

sip

newsletter

society for invertebrate pathology

Volume VIII, Number 3
July 1976



International Colloquium on Invertebrate Pathology

IXth ANNUAL MEETING, SOCIETY FOR INVERTEBRATE PATHOLOGY

KINGSTON, ONTARIO, CANADA

August 29th - September 2, 1976

ADDITIONAL DETAILS

The scientific programme commences 0830 Monday, August 30th and is included as a pull-out section with this Newsletter. There has been excellent response to the "call for papers" - so much so that it has been necessary to open part of Wednesday afternoon for presentations - we now have 8 sessions of submitted papers. The convenors of the nine symposia have done a great job in putting together their components.

It is still not too late to register and we include a registration form in this Newsletter. Ample on-campus accommodation and parking is available at Queen's at a cost of \$20/person/day in your choice of single or twin rooms. Meals are included in the per diem rate.

All registrants and persons who are presenting papers should have received an information package by the time this Newsletter is distributed. For others, here is a brief resumé on how to get to Kingston and where to find us:

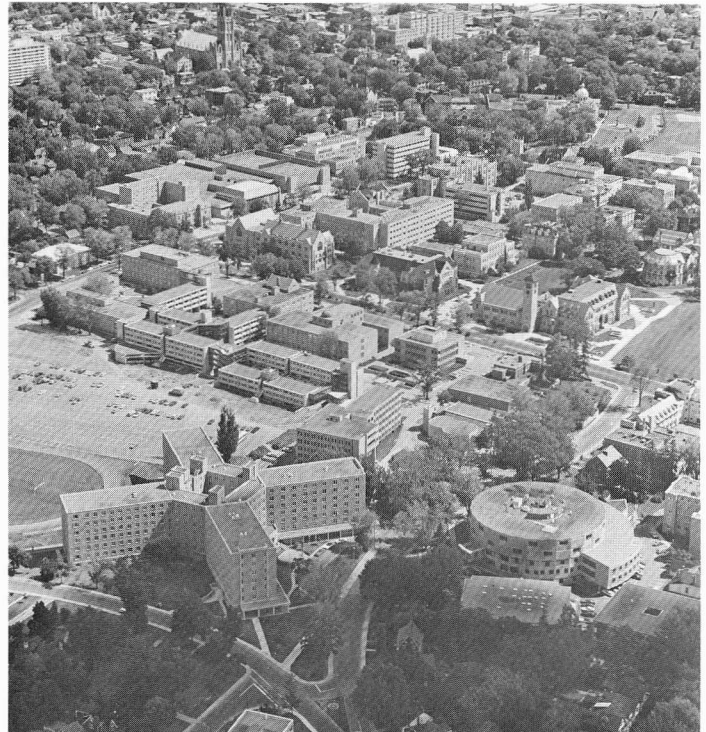
- Persons flying should make for Toronto or Montreal and travel to Kingston by train or bus.

- Persons arriving at Toronto, take the airport bus downtown to the Royal York Hotel - cross the street to the Union (CN) Station and take a train to Kingston.

Train schedule:

Lv Toronto -	0930	1045	1310	1750	1630
	1930	2330			
Arr Kingston -	1206	1300	1545	1950	1901
	2211	0320			

Alternatively there are frequent express buses to Kingston from the Toronto Bus Terminal at Bay & Dundas Streets.



Queen's University, Kingston, Ontario, Canada

ELECTION RESULTS

Upon receipt of the Teller's Report, President Heimpel declared the following elected as SIP officers for the two-year term beginning at the close of the Annual Meeting in Kingston, Ontario, Canada:

President:	Thomas A. Angus
Vice President:	Jaroslav Weiser
Secretary:	Wayne M. Brooks
Treasurer:	J. D. Paschke
Trustees (2):	Howard J. Dulmage Y. Tanada

Continued on page 2

- Persons arriving at Montreal - Mirabel or Dorval Airports, take the airport bus downtown to the Queen Elizabeth Hotel which is part of the CN Train Station.

Train schedule:

Lv Montreal - 0820 1045 1615 1800 2330
Arr Kingston - 1133 1315 1918 2010 0315

Alternatively, when you reach downtown Montreal take a taxi to the Voyageur Colonial Bus depot for express bus service to Kingston.

If you are travelling by car take Highway 401, use exit 102 (Division St.) Kingston. Turn south on Division St. and follow it to its end (Union St.) about 3 miles. At Union St. - turn right and proceed about 5 blocks to Collingwood St. - turn south and find Gordon-Brockington Hall near the lake.

Registration and Room Allocation is at Gordon - Brockington Hall - Collingwood St. We shall be there from 1400-2200 hrs on Sunday, August 29th, and from 0800 on Monday, 30th.

Social Programme. Included in your registration is a cocktail party and Colloquium Banquet on Tuesday evening. On Wednesday we plan a buffet supper at the Kingston Olympic Sailing site, Portsmouth Harbour and attendance at a Retreat & Tattoo of the Fort Henry Guard.

Accompanying members will be invited to an informal meeting on Monday to arrange a special sight-seeing and "getting to know" Kingston programme.

Programme Co-Chairmen are:

Insect Pathology

Dr. T.A. Angus
Insect Pathology Research
Inst., P.O. Box 490
Sault Ste. Marie, Ontario
Phone: (705) 949-9461

Registration and Local Coordinator

Dr. P. Faulkner
Dept. of Microbiol-
ogy & Immunology,
Queen's University,
Kingston, Ontario
Phone: (613)
547-6620

**Pathology of Invertebrates
Other than Insects**

Dr. A. Rosenfield
National Marine Fisheries
Service, Oxford Laboratory
Oxford, Maryland
Phone: (301) 226-5193

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Congratulations to one of our sustaining members, Fairfax Biological Laboratory, Inc. (Clinton Corners, New York, 12514, USA), for receiving permission to market SKEETER DOOM, a biological mosquito control using the mermithid nematode, *Reesimermis nielsoni*. For a list of susceptible species, dose rate, cost, etc., write to FBL's Vice-president, David A. Chittick.

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MESSAGE FROM THE SECRETARY

As my two-year term of office ends at the conclusion of the upcoming IXth Annual Meeting, I would like to take this opportunity to thank everyone for the trust, support, and cooperation I received. I am indebted to you for the interesting, broadening experience and for the opportunity to learn to know more people and to give counsel on Society matters.

A major responsibility of the Secretary is to appoint an Editor for and to ensure quality and timely distribution of the SIP Newsletter. The Newsletter was a success and a major amount of the credit goes to the Editor, Bea Weaver, for her diligence, dedication, and imaginative style. Miss Weaver solicited material, did all the typing, prepared the mock-up, arranged the printing, and oversaw the distribution--all on her own time. Her contribution was magnanimous and invaluable.

