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FOOD FOR MACROCHELID MITES (ACARINA)  
BY AN IMPROVED METHOD  
FOR MASS REARING OF A NEMATODE, RHABDITELLA LEPTURA  
BY  
Pritam Singh and J. G. Rodriguez  
(University of Kentucky).

Rodriguez, Wade and Wells (1962) reported that Rhabditella leptura, a free living nematode, was a natural food for Macrocheles muscaedomesticae (Scop.), a predator of the house fly egg. They also standardized a method for the rearing of this species of nematode in the laboratory. Since then this method has been followed in our laboratory, and elsewhere, to mass rear M. muscaedomesticae on nematodes. Two more species of macrochelid mites, M. merdarius (Berl.) and M. subbadius (Berl.), have also been successfully mass reared on this nematode in this laboratory. An improvement in culturing R. leptura has been made which is more economical in respect to time, materials, labor and space; in addition, this method yielded 5-6 times as great a return of nematodes as compared with the method given by Rodriguez and his co-workers (1962).

The nematode was cultured in plastic refrigerator trays 30.5 × 25.5 × 10 cm in size with tops ventilated with 9 equally spaced holes of 24.4 mm diameter. Approximately 125 grams of standard fly larval rearing media 3 was put into a tray and shaken from side to side to level the media to a uniform thickness. A dilution of sodium hydroxide (60 ml of a 5N solution in one quart of water) was used to soak the media; approximately a half-liter of liquid was required to soak the media. Each tray was inoculated with nematodes obtained from the old tray which was divided into 5 equal parts. This media containing nematodes was spread evenly on the new substrate and about 200 ml of water was sprinkled over

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2. Research Associate and Professor of Entomology.
3. CSMA media from Ralston Purina Company.

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it so that the old media mixed well with the new. In this way five trays were made and kept in a large chick-hatching type incubator and maintained at 30-3 ±°C and 55-65 percent relative humidity. Each tray contained the equivalent of about 8 mr of nematodes after they were extracted through a Baerman funnel and centrifuged. The nematodes completely covered the surface of the media after 3 days and were over-flowing and crawling on the sides of the trays on the 4th day. The nematodes formed a band about 4 cm wide on the sides of the trays. Those from the sides were collected with the help of a 12 mm soft paint brush in a beaker in lukewarm water. This concentrated suspension of nematodes was fed to the mites with the help of a dropper. Care was taken to handle the nematodes gently.

The incubator was located in a greenhouse. After the nematodes were collected, the trays were left out of the incubator, under the ambient conditions of the greenhouse for about an hour. During this time the nematodes that remained on the sides of trays were washed down with water from a squeeze bottle, and 10-15 ml of water was sprinkled over the media. It was observed that this short exposure to daylight and the airing apparently helped to keep the substrate in better condition than if the trays were placed into the incubator immediately. This procedure was repeated for 5 to 7 days in succession.

With this improved technique, the collection of nematodes took only 10-15 minutes, compared with the previous method in which the nematodes were extracted through the funnels, a procedure which took almost 2 hours. In the previous method new trays had to be made after daily extraction. This, of course involved much unnecessary handling. Also, the number of trays required in the old method was 20, while with the new method 12 trays were sufficient to obtain the desired quantity of nematodes. Hence, this technique is not only much more economical in time, labor, materials and space, but it also has the advantage of yielding 5 to 6 times more nematodes.

REFERENCE