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FINAL REPORT

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GERALD D. SCHMIDT

MARCH, 1972

Supported by

U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
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13. ABSTRACT

Studies of the parasitic nematodes of Southeast Asia collected by NAMRU-2, have been completed. Twenty publications have resulted from this research. Host-parasite and locality records have been published, as have descriptions of numerous poorly-known species. In addition, 37 species of nematodes new to science has been described and named. Six new genera have been established. Recommendations for continued support of this type of faunal exploration are presented.

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Summ.

Studies of the parasitic nematodes of Southeast Asia collected by NAMRU-2 have been completed. Twenty publications have resulted from this reasearch. Host-parasite and locality records have been published, as have descriptions of numerous poorly-known species. In addition, 37 species of nematodes new to science have been described and named. Six new genera have been established. Recommendations for continued support of this type of faunal exploration are presented.

Statement of the Problem

This study was undertaken as a part of the Southeast Asia faunal exploration undertaken by U. S. Navy Medical Research Unit No. 2., Taipei, Taiwan. This epidemiological team collected thousands of vertebrates and invertebrates in efforts to determine the ecological and zoological aspects of endemic and epidemic diseases. The primary problem to be solved in such investigations is the taxonomic one, involving descriptions of the organisms in such a manner that they may be readily recognized by future workers. To this end, the parasitic helminths collected by NAMRU-2 during field operations on Taiwan and during expeditions to Borneo, Philippines, Korea, Pakistan and Soloman Islands have been entrusted to specialists for study. Most parasitic nematodes were sent to the present investigator, who was awarded a contract, DADA17-68-6-8094, by the U. S. Army Medical Research and Development Command, to help defray the expenses of the study.

This constitutes the final report on the research activities supported by this contract.

Approach to the Problem

Approximately one thousand vials of preserved nematodes, collected from fishes, amphibians, reptiles, birds and mammals were studied by conventional parasitological techniques. Species new to science were described and named. Poorly known species were redescribed, often with revision of the higher categories of classification and with identification keys to the genera and species. New host and distribution records were recorded, and those parasites with obvious potential for infecting man were noted. The results were published in a variety of professional journals, coauthored with Captain Robert E. Kuntz, of NAMRU-2.

Results

The results of these studies have been published in the series "Nematode Parasites of Oceanica", parts 1-XX. (The first four parts were published prior to the Army contract). These publications are listed below under Selected Bibliography, and should be consulted for detailed results.

The following new taxa were described in these papers:

New Subfamily

Arthrocephalinae Schmidt et Kuntz, 1968

New Genera

Calypsostrongylus Schmidt et Kuntz, 1967
Oceanicucullanus Schmidt et Kuntz, 1969
Oceanifilaria Schmidt et Kuntz, 1970
Madelinema Schmidt et Kuntz, 1971
Cordonema Schmidt et Kuntz (in press).
Smetaleksanema Schmidt et Kuntz, (in press).

New Species

Brevistriata sundasciuri Schmidt, Myers et Kuntz, 1967
Calypsostrongylus ogeni Schmidt, Myers et Kuntz, 1967
Arthrostoma vampira Schmidt et Kuntz, 1968
Syphacia oceanica Schmidt et Kuntz, 1968
Syphacia coli Schmidt et Kuntz, 1968
Syphacia critesi Schmidt et Kuntz, 1969
Oceanicucullanus pacifica Schmidt et Kuntz, 1969
Camallanus marinus Schmidt et Kuntz, 1969
Spinitectus palawanensis Schmidt et Kuntz, 1969
Cucullanus lutjani Schmidt et Kuntz, 1969
Foleyella confusa Schmidt et Kuntz, 1969
Icosiella hoogstraali Schmidt et Kuntz, 1969
Oceanifilaria verrucosa Schmidt et Kuntz, 1970
Aprocta calliderma Schmidt et Kuntz, 1970
Parornithofilaria senini Schmidt et Kuntz, 1970
Parornithofilaria hepatica Schmidt et Kuntz, 1970
Capillaria parusi Wakelin, Schmidt et Kuntz, 1970
Capillaria madseni Wakelin, Schmidt et Kuntz, 1970
Capillaria javanensis Wakelin, Schmidt et Kuntz, 1970
Capillaria pitti Wakelin, Schmidt et Kuntz, 1970
Capillaria anthracocerosi Wakelin, Schmidt et Kuntz, 1970
Inglisonema mawsonae Schmidt et Kuntz, 1971
Madelinema angelae Schmidt et Kuntz, 1971
Tetrameres robusta Schmidt et Kuntz, 1971
Acuaria kinnellai Schmidt et Kuntz, 1971
Rusguniella microcordonis Schmidt et Kuntz, 1971
Subulura helicospicula Schmidt et Kuntz, 1971
Ceratospirura inglisi Schmidt et Kuntz, 1971
Paraheterotyphlum ophiophagos Schmidt et Kuntz, (in press)
Caenorhabditis avicola Schmidt et Kuntz, (in press)
Heterakis vexans Schmidt, Inglis et Kuntz, (in press)
Viktorocara acholonui Schmidt et Kuntz, (in press)
Ornithostrongylus vetterlingi Schmidt et Kuntz, (in press)
Cordonema venusta Schmidt et Kuntz, (in press)
Skrjabinoclava rallae Schmidt et Kuntz, (in press)
Skrjabinoclava anmurornae Schmidt et Kuntz, (in press)

Discussion and Conclusions

The only species of nematode that is known to be a human pathogen which was found in this study is Gnathostoma spinigerum, which was found encysted in frogs in Palawan. The ingestion of raw frog anywhere in the Orient is to be avoided.

Anasakis-type larvae are extremely abundant in the marine fishes of the Philippines. The type of larva is known to cause gastric tumors whenever marine fish is eaten raw. Raw fish is likewise to be avoided throughout the Orient and oceanic islands.

Capillaria philippensis was not found in this study, nor was Angiostrongylus cantonensis. Both are known to inhabit the areas sampled, however, which shows that this survey, extensive as it was, was still an incomplete sampling of the parasites of the region.

When viewed from the ecological-epidemiological viewpoint, the first task of any zoonosis survey is taxonomic. It would therefore appear that the present study accomplished its mission: the recognition of a substantial number of endemic species of parasitic nematodes.

Recommendations

It is recommended that further sampling of the parasitic fauna of Southeast Asia be accomplished, not only of nematodes, but also of cestodes, Acanthocephala, trematodes and protozoa. Even more importantly, financial support should be available for the specialists who work up the collections made by the Government. It is such cooperation between government and civilian workers that our final goal will be accomplished: global eradication of disease.

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