I was disappointed that an insufficient number of ballots for the dues increase (66: 48 in favor) were returned for a mail quorum (30% of the total membership). This is unfortunate because inflation has caught up with the Society's income (mainly from dues, ca \$1,850; interest, ca \$250; and sustaining contributions, ca \$350) and for the Society to hold its own it is only able through frugal stewardship to provide its basic traditional services of four Newsletters and one Annual Meeting. Actually printing and postage for the Newsletter, including the Program and Abstracts for the Annual Meeting, cost about \$2,150 last year, exceeding dues by \$300. If we have to start paying for the labor of organizing, typing, and mailing the Newsletter, our modest bank balance of approximately \$4,000, built up when this was free, would be dissipated in a few years. Annual Meetings in the United States only cost about \$200 since they are held in conjunction with the American Institute for Biological Sciences (AIBS). For this service we pay AIBS \$300 annually from a special assessment of one dollar levied only on U.S. members. Since Annual Meetings held outside the auspices of AIBS, such as the one to be held in Kingston, Ontario, cost \$700-\$1,000, the AIBS affiliation is a good deal. Several persons were against the dues increase because the subscription cost of the Journal of Invertebrate Pathology has increased so much in the past several years. The Journal is owned by Academic Press, not the Society, but Society members get a substantial discount on subscriptions to the Journal because the Society Treasurer handles Journal subscriptions, the Society provides editorial services, and Society members provide most of the manuscripts. Academic Press claims the Journal has only recently become a slightly profitable enterprise, but the Society was not asked to make up past deficits and will only benefit from future profits in the form of individual subscription discounts. Therefore, in future referenda on dues increases, please do not penalize the Society because of the cost of the Journal. The Society has made nice progress, but as the end of its first decade approaches, we definitely need to strengthen its financial position to ensure its continued growth and effectiveness.

John Harshbarger

ADDRESS CHANGES

Dr. D. J. Alderman has moved to:

Ministry of Agriculture, Fisheries and Food
Fisheries Laboratory, Look-out House
The Nothe, Weymouth, Dorset
ENGLAND



International Colloquium on Invertebrate Pathology

IXth ANNUAL MEETING, SOCIETY FOR INVERTEBRATE PATHOLOGY

KINGSTON, ONTARIO, CANADA

August 29th - September 2, 1976

PROGRAM

Sunday Afternoon, August 29

1400 Registration Desk open
2000 Buffet Supper

Monday Morning, August 30

0800 Registration Desk open
0830 Presidential remarks - A.M. Heimpel
0845 Plenary Symposium

No. 1 - Viruses of Invertebrates

Convenors - K. Harrap and P.T. Johnson
Chairman - C. Vago

Insect virus characterization -
essential or irrelevant to identi-
fication and diagnosis. - Keynote
speaker, C.C. Payne

Discussant - W.T. McCarthy
(Baculovirus characterization:
the nuclear polyhedrosis viruses
of Porthetria dispar and Autographa
californica)

Serology as a method for typing insect
viruses. - Keynote speaker, R.A.
DiCapua

Discussant - G. Tignor

Comparisons of insect-grown and cell
culture-grown baculoviruses - Keynote
speaker, M.D. Summers

Discussant - P. Faulkner
(Modification of virulence of
nuclear polyhedrosis virus following
serial passage in vivo and in vitro

Viruses from crustaceans and annelids:
our state of knowledge - Keynote speaker,
J. R. Bonami.

Discussant - P. T. Johnson
(A baculovirus from the blue crab,
Callinectes sapidus)

Molluscan viruses: their occurrence,
culture and relationships - Keynote
speaker, B. J. Hill.

Discussant - C. A. Farley
(Ultrastructure of oyster herpes-
virus)

Properties and comparative aspects of
small isometric viruses of invertebrates
- Keynote speaker, J. F. Longworth.
Discussant - E. Kurstak

12:30-13:30 Lunch

Monday Afternoon, August 30

1400 Concurrent Symposia No. 2 and 3
No. 2 - Current World Status of
Microbial Control of Inverte-
brates.

Convenor - J. Harper
Chairman - R. J. Cibulsky (tentative)

Peoples Republic of China
Speaker, H. C. Chiang
England

Speaker, H. D. Burges (read by
Dr. Entwistle)

Western Europe Exclusive of England
Speaker, G. Benz

Japan
Speaker, K. Aizawa

Canada
Speaker, R. Jaques

U.S.A.
Speaker, J. D. Harper

Australia
Speaker, D. E. Pinnock

1400 No. 3 - The Cultivation of Microsporidia

Convenor - A. Cali
Chairman - E.U. Canning
Co-Chairman - A. Cali

J.A. SHADDUCK, Methods for in vitro
culture of Microsporidia.

E. WEIDNER, Interaction of Microsporidia
with their host cells.

J. COX, Use of cultivated Microsporidia
in serological diagnosis.

Guided Discussion

Chairman - A. Cali

Participants - S.S. Sohi, A.H. Undeen;
J.E. Bismanis; R. Ishihara; J. Henry;
J. Weiser; J. Maddox.

1800-1900 Supper

2000 WG-1: Working Group on the Safety of
Microbial Control Agents
Chairman - M. Laird

Tests on side-effects of pathogens
and pathogen-preparations on ento-
mophagous arthropods.
Dr. J.M. Franz

Discussant - Dr. John Cunningham

Some comparative studies of Micro-
sporidia in cell culture.
Dr. John Shadduck

Discussant - Dr. Albert Undeen

WG-2: Informal Workshop on Entomoph-
thora spp. Attacking Insects
Chairman - R. Soper

WG-3: Business Meeting and Workshop of
the Division of Microsporidia
- Society of Invertebrate Path-
ology
Chairman - Dr. E. Canning

Tuesday Morning, August 31

Concurrent Symposia No. 4 and 5

0830

No. 4 - Tissue Culture in Invertebrate Pathology

Convenors - S.S. Sohi and C. Vago
Chairman - W.F. Hink

- R.H. GOODWIN and J.R. ADAMS, Lepidopteran tissue culture techniques and in vitro baculovirus host range.
G.R. GARDINER and H. STOCKDALE, Research into the commercial production of baculoviruses in insect tissue culture.
R.R. GRANADOS and M. NAUGHTON, Replication of Amsacta moorei Entomopoxvirus in a continuous cell culture from Estigmene acrea.
D. L. KNUDSON, Plaque assay of baculoviruses: visible plaques under solid agarose overlays.
C. VAGO, M. BERGOIN and J. M. QUIOT, Development of cytoplasmic polyhedrosis and entomopox viruses in insect cell cultures.
J. D. PASCHKE, S. R. WEBB and G. R. WAGNER, Multiplication of mosquito iridescent virus in Aedes aegypti cells.
T. J. KURTTI and MARION A. BROOKS, Propagation of microsporidia in cell cultures.
P. LUTHY, P. GEISER, H. R. EBERSOLD and B. TRUMPI, Use of insect cell cultures in the investigation of bacterial and rickettsia pathogenic to insects.

0830

No. 5 - Neoplasms of Invertebrates

Convenor: J. C. Harshbarger
Chairman: C. A. Farley

- A. K. SPARKS, An aberrant Sparganum: a possible neoplasm in a tapeworm.
T. M. RIZKI and R. M. RIZKI, The developmental etiology of hereditary melanotic tumors of Drosophila: a cell-mediated defense response.
E. A. F. GATEFF, Neoplastic growth of genetic origin in Drosophila melanogaster.
M. C. MIX and R. T. RILEY, A pericardial neoplasm in a native (Olympia) oyster, Ostrea lurida, from Yaquina Bay, Oregon.
L. LEIBOVITZ, J. C. HARSHBARGER and P. CHANLEY, A polypoid myoma of the foot of a Spisula solidissima.
R. E. BROWN, R. E. WOLKE and S. B. SAILA, Preliminary report on a field survey of neoplasia in the soft-shell clam, Mya arenaria.
P. P. YEVICH, Occurrence of neoplasms in soft-shell clams, Mya arenaria, collected from oil spill sites.
S. V. OTTO and C. A. FARLEY, Neoplasms in mollusks.

