematodes, the wilt pathogens gain entry into the roots more easily. Experiments have been initiated to evolve suitable methods for the management of the nematodes and thereby the control of sugarcane wilt disease.

The authors are grateful to the managements of sugarcane factories at Madhi, Bardoli and Chalthan for their kind help and co-operation in collecting soil samples and to Dr M. R. Siddiqi, Taxonomist, CAB International Institute of Parasitology, UK, for identification of nematodes.

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A NOTE ON THE EXTRA FLORAL NECTARIES OF BALIOSPERMUM RAZIANA KESHAV ET YOG. (EUPHORBIACEAE) WITH A NEW DISTRIBUTIONAL RECORD

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Baliospermum raziana has been reported as a new species of Euphorbiaceae from Coorg recently1. B. raziana Keshav et Yog. collected by the present authors from the forests of Dhulia District (Maharashtra) is an addition to the flora of Maharashtra.

B. raziana is distinguished from B. montana on the basis of the leaf marginal glands and long peduncled racemes present in the former1. The leaves fixed in FAA after customary methods (like infiltration and dehydration) were used for microtomy. The present study reveals that the term extrafloral nectaries apply more aptly than leaf marginal glands. This is also corroborated by earlier reports2.

The extrafloral nectaries are distributed along the tips of leaf marginal serrations varying in number from 16 to 20 (figure 1). In rare cases two basilam-

inar nectaries are also seen as small projections on the upper side of the petiole. The extra floral nectaries are globose in shape, enveloped by a thick cuticle (figure 2). The cuticle is not interrupted by

Figures 1 and 2. 1. Occurrence of extra floral nectaries along the leaf margin, and 2. Diagram of LS of an extra floral nectary [C, cuticle; EFN, extra floral nectary; L, laticifer; P, phloem; S, secretory zone; SS, sub secretory zone; X, xylem].
any stomata or pores. The nectary tissue can be
differentiated into a secretory and sub-secretory
zone. The secretory zone is oval in shape and
composed of palisade-like parenchyma cells with
dense cytoplasmic contents and prominent nuclei.
The sub-secretory zone consists of polygonal paren-
chyma cells. The vascular supply to the nectary
consists of both xylem and phloem strands and it
ramsifies in the sub-secretory tissue. Branched,
non-articulated laticifers also enter into the nectary
in association with phloem. The vascular supply
represents one of the branches of secondary vein
(figure 1). The gross anatomy, mode of distribution
and the vascular supply show that these structures
can be considered as extra floral nectaries 2.

Notes: Undershrubs. rare in forest undergrowth.
Flowers creamy yellow. Calycine nectaries are pre-
sent along the margin. Unsegmented secretory disc
in male flowers is extra staminal in positions.
ILL. Keshav et Yag. op. cit., figures 1-4.
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PRODUCTION OF UNISEXUAL PROGENY IN
RICE GALL MIDGE ORSEOLIA ORYZAE
(WOOD-MASON)

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Some insects, viz. Hessian fly, Mayetiola destructor
(Say) 1 and sorghum midge, Contarinia sorghicola
(Coq) 2 of the family Cecidomyiidae, and others of
the closely related family Sciariidae 3 produce unisex-
ual progeny, i.e., broods either exclusively male or
exclusively female. The rice gall midge, Orseolia
oryzae (Wood-Mason) (Diptera: Cecidomyiidae) is
a serious pest of rice in India. The adult fly lays eggs
on leaf sheath or leaf blade and the eggs hatch after
3-4 days. After hatching the maggots enter the
plant, feed on growing points in the tillers and
produce 'silver shoots' within 15-20 days. The
affected tillers do not bear any panicles. Since no
information is available on the question of produc-
tion of unisexual progeny in rice gall midge, inves-
tigations were undertaken.

Newly emerged unmated male and female gall
midges were collected separately by covering indi-
vidual silver shoots with mylar tubes prior to adult
emergence. One pair of these adults was then caged
on five 25-day-old potted rice plants of the variety
T(N)1. After 24 h of mating and oviposition, the
mylar tubes were removed and the potted plants
were kept in a humidity chamber at 80% RH for 4
days for incubation of eggs. The potted plants were
then shifted back to normal humid conditions for
development of the maggots. About 15 days after
oviposition when 'silver shoots' appeared, the indi-
vidual pots were again covered with triacetate tubes
of bigger size for collection of adults. The number of
male and female gall midges that emerged —
representing the progeny of one mated female —
was recorded. Ten pots (5 plants/pot) were used as
10 replications. The experiment was repeated once
every month from July 1979 to June 1980.

The results revealed that of the 120 individually
mated females studied, 51 produced all-male and 69
all-female progeny. None produced both male and
female progeny. Further, temperature effects did
not account for the production of unisexual progeny.
The overall ratio of females producing male progeny
to females producing female progeny was 1:1.35.

In another experiment designed to reveal the
existence of parthenogenesis, 10 mated and 10
unmated gall midges were individually caged on five
T(N)1 plants as described earlier. Mated females
oviposited a significantly higher number of eggs
(89/female) compared to unmated females (31.2/
female). However, no such difference was reported
by Hidaka et al 2 possibly because a fewer number of
replications were maintained in their study. While
over 99% of the eggs laid by mated female hatched
resulting in silver shoot formation in 57% of the
tillers, none of the eggs laid by unmated female
hatched and consequently no silver shoot was
observed. This ruled out the existence of parthen-
genesis in rice gall midge.

Painter 1 discounted differential death rates be-
tween the sexes of Hessian fly as a mechanism for
the unisexuality of individual broods. Baxendale and
Teece 2 also reasoned that in sorghum midge unisex-
ual broods were not the result of differential larval
mortality. In arthropodous insects the mated females