Reproduction & survival

None of the barley plants inoculated with barley galls at sowing showed earcockle symptoms in vegetative phase. Even in reproductive stage the symptoms were not expressed. However, seed galls were formed in some earheads whose larval contents ranged from 2,370 to 4,550. These observations showed that barley is also a host of *A. tritici* but less favoured than wheat.

VARIETAL REACTION TO *A. tritici*

Not all varieties of barley tested were attacked and ones that were, varied in the expression of symptoms and differed in the degrees of susceptibility (Fig. 1D & Table II).

Of 53 varieties tested against *A. tritici*, 27 were resistant, 22 showed symptoms of *tundu* but only four produced galls. Barley evidently suffers the attack and injury from migrating juveniles but less than wheat.


**George O. Poinar, Jr.** 1): Fossil dauer rhabditoid nematodes.

While examining amber from the Dominican Republic two pieces contained dauer rhabditoid nematodes associated with worker ants. The first contained a single worker with one dauer nematode (142 μm long) near its abdomen. The second contained four, three close (within 0.5 mm) to the abdomen (Fig. 1) and a fourth 4 mm behind the ant. Their lengths were 140, 135, 130 and 120 μm. All had some sign of preserved internal tissue and one had clearly defined areas representing the pharynx, intestine and tail (Fig. 2).

Dauer third-stage rhabditoid juveniles (frequently enclosed in their second stage cuticles) are able to withstand desiccation and often use insects and other invertebrates as means of transport (Poinar, 1975).

It was impossible to compare the fossil juveniles with present day species because so little is known of associations between rhabditoid nematodes and ants, especially under tropical conditions. However, on morphology and habitat, it is probable that they belong to the *Rhabditidae* or the *Diplogasteridae*. Wahab (1962) listed four species in the above families.

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Fig. 1. A worker ant in Dominican amber with three dauer nematodes (arrow) adjacent to its abdomen (X 55).
Fig. 2. A dauer nematode in Dominican amber adjacent to the abdomen of a worker ant. Note the anterior pharyngeal region (arrow), the intestine and the pointed tail (X 800).

routinely associated with ants, but always in the pharyngeal glands of the insects. The fossil nematodes were in positions suggesting that they were attached to the abdomen of the ants.

These finds are the first of fossil rhabditoid dauer nematodes in a phoretic relationship with insects and indicate that these resistant stages, apparently as we know them today, were well established between the Miocene and Oligocene eras some 25 million years ago (Sanderson & Farr, 1966).

REFERENCES