1230-1330 Lunch

1330

Submitted papers - sessions RP 1-2-3-4

The following have been accepted for presentation.

- K. HOOVER and F.B. BANG, Histopathological effects of a virus infection in the shore crab, Carcinus maenas.
V.J. SMITH and N.A. RATCLIFFE, Defensive reactions of the shore crab Carcinus maenas to foreign particles.
A.M. ROUSE, Blue crabs' cellular response to injected particles.
P.T. JOHNSON, An unusual microorganism from the blue crab, Callinectes sapidus.
K.E.G. SARGENT and A. DOMNAS, Experimental infection of Limnoria sp. with a marine Fusarium sp.
M.A. SOLANGI and D.V. LIGHTNER, Cellular inflammatory response of Penaeus aztecus and P. setiferus to the pathogenic fungus, Fusarium sp., isolated from the California brown shrimp, P. californiensis.
C.S. RICHARDS, Relation of amoebocytes to the interaction between Biomphalaria glabrata and Schistosoma mansoni.
L. SILEO and A. GILMAN, Carbofuran induced muscle necrosis in worms.
R.P. DALES, Defense mechanisms of polychaete annelids to bacteria.

RP 2

- J.E. PETERS and R.A. DICAPUA, Specific Monosaccharide inhibition of Porthetria (Lymantria) dispar polyhedrin hemagglutination.
R.A. DICAPUA and P.W. NORTON, Immunocytochemical detection of Porthetria dispar polyhedrin in infected larval hemocytes and tissue culture cells.
P.W. NORTON and R.A. DICAPUA, Nuclear polyhedrosis virus group antigen: resistance to endogenous protease degradation.
D.C. KELLY and A.H. BARWISE and I.O. WALKER, The deoxyribonucleic acid contained by two densovirus viruses.
S.B. PADHI, Effects of alkaline protease from the gypsy moth nuclear polyhedrosis virus on alkali released virions.
G.W. WAGNER and J.D. PASCHKE, A comparison of the DNA of the "R" and "T" strains of Mosquito Iridescent Virus.
T. F. MURPHY and W. J. McCARTHY, Characterization of NPV DNAs.
W. J. McCARTHY and S. LIU, The structural proteins of Porthetria dispar nuclear polyhedrosis virus.
J. R. ADAMS, R. H. GOODWIN and T. A. WILCOX, The Specificity of In Vitro Cellular Responses in Cells of Insect Species Not Susceptible to Certain Baculoviruses.
W. H. R. LANGRIDGE and D. W. ROBERTS, Biochemical characterization of the DNA from an entomopoxvirus from Melanopus sanguinipes (Orthoptera) and comparison with four other entomopoxviruses.

RP 3

- W. A. SMIRNOFF, Biochemical investigations of metabolic changes in insects during a viral infection.
B. A. FEDERICI, Pathology of a Densovirus (Parvovirus?) in Larvae of the Blackfly, Simulium vittatum.
D. B. STOLTZ, Baculovirus-like particles in parasitoid wasps: further observations.
R. HESS, M. D. SUMMERS and L. A. FALCON, Characteristics of a nonenveloped spherical insect virus.
K. N. SCHWENSEN and Y. TANADA, A Comparison of Two Nuclear Polyhedrosis Viruses of Pseudaletia unipuncta.
H. INOUE and Y. TANADA, Thermal Therapy of the Flacherie Virus Disease in the Silkworm, Bombyx mori.

Program

Continued from page 4

- H. F. EVANS and P. F. ENTWHISTLE, The development of infection during a virus epizootic in spruce sawfly populations in mid-Wales.
- A. GRONER, Nuclear polyhedrosis virus of Mamestra brassicae (L.) Its production and application in biological control.
- D. G. BAUGHER and W. G. YENDOL, Foliar and soil applications of nuclear polyhedrosis virus to control Tri-choplusia ni larvae on cabbage.
- W. M. BODE, Bioassay and field testing of a nuclear polyhedrosis virus of the tufted apple budmoth, Platynota idaeusalis (Lepidoptera: Tortricidae).
- J. HUBER and B. DICLER, Efficiency of a granulosis virus for codling moth control.
- G. L. NORDIN, Transovum transmission of a Baculovirus of the fall webworm, Hyphantria cunea.
- RP 4 D.A. STRETT, Analysis of Microsporidian spore proteins by Electrophoresis on SDS polyacrylamide gels: Taxonomic Considerations.
- S. T. JARONSKI, Suppression of the microsporidian Octosporea muscae-domesticae in Phormia regina by Fumagillin.
- B. FARRENS, B. DEVINE, M. SANFILIPPO and T. SPENCER, A pilot study of the effects of chemical pollutants on the pathogenicity of Tetrahymena pyriformis to Tenebrio molitor larvae.
- R. A. LeBRUN, Some aspects of Tetrahymena host specificity to Culicid larvae.
- J. D. KNELL and G. E. ALLEN, Microsporidia associated with fire ant species of the Solenopsis saevissima complex in South America.
- L. C. LEWIS, Migration of Nosema pyrausta infected Ostrinia nubilalis larvae and subsequent dissemination of the microsporidian.
- J. D. POPHAM and J. M. WEBSTER, The effects of heavy metal ions on the fecundity and growth of the nematode, Caenorhabditis elegans.
- T. J. KURTTI, R. E. LOVRIEN, and C. WENSMAN, The effect of stress on the rate of heat production by insects.
- C. SAUNDERS, H. W. ROSSMOORE and K. MAYEDA, Effects of gamma irradiation on hemolymph of Manduca sexta.
- C. KALAVATI and C. C. NARASIMHAMURTI, Nosema termitis Kudo 1943. In a New Termite Host Macrotermes estherae Desm. from India.
- C. C. NARASIMHAMURTI and C. KALAVATI, A New Microsporidian, Pleistophora blatellae n. sp. from Blatella germanica (Orthoptera, Insecta).
- S. T. JARONSKI and R. A. LeBRUN, Lipid and Carbohydrate Changes During Insect Infections by Tetrahymena pyriformis, Strain S.
- 1900 Social hour preceding Society banquet at 2000 hrs.
- Wednesday Morning, Sept. 1
- Concurrent Symposia - No. 6 and 7
- 0830 No. 6 Epizootiology of Invertebrate Pathogens
- Convenors - P. Entwhistle and C. Sindermann
- Chairman - F. B. Bang
- C. C. DOANE, Epizootiology of disease of the gypsy moth, Porthetria dispar.
- H. HASKIN and J. ANDREWS, Epizootiology of Minchinia nelsoni in oysters.
- R. P. JAQUES, Epizootiology of baculovirus disease of cole pests.
- D. V. LIGHTNER, Epizootiology of disease in cultured shrimps.
- P. F. ENTWHISTLE, Development of an epizootic of a nuclear polyhedrosis virus disease in European Spruce Sawfly, Gilpinia hercyniae.
- J. A. QUICK, Jr., Epizootiology of the oyster pathogen, Labyrinthomyxa marina.
- 0830 No. 7 Defence Mechanisms in Invertebrates: Fact and Development of Hypotheses.
- Convenor - J. Stewart
- Chairman: M. R. Tripp
- J. S. CHADWICK and W. P. ASTON, Effector Mechanisms Involved in the Protective Response in Galleria mellonella towards bacterial pathogens.
- T. C. CHENG,
- T. UNESTAM, Defence Reactions Elicited by Fungi.
- J. STEWART, Defence Mechanisms of the American Lobster.
- R. S. ANDERSON, Macrophage Function in Insects.
- N. A. RATCLIFFE, 1230-1330 Lunch
- 1330 Submitted papers - sessions RP 5-6-7-8
- The following have been accepted for presentation:
- RP 5 L.J. BRENNER, D.G. OSBORNE and B.L. SCHUMAKER, Electron microscopy of some endocytic processes in Tetrahymena pyriformis.
- R.S. ANDERSON, Agglutination of transformed cells by an invertebrate lectin.
- C.A. FOSTER, Morphology of the gill of the brown shrimp, Penaeus aztecus Ives.
- L. LEIBOVITZ and T. MEYERS, A shell deforming disease of hard clams (Mercenaria mercenaria)
- A. CALI, Microsporidians for snail and/or trematode control.
- B.V.S.S.R. SUBBA RAO, C. KALAVATI and C.C. NARASIMHAMURTI, A new monocystid gregarine, Monocystis pontodrili n. sp. from the littoral oligochaete, Pontodrilus bermudensis Beddard.
- C. KALAVATI and C.C. NARASIMHAMURTI, A new microsporidian, Octosporea porcellioi n.sp. from Porcellio laevis Latr. (Oniscidae, Isopoda, Crustacea).
- RP 6 H.G. MILTENBURGER and P. DAVID, Establishment of Mamestra brassicae cell lines and NPV-replication.
- D.E. LYNN and W.F. HINK, Replication of Alfalfa Looper (Autographa californica) Nuclear polyhedrosis virus in synchronous insect cell cultures.
- L.E. VOLKMAN, M.D. SUMMERS and H. CHING-HSIU, Comparative neutralization, infectivity and *in vitro* growth studies of occluded and non-occluded nuclear polyhedrosis virus.
- SPIRO J. LOULOUEDES, Sterol metabolism in the insect cell line IPLB-21b (Spodoptera frugiperda).

