

**Host Range of *Noctuidonema guyanense*
(Nematoda: Aphelenchoididae):
An Ectoparasite of Moths in French Guiana**

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Lepidoptera were killed immediately upon collection by placing them in a kill jar charged with ethyl acetate. Abdomens were excised at their juncture with the metathorax and placed in individual vials containing 2% formalin for fixing, preservation, and storage for subsequent processing and microscopic examination. Abdomens of macro-Lepidoptera (large sphingids) were excised approximately one-third from the posterior end and handled as stated above. Adult Lepidoptera minus their abdomens were pinned and identified with numbered labels corresponding with their respective abdomens.

Most noctuids were identified by comparing specimens with reference collections maintained at ORSTOM Center, Cayenne, F. G., whose specimens were identified at the British Museum of Natural History, London. Other Lepidoptera were identified by comparing collected specimens with

laris (Hübner), *Metria* sp., *Mocis diffluens* Guenée, *M. diplocyba* Hampson, *Ptichodis agrapta* Hampson, *Selenisa* sp., and *Tandilia rodea* Schaus harbored from 5 to 145 nematodes. Two specimens of *Nymbis arcuata* Walker harbored an average of 28 *N. guyanense* specimens. Multiple host species occurred within *Spodoptera* (five species) and *Mocis* (three species). Only 7 of the 25 host species had 10 or more specimens available for examination (Table 1). The incidence of infection for these seven species ranged from 4 to 51%. The intensity of infection for these seven species averaged 21 to 65 *N. guyanense* per host. One *S. androgea* male harbored 189 juvenile and adult nematodes. Other hosts harboring >100 nematodes included a female *A. infecta* (106), a male *S. dolichos* (F.) (110), and a male *S. latifascia* Walker (124). The four most commonly collected hosts were *Lesmone formularis* Hübner, *S. dolichos*, *S. frugiperda*, and *Xanthopan morgani* (Guenée) in which 44, 21, 21,

Table 1. Alphabetical listing of Noctuidae hosts of *Noctuidonema guyanense* in French Guiana (July–August 1987)

Host ^a	No. hosts		Mean no. nematodes/host
	Examined	Infected	
Noctuidae			
Amphipyridae			
<i>Oxythres splendens</i> Druce	5	1	^b
<i>Spodoptera androgea</i> (Cramer)	13	3	65
<i>Spodoptera dolichos</i> (F.)	94	11	30
<i>Spodoptera frugiperda</i> (J. E. Smith)	51	20	21
<i>Spodoptera latifascia</i> Walker	5	2	109
<i>Spodoptera</i> sp.	5	1	24
Catocalinae (sensu lato)			
<i>Lesmone formularis</i> (Hübner)	28	7	25
<i>Mocis latipes</i> (Guenée)	11	1	^b
<i>Zale fictilis</i> (Guenée)	14	3	25
Hadeninae			
<i>Xanthopastis timais</i> (Cramer)	25	1	34

^a Listing is for species having ≥ 5 specimens examined.

^b Nematodes not counted.

Larvae of Coleoptera and Lepidoptera are commonly infected by nematodes, while natural infection of adult Lepidoptera by nematodes is rare (Triggiani 1976). Remillet & Silvain (1988) reported that *N. guyanense* represents the first known ectoparasitic nematode of adult Lepidoptera. However, adults of *S. litura* (F.) and *S. exigua* (Hübner) are easily infected with *Steinernema feltiae* Filipjev in the laboratory (Narayanan & Gopalakrishnan 1987, Timper et al. 1988). *Noctuidonema guyanense* is closely related with *Acugutturus parasiticus* Hunt, an obligate ectoparasitic nematode attacking the American cockroach, *Periplaneta americana* (L.), in St. Lucia (Hunt 1980). Both *A. parasiticus* and *N. guyanense* may have all stages present simultaneously on the abdomen of their host. Infection by *N. guyanense*

is usually confined to the intersegmental membranes of the posterior two abdominal segments, and less frequently more anterior on the abdomen, among the hair pencils, and on the claspers of male hosts.

Very little is known about the life cycle and biology of *N. guyanense* at this time. However, it appears to be an obligate ectoparasite on adult noctuid-size moths. Our data indicate that non-lepidopteran arthropods and microlepidoptera may not be suitable hosts for *N. guyanense*. Consequently, it appears that *N. guyanense* is a suitable candidate for further study as a possible biological agent for *S. frugiperda* in the southeastern United States.

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Table 2. Lepidoptera not harboring *Noctuidonema guyanense* in French Guiana (July–August 1987)

Family	No. species examined	No. specimens examined
Apatelodidae	1	14
Arctiidae	4	83
Ctenuchidae	7	31
Drepanidae	1	10
Geometridae	8	35
Hesperiidae	2	4
Lasiocampidae	?	13
Lycaenidae	1	1
Lymantriidae	?	32
Megalopygidae	?	4
Noctuidae	121	446
Notodontidae	5	104
Nymphalidae	2	13
Pseudosphingidae	1	2
Pterophoridae	1	1
Pyralidae	12	150
Saturniidae	1	16
Sphingidae	4	11
Tortricidae	2	2

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