- H. WOOD, Agar overlay plaque assay of Autographa californica NPV in TN-368 tissue cultures.
- D. W. ROBERTS and A. S. CAMPBELL, Entomopoxvirus interference of vaccinia plaque formation and mouse L cell replication.
- D. J. WITT, Host cell reaction of ultra-violet irradiated nuclear polyhedrosis virus.
- RP 7 R. S. TRAVERS and R. M. FAUST, Inhibition of adenosine triphosphate production by Bacillus thuringiensis var. kurstaki δ -endotoxin.
- C. W. FORSBERG, Bacillus thuringiensis: Its effects on environmental quality (An analysis of commercial and scientific literature).
- R. M. FAUST, R. S. TRAVERS and J. V. THOMPSON, Cation requirements of Bacillus thuringiensis var. kurstaki.
- M. A. BROOKS, T. J. KURTTI and K. R. TSANG, The growth of symbiotes in the ontogeny of an insect.
- P. G. FAST, S.S. SOHI and D. W. MURPHY, On Bacillus thuringiensis δ -endotoxin: Evidence that toxin acts at the cell surface.
- E.S.SHARPE, Toxicity of the Bacillus thuringiensis Paraspore to Japanese Beetle Larvae: Susceptibility, Mid-Gut pH, and Some Histopathological Effects.
- A. A. SORENSEN, L. A. FALCON and C. PICKEL, Improving the effectiveness of microbial insecticides for orchard pest control.
- O. N. MORRIS, Studies on the protection of insect pathogens from sunlight inactivation.
- RP 8 K. AL-AIDROOS and D. W. ROBERTS, Mutants of Metarrhizium anisopliae with altered virulence toward mosquito larvae.
- B. A. FEDERICI, Establishment of an In vivo Laboratory Culture of Coelomomyces dodgii.
- A. J. DOMNAS, R. M. SHIPLEY and B. F. HICKS, Sterol requirement for zoospore production by the mosquito parasite Lagenidium giganteum.
- R. J. MILNER and G. G. LUTTON, Metarrhizium anisopliae: survival of conidia in the soil.
- D. TYRRELL, D. M. MACLEOD AND D. R. WALLACE, Overwintering Survival of Entomophthora aphidis resting spores.
- G.E. ALLEN and L.P. KISH, Monitoring of micro-environmental parameters affecting the development of epizootics of Nomuraea rileyi on the velvet bean caterpillar in soybean.
- D.W. JOHNSON, L.P. KISH and G.E. ALLEN, Field evaluation of the effects of recommended pesticides on natural epizootics of Nomuraea rileyi on the velvet bean caterpillar in soybean.
- L.P. KISH and G.E. ALLEN, A pilot program for predicting infection rates of Nomuraea rileyi on Anticarsia gemmatilis in soybean.
- R.M. SAYRE and W.P. WERGIN, Life cycle of an endoparasite of the plant-parasitic nematode, Meloidogyne incognita.
- 1630 Buses depart for Buffet Supper - Portsmouth Olympic Harbour
- 1830 Buses depart for Retreat and Military Tattoo at Old Fort Henry
- 0830 Annual Business Meeting of the Society for Invertebrate Pathology
Chairman - A.M. Heimpel, President, Society for Invertebrate Pathology.
- 0930 Special Report, A.A. ARATA - The current and planned WHO activities in the biological control of human disease.
Concurrent Symposia No. 8 and 9
- 1000 No. 8 Nema Affecting Invertebrates
Convenor: J. Webster
Chairman: H. Welch (provisional)

(Note: continues after lunch)
- R. A. BEDDING, New methods increase the feasibility of using Neopaplectana spp. (nematode) for the control of insect pests.
- J. R. FINNEY, The culture of mermithid parasites of mosquitoes and blackflies in vitro.
- T. D. GALLOWAY and R. A. BRUST, Observations on mermithid (Nematoda) parasites of mosquitoes (Diptera: Culicidae) in Manitoba.
- R. GORDON, A. CONDON and J. R. FINNEY, Endocrine relations between larval diptera and their mermithid parasites.
- W. R. NICKLE, Toward the commercialization of the "Skeeter Doom" mermithid.
- J. J. PETERSEN, Status and future of mermithid nematodes as control agents of mosquitoes.
- E. G. PLATZER and B. J. BROWN, Physiological Ecology of Reesimermis nielseni.
- G. O. POINAR, Jr., A new life cycle pattern in the Mermithidae.
- B. MONDET and G. O. POINAR, Jr., Recent developments on mermithid parathitism of Simulium damnosum in West Africa.
- T. A. RUTHERFORD and J. M. WEBSTER, Effects of the nematode Mermis nigrescens on some chemical components of the insect host's hemolymph.
- J. WEISER, Steinernema krausei as an insect pathogen.
- W. F. WUELKER, Influence of mermithids (Nematoda) on insect imaginal discs.
- 1000 No. 9 Commercialization of Fungi for Insect Control: Its potential.
Convenor - R. Soper
Chairman - C. C. McCoy
(Note: continues after lunch)
- D. KING Identification of Conidiobolus
- G. REMAUDIERE and R. SARGUES Specificity of Entomopathogenic Fungi.
- R. ENGLER, Environmental and Human Safety.
- M. I. TIMONIN, Formulation and Application of Muscardine fungus
- D. HOSTETTER and C. IGNOFFO, Evaluation of Efficacy of Entomopathogenic Fungi.
- N. WILDING, Determination of the Infectivity of Entomophthora.
- A. SWEENEY, Bioassay of Culicinomyces.
- T. L. COUCH, Commercialization of fungi for insect control.
- 1230-1330 Lunch
Concurrent Symposia
1330 - continuation of Symposia 8 and 9
1500 - WG 3 - Workshop on Fungal Physiology
Chairman: J. P. Latge

PUBLICATIONS

REVIEW: Baculoviruses for Insect Pest Control: Safety Considerations (American Society for Microbiology, 1975, 186 pp., \$9.00)

A working symposium on the safety considerations for use of nuclear polyhedrosis and granulosis viruses was organized by EPA and USDA in Washington, D.C. in April 1974. Now the proceedings of this meeting are presented as a book. All papers from 52 contributors have been updated to the state of the scientific knowledge of May 1975. The positions of USDA and EPA concerning safety of registration and use of viral insecticides are stated in the Introduction.

Part I of the volume, entitled "Biology and Biochemistry of Baculoviruses," deals with not only basic research for characterization of viruses, but also with specificity and mechanism of infection in target insects. Part II is centered predominantly on the ecology of baculoviruses: "Exposure of Environment and Humans to Nuclear Polyhedrosis and Granulosis Viruses." In the last paper of this part the position of WHO on the development, safety and application of insect viruses and other biological control agents is declared. In Part III, "Safety Aspects of Production and Use of Baculoviruses," special problems in connection with production and application of baculoviruses are reported upon. The sum of contributions illustrates that safety considerations emphasize the need for a) tests on identification, standardization and quantification of baculoviruses, b) safety tests with human cell cultures, laboratory animals, wildlife, beneficial insects and plants, c) monitoring of the environment and human population. In Part IV reports and recommendations of the discussion panel are compiled.

In an Appendix the new (1975) "Guidance for Safety Testing of Baculoviruses" mentions the data required by EPA presently for registration purposes. Both the symposium and the proceedings appear at the right time during which an exciting discussion is running on the safety of viral and microbial insecticides with respect to the worldwide bio-hazard problem. Therefore the book should find a wide distribution. It is commendable for all "applied" entomologists, insect pathologists and virologists, as well as for all those who work in the field of pest management.

*Dr. A. Krieg
Darmstadt, Germany*

Pathobiology of Invertebrate Vectors of Disease, edited by Lee A. Bulla, Jr. and Thomas C. Cheng, The New York Academy of Sciences (1975) \$35.00 + \$1.00 handling

The proceedings of a conference held in March 1975, Pathobiology of Invertebrate Vectors of Disease examines pathologic conditions, the biology of causative agents and response reactions as they concern invertebrates. Containing 46 papers and 540 pages, the book provides a broad view of research problems in invertebrate pathobiology and suggests new areas of research. Major points covered include: insects as vectors of pathogenic microorganisms, interactions of insects and microorganisms, molluscs as vectors of parasites, immune mechanisms in molluscs, and the influence of environmental factors on vectors and other invertebrates. Order from:
The New York Academy of Sciences
P.O. Box 5075, F.D.R. Station
New York, New York 10022 USA

The Proceedings of the SIP symposium, "Diseases of Crustaceans," were published under that title in the May-June 1975 (Vol. 37, Nos. 5-6) Marine Fisheries Review. The symposium, held in conjunction with the 1973 AIBS meeting in Amherst, Massachusetts, was conducted by Gilbert B. Pauley, who edited the publication. It includes nine of the sixteen papers presented. For further information contact:

*Dr. Gilbert B. Pauley
USDI, Fish and Wildlife Service
Washington Cooperative Fish. Res. Unit
College of Fisheries WH-10
University of Washington
Seattle, Washington 98195 USA*



A. A. Arata (left), Chief, Vector Genetics and Bionomics, Division of Vector Biology and Control, World Health Organisation (WHO), Geneva, Switzerland; and Sothorn Prasertphon

Dr. Sothorn Prasertphon was selected from among a number of international candidates to assume responsibility as an Invertebrate Pathologist at the WHO Anopheles Control Research Unit in Kaduna, Nigeria, effective March 1976. Dr. Prasertphon was previously with the Entomology section, Department of Agriculture, Bangken, Bangkok, Thailand. He served as an invertebrate pathologist in the diagnosis of insect diseases and mass propagation of biological control agents, particularly bacteria, to be used in the integrated control of agricultural insects in Thailand. In his new position he will be participating in the detection and development of biological agents which may be used in integrated control programs for the interruption of vector-borne diseases. Vector control activities of the World Health Organization include a five-step review system for safety and effectiveness of biological control agents. Dr. Prasertphon will be supported by a network of WHO collaborating centers in Europe and North America for the review of candidate biological agents. Dr. Prasertphon's new address is:

*WHO Anopheles Control Research Unit
P.O. Box 503
Kaduna, Nigeria*

John D. Briggs

MEETINGS

FUTURE

5th Symposium on Animal, Plant & Microbial
Toxins, 8-13 August 1976, San Jose, Costa Rica

Contact R. Bolanos, Inst. Clodomiro Picado,
Universidad de Costa Rica, Ciudad Universitaria,
Costa Rica

International Congress of Entomology,
19-27 August 1976, Washington, D.C., USA

Contact Dr. Ernst C. Bay, P.O. Box 151,
College Park, Maryland 20740 USA

IV International Symposium on Biological Control
of Weeds, 30 August - 2 September 1976,
Gainesville, Florida USA

Contact Dr. T. E. Freeman, Department of Plant Pathology,
University of Florida, Gainesville,
Florida 32601 USA

International Congress for Cell Biology,
6-11 September 1976, Boston, Massachusetts, USA

Contact Dr. K. R. Porter, University of Colorado,
P.O. Box ICCB, Boulder, Colorado 80302 USA

2nd International Symposium on Rapid Methods &
Automation in Microbiology, 19-25 September
1976, Cambridge, United Kingdom

Contact Dr. S. W. B. Newson, SIMS Woodhead Memorial Lab.,
Papworth Hospital, Papworth Everard,
Nr. Cambridge CB3 8RE, United Kingdom

Symposium on Aquatic Pollutants and Biological
Effects with Emphasis on Neoplasia,
27-29 September 1976, New York, New York USA

Contact H. F. Kraybill, National Cancer Institute
Bethesda, Maryland 20014

11th European Marine Biological Symposium,
28 September - 5 October 1976, Galway, Ireland

Contact Prof. O'Ceidigh, University College,
Galway, Ireland

4th Latin American Congress of Parasitology;
4th Central American Congress of Microbiology;
3rd National Congress of Microbiology &
Parasitology, 8-11 December 1976, San Jose,
Costa Rica

Contact Dr. M. Vargas, V. Depto. de Parasitologia,
Facultad de Microbiologia, Universidad de
Costa Rica, Costa Rica, Central America

6th International Congress of Cytology, 2-5 May
1977, Tokyo, Japan

Contact Prof. A. Meisels, Universite Laval,
1050 Chemin Ste. Foy, Quebec, PQ, Canada

III International Conference on Comparative
Virology, 22-25 May 1977, Mont Gabriel, Quebec
Canada

Contact Prof. E. Kurstak, Department of Microbiology
Faculty of Medicine, University of Montreal,
P.O. Box 6128, Montreal 101, Canada

5th International Congress of Protozoology,
26 June - 2 July 1977, New York, New York, USA

Contact Dr. John Lee, Department of Biology, CCNY,
Convent Avenue at 139th Street,
New York, New York 10031 USA

3rd International Congress of Immunology,
1-8 July 1977, Sydney, Australia

Contact Prof. A. L. de Weck, Inst. fur Klinische
Immunologie, Inselspital, CH-3010 Bern, Switzerland

International Symposium on Microbial Ecology,
22-26 August 1977, Denedin, New Zealand

Contact The Executive Officer, The Royal Society of
New Zealand, P.O. Box 12249,
Wellington, New Zealand

2nd International Mycological Congress,
27 August - 3 September 1977, Tampa, Florida,
USA

Contact Dr. M. S. Fuller, Department of Botany,
University of Georgia, Athens, Georgia 30602, USA

3rd International Congress of Plant Pathology,
16-23 August 1978, Munich, Federal Republic
of Germany

Contact Prof. G. Schumann, Biologische Bundesanstalt,
Messeweg 11/12, D-3300 Braunschweig, FRG

IV International Congress of Parasitology
(ICOPA IV), 19-26 August 1978, Warsaw, Poland

Contact Prof. Bernard Bezubik, Department of Parasitology,
University of Warszawa, 00927 Warszawa, Poland

CULTURE COLLECTIONS

Seven responses have been received to the request in the January 1976 SIP Newsletter for information on culture collections of microbial pathogens of invertebrates and collections of cell lines from invertebrate animals. This information will be provided to the International Council for Scientific Unions' Committee on Data for Science and Technology (CODATA), which is planning to publish a "Directory of Data Sources for Science and Technology" to replace the now obsolete 1969 "CODATA International Compendium of Numerical Data Projects." Questionnaires will be sent to each individual responsible for a culture collection for identification of biological data sources to be listed in the "Directory." If you have not yet responded to my request for information on culture collections, I would appreciate hearing from you.

John D. Briggs
Ohio State University
1735 Neil Avenue
Columbus, Ohio 43210 USA

SIP NEWSLETTER

Editor: Beatrice A. Weaver
c/o Department of Entomology, OSU
1735 Neil Avenue
Columbus, Ohio 43210 USA

INTERNATIONAL COLLOQUIUM ON INVERTEBRATE PATHOLOGY
IX ANNUAL MEETING, SOCIETY FOR INVERTEBRATE PATHOLOGY
Queen's University, Kingston, Ontario, Canada
August 29 - September 2, 1976

REGISTRATION AND APPLICATION FOR ACCOMMODATION

I. Registration (Please type or print)

NAME _____

INSTITUTION _____

CITY _____ COUNTRY _____

- Male Female
- Member \$35 (\$40 after June 1)
- Accompanying Associate Member (\$20)
- Graduate Student (\$10 and letter from department chairman)

II. Application for accommodation at Queen's University residence

Please reserve the following accommodation:

- Single Room (one bed)
- Twin room (two beds)

I/We plan to stay the following nights:

- Sunday, August 29th
- Monday, August 30th
- Tuesday, August 31st
- Wednesday, September 1st
- Thursday, September 2nd

Please note: The total fee for accommodation and meals is \$20/person/day and is payable on arrival.

Please return this form with the registration fee to

Dr. Peter Faulkner,
Department of Microbiology and Immunology,
Queen's University,
Kingston, Ontario, CANADA K7L 3N6

The logo consists of the lowercase letters 'sip' in a bold, white, sans-serif font, centered within a solid black rectangular background.

sip

society for invertebrate pathology

COURSES OF INSTRUCTION IN
INVERTEBRATE PATHOLOGY

JUNE 1976

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DOMINICAN REPUBLIC

Introduction to Pathobiology of Fish and Shellfish

Scope: Introduction to disease problems in fish and shellfish of coastal and estuarine waters, including those relating to water pollution

Level: Undergraduate

Prerequisites: Students who are presently in training in biology at the university level, as well as qualified non-matriculated students are eligible.

Instructor: Sophie Jakowska

Institution: Centro de Investigaciones de Biología Marina (CIBIMA)
Universidad Autónoma de Santo Domingo

Address: Santo Domingo, Dominican Republic

Comments: The course is given under a performance contract of the Organization of American States as part of the Multinational Program in Marine Sciences in the Dominican Republic. The programs are prepared in consultation with Drs. Sindermann and Rosenfield of the National Marine Fisheries Service.

ENGLAND

Agricultural Zoology

Scope: The biology, economic importance and management of the animal life for which agricultural ecosystems are a habitat. This includes the biology and epidemiology of the diseases of insect pests

Level: B.Sc. honors program

Prerequisites: Two, or preferably three, advanced level passes in science subjects, one of which must be chemistry, of the British General Certificate of Education, or an equivalent qualification.

Instructors: A. Ibbotson, W. J. S. Kershaw, M. L. Luff, and B. J. Selman

Institution: Department of Agricultural Zoology
University of Newcastle upon Tyne

Address: Newcastle upon Tyne, NE1 7RU, England

Comments: Invertebrate pathology forms an integral part of the course in Agricultural Zoology and is taught against a background of general agriculture. Agricultural microbiology may be studied as a subsidiary course in addition to the invertebrate pathology in Agricultural Zoology.

ISRAEL

Diseases of Invertebrate Pests of Crops

Scope: Diseases of insect and nematode pests caused by fungi, viruses, bacteria, and nematodes. Lectures and laboratory sessions.

Level: Graduate

Prerequisites: Introductory Mycology, Introductory Entomology

Instructors: Dr. I. Harpaz, Dr. R. Kenneth, Dr. E. Cohn

Institution: Faculty of Agriculture, Hebrew University of Jerusalem

Address: P.O. Box 12, Rehovot, Israel

Comments: Language of instruction: Hebrew

JAPAN

Insect Pathology

Scope: Principles of general insect pathology: insect-microbial associations, immunological responses, epidemiology and applications

Level: Upper division undergraduate

Prerequisites: Microbiology

Instructors: J. Aoki and T. Hukuhara

Institution: Tokyo University of Agriculture and Technology

Address: Fuchu, Tokyo, 183, JAPAN

KENYA

Principles of Arthropod Pathology (Entomology 302)

Scope: 1 unit (14 lectures, 7 two-hour seminars and 14 three-hour practicals/semester), Classification of microorganisms causing diseases in insects and description, diagnostic techniques in the laboratory

Level: Undergraduate

Prerequisites: Invertebrate Zoology (Zoo 102)

Instructor: Zaheer Parvez

Institution: University of Nairobi

Address: Box 30197, Nairobi, KENYA

Principles of Insect Pathology (MSE 26)

Scope: 36 lectures and 8 three-hour practicals, Insect virology; identification, strain differentiation and viral ecology; epizootiology; microbial control

Level: M.Sc., insect pathology majors only

Prerequisite: Entomology 302

Instructor: Zaheer Parvez

Institution: University of Nairobi

Address: Box 30197, Nairobi, KENYA

PHILIPPINES, THE

Insect Pathology (Entomology 275)

Scope: 3 units (2 lectures and 1 lab per week), Insect pathology and microbiology including biological relationships between microorganisms and insects

Level: Graduate

Prerequisites: General Entomology and Microbiology

Instructor: Bernardo P. Gabriel

Institution: University of The Philippines at Los Banos

Address: Department of Entomology, College of Agriculture, Laguna, The Philippines 3720

Comments: Offered second semester every odd year

UNITED STATES

ALABAMA

Insect Pathology (Zoology-Entomology 613)

Scope: 5 quarter hours, Principles of insect pathology; non-infectious diseases of insects; the microorganisms associated with diseases in insects and their pathological effects on insects and insect populations; applied microbial control

Level: Graduate

Prerequisites: General Microbiology, Economic Entomology

Instructor: James D. Harper

Institution: Auburn University

Address: Department of Zoology-Entomology, Auburn, Alabama 36830 USA

CALIFORNIA

General Insect Pathology (Entomology 140)

Scope: 5 units (4 lectures and 1 laboratory per week), General principles of insect pathology and insect microbiology; infectious diseases of insects; epizootiology, microbial control

Level: Upper division undergraduate and graduate

Prerequisites: General Entomology, Entomology 100 and at least one course in a microbiological science

Instructors: Y. Tanada and G. O. Poinar

Institution: University of California, Berkeley

Address: Department of Entomological Sciences, Berkeley, California 94720 USA

Advanced Insect Pathology (Entomology 240)

Scope: 3 units (2 lectures and 1 laboratory per week), Advanced consideration of infectious and non-infectious diseases of insects; diagnosis, symptomatology, morphopathology, physiopathology, epizootiology, and microbial control

Level: Upper division undergraduate and graduate

Prerequisite: General Insect Pathology

Instructor: Y. Tanada

Institution: University of California, Berkeley

Address: Department of Entomological Sciences, Berkeley, California 94720 USA

Entomology 260Entomology 293

Scope: Entomology 260--general nematology (including nematode parasites of invertebrates); Entomology 293--diagnosis of insect diseases

Level: Graduate and undergraduate

Prerequisites: General Biology

Instructor: Entomology 260--G. O. Poinar, Jr.; Entomology 293--G. O. Poinar, Jr. and G. M. Thomas

Institution: University of California, Berkeley

Address: See above

Control Methods in Pest Management--Biological and Microbial Agents

4

Scope: Biological control in pest management; techniques for use of parasites, predators, and pathogens against pests; advantages and limitations.
Level: Third-year undergraduate
Prerequisites: Basic courses in pest management, entomology and microbiology
Instructors: Drs. Caltagirone, Falcon, Schroth
Institution: University of California, Berkeley
Address: Department of Entomological Sciences, Berkeley, California, 94720, USA

Insect Pathology

Scope: Pathogenic microbes, fungi and nematodes of insects and an evaluation of their control potential (offered every two years).
Level: Upper-division undergraduate
Prerequisites: General Zoology, General Entomology, Introductory Microbiology recommended
Instructor: F. E. Schreiber
Institution: California State University, Fresno
Address: Department of Biology, Fresno, California, 93740, USA

Insect Pathology (Entomology 231)
Seminar in Insect Pathology (Entomology 257)

Scope: Entomology 231--(4 units), Detailed study of noninfectious diseases of insects, diagnosis, epizootiology, physiological pathology, symptomatology and microbial control; offered spring
Entomology 257--(2 units), Student participation in discussions on selected topics in insect pathology; offered winter
Level: Graduate
Prerequisites: Entomology 231--General Entomology and at least 1 course in microbiology, or consent of instructor
Entomology 257--consent of instructor
Instructor: I. M. Hall
Institution: University of California, Riverside
Address: Department of Entomology, P.O. Box 112, Riverside, California 92502 USA

CONNECTICUT

Pathobiology of Invertebrates

Scope: A study of the invertebrate host response elicited by natural and experimental infections.
Level: Graduate
Prerequisites: Permission of instructor
Instructor: S. Y. Feng
Institution: Biological Sciences Group, University of Connecticut
Address: Storrs, Connecticut, 06268, USA

DISTRICT OF COLUMBIA

Insect Pathology

Scope: Major groups of insect pathogens and their biology; microbial control of pests briefly discussed; laboratory experiments designed to study the morphological and physiological effects of pathogens; offered spring semester
Level: Seniors and graduate students
Prerequisites: Entomology and microbiology
Instructor: Earlene Armstrong
Institution: Howard University
Address: 415 College Street, N.W., Department of Zoology, Washington, D.C. 20059

FLORIDA

Invertebrate Pathology

5

Scope: Infectious and non-infectious diseases of all invertebrates with emphasis on aquatic forms; epizootiology; survey of diseases, histopathology, toxicology, and resistance

Level: Graduate

Prerequisites: Cell biology, microbiology, parasitology, invertebrate biology, or zoology

Instructor: John A. Couch

Institution: University of West Florida

Address: Department of Biology, Pensacola, Florida USA

Comments: Classes consist of from 10-15 graduate students; offered spring quarter every other year--1976, 1978, 1980)

Insect Pathology (EY 640)

Microbial Control (EY 642)

Scope: EY 640 (5 quarter hours)--The interrelationship of insects and pathogenic microorganisms; history, classification, morphology, mode-of-action, and epidemiology of entomogenous pathogens; EY 642 (5 quarter hours)--Principles and concepts of the utilization of insect pathogens in integrated pest management systems

Level: Graduate

Prerequisites: EY 640--Microbiology 302; EY 642--EY 640

Instructor: G. E. Allen

Institution: University of Florida

Address: Entomology and Nematology Department, Gainesville, Florida 32611 USA

IOWA

Insect Pathology (Entomology 673)

Scope: Principles of insect pathology and microbiology; infectious and non-infectious diseases of insects; diagnosis, prevention, and use of entomogenous pathogens in insect population management.

Level: Graduate

Prerequisites: General Entomology and a course in microbial science

Instructor: Clayton Beegle

Institution: Iowa State University

Address: Department of Entomology
Ames, Iowa, 50010, USA

Comments: Offered winter 1977 and alternate years

KENTUCKY

Insect Pathology (Entomology 626)

Scope: Principles of insect pathology related to the etiology, diagnosis, pathogenesis, gross pathology, histopathology, and epizootiology of insect diseases, with emphasis on infectious diseases caused by occluded viruses, bacteria, fungi, and protozoans.

Level: Graduate

Prerequisites: Permission of instructor

Instructor: Gerald L. Nordin

Institution: University of Kentucky, Department of Entomology

Address: Lexington, Kentucky, 40506, USA

MARYLAND

6

Invertebrate Pathology (Entomology 462)

Scope: Two 1-hour lectures and one 3-hour laboratory per week.
A survey of invertebrate pathogens.

Level: Advanced undergraduate and graduate

Prerequisites: One semester of microbiology and one semester of insect physiology or permission of instructor

Instructor: Charles F. Reichelderfer

Institution: University of Maryland

Address: Department of Entomology, College Park, Maryland, 20742, USA

Comments: This course is designed to familiarize the student with the best known invertebrate pathogens and with laboratory techniques which are useful to the invertebrate pathologist. Volumes I and II of Insect Diseases, edited by George E. Cantwell, are supplemented with readings from current issues of the Journal of Invertebrate Pathology.

Comparative Pathology of Invertebrates (Pathobiology 19)

Scope: Biological problems involved in a variety of diseases especially among marine invertebrates. This large variety of animals has as a result of very different physiological mechanisms also a large variety of defense mechanisms against disease. The invertebrates thus offer opportunities to study many basic pathological problems such as viral infections, cellular and extra-cellular clotting, and ciliary mechanisms response to endotoxin. Lectures will deal with these problems, and the laboratory will introduce several experimental models. A field trip to the Marine Fisheries Laboratory (Director: Dr. Aaron Rosenfield) at Oxford, Maryland, is included in this course.

Level: Graduate

Prerequisites: None

Instructor: Dr. Frederik B. Bang and staff
Dr. Aaron Rosenfield and staff (field trip)

Institution: Johns Hopkins University School of Hygiene and Public Health

Address: Department of Pathobiology, 615 North Wolfe Street,
Baltimore, Maryland 21205 USA

Comments: Offered in odd-numbered years

MINNESOTA

Insect Microbiology 8350

Scope: (5 credits) The physiological and anatomical relationships of microorganisms, exclusive of the nematodes, associated with insects; the extremes of relationships, from beneficial to pathological are pointed out; emphasis is placed on the extensive role of certain microorganisms in the nutrition and reproduction of insects, and the possibilities of man's use of pathogens in the biological control of insects

Level: Graduate

Prerequisites: Consent of instructor

Instructor: Marion A. Brooks-Wallace

Institution: University of Minnesota

Address: Department of Entomology, Fisheries, and Wildlife
St. Paul, Minnesota, 55108, USA

Comments: Offered 1975-76 and alternate years or when demand warrants

MISSISSIPPI

7

Insect Pathology (Entomology 8453)

Scope: A three-credit course with two lectures and two hours in the laboratory, offered in the fall. A study of abnormal conditions among insects as caused by non-infectious and infectious diseases. A survey of the physical, mechanical, chemical physiological, and genetic non-infectious diseases. The relationship between microorganisms and insects is studied and diseases caused by bacteria, fungi, protozoa, nematodes, and viruses are examined in detail

Level: Graduate

Prerequisites: General Microbiology

Instructor: Peter P. Sikorowski

Institution: Mississippi State University

Address: Department of Entomology, P.O. Drawer EM
Mississippi State, Mississippi, 39762, USA

Parasites of Marine Animals (Zoo 461)

Scope: A study of the parasites of marine animals with emphasis on morphology, taxonomy, life history, and host-parasite relationships (6 hours)

Level: Graduate or undergraduate

Prerequisites: General parasitology or permission of instructor

Instructor: Dr. Robin M. Overstreet

Institution: Gulf Coast Research Laboratory

Address: P.O. Box AG, Ocean Springs, Mississippi, 39564, USA

Comments: Six-week course taught every other summer during even years

MISSOURI

Comparative Immunology

Scope: Invertebrate and lower vertebrate immune responses or defense reactions to bacteria, viruses, grafts, and parasites

Level: Graduate

Prerequisites: General zoology, physiology and invertebrate zoology would be helpful

Instructor: Dr. Dorothy Feir

Institution: St. Louis University

Address: Biology Department, St. Louis, Missouri 63103 USA

Comments: Course is primarily a discussion of assigned readings; offered fall semester every even-numbered year

NEW JERSEY

Insect Pathology

Scope: Principles of insect pathology; nuclear polyhedrosis, granulosis, cytoplasmic polyhedrosis and non-occluded viruses; bacterial diseases of insects; protozoan, fungal and rickettsial diseases; parasitic and helminthic diseases; insect vectors of animal and plant disease agents; invertebrate immunity and latency, physiopathology; histochemistry; nutritional and genetic diseases; tumors

Level: Graduate

Prerequisites: Acceptance to graduate program in entomology or microbiology

Instructor: K. Maramorosch, A. H. McIntosh, and S. B. Padhi

Institution: Rutgers--The State University

Address: New Brunswick, New Jersey 08903 USA

Comments: Offered every second semester

Insect Pathology (Entomology 453)

Scope: A survey of diseases caused by viruses, bacteria (including Rickettsiae and spirochetes), fungi and protozoans, with emphasis on pathogenesis, pathologies, and epidemiology; the role of microbial disease in natural and applied control (offered spring)

Level: Upper division undergraduate and graduate

Prerequisites: Entomology, microbiology and permission of instructor

Instructor: John P. Kramer

Institution: Cornell University

Address: Ithaca, New York, 14853, USA

Problems in Invertebrate Pathology

Scope: Selected topics for discussion, literature (current) study, and a laboratory research problem

Level: Senior-level undergraduate and graduate

Prerequisites: Permission of instructor

Instructor: A. J. Nappi

Institution: State University of New York

Address: Oswego, New York, 13125, USA

NORTH CAROLINA

Insect Pathology (Entomology 520)

Scope: Treatment of the noninfectious and infectious diseases of insects, the etiological agents and infectious processes involved, immunological responses and applications (3 credit hrs)

Level: Graduate, upper division undergraduate

Prerequisites: Introductory courses in entomology and microbiology

Instructor: Wayne M. Brooks

Institution: North Carolina State University

Address: Department of Entomology, Raleigh, North Carolina 27607 USA

Comments: Offered spring 1977 and alternate years

OHIO

Insect Pathology (Entomology 741)Special Topics in Invertebrate Pathology (Entomology 796.10)

Scope: Entomology 741 is a general introduction to insect pathology. Both courses cover the treatment of infectious and non-infectious diseases of invertebrates, with particular emphasis on insects.

Level: Advanced undergraduate and graduate

Prerequisites: Introductory Microbiology for 741; and Entomology 741 or permission of instructor for 796.10

Instructors: W. F. Hink (Ent. 741)
W. F. Hink, G. R. Stairs, and J. D. Briggs (Ent. 796.10)

Institution: The Ohio State University

Address: Department of Entomology, Columbus, Ohio, 43210, USA

OREGON

Integrative Mechanisms in Invertebrates

Scope: Internal defense mechanisms, pheromonal communication and neuroendocrinology of major invertebrate groups

Level: Upper division undergraduate and graduate

Prerequisites: Invertebrate Zoology

Instructor: C. J. Bayne

Institution: Oregon State University

Address: Corvallis, Oregon 97331 USA

Comments: Offered spring quarter annually

PENNSYLVANIA

Insect Pathology (Entomology 536)

Scope: Diseases of arthropods and some aspects of microbial control of insects, including laboratory investigations
 Level: Graduate
 Prerequisites: Introductory microbiology
 Instructor: Dr. William G. Yendol
 Institution: The Pennsylvania State University
 Address: Entomology Department, University Park, Pennsylvania, 16802, USA
 Comments: Offered winter 1975 and alternate years

WASHINGTON

Invertebrate Pathology (Fish. 504)

Scope: A survey of diseases of economically important molluscs and crustaceans with emphasis primarily on infectious diseases, but with some discussion of inflammation, disturbances of growth, neoplasia, etc. (5 credit hours)
 Level: Graduate
 Prerequisites: Diseases of Fishes (Fish. 454) and General Microbiology (Micro. 301)
 Instructors: Marsha L. Landolt and Gilbert B. Pauley
 Institution: University of Washington
 Address: College of Fisheries, WH-10, Seattle, Washington, 98195, USA
 Comments: Offered annually, winter quarter. The course also includes a brief introduction to the diseases of insects. Currently it is a straight lecture format, but we hope to modify the course next year and include laboratory sessions.

WISCONSIN

Insect Pathology (Entomology 710)

Scope: Insect-microbial associations, particularly pathogenic (ranging from chance contamination to obligate pathogenicity). The course is based on laboratory studies. Proof of pathogenicity (Koch's Postulates) and quantitation of normal v. disease states from the standpoint of the entire association as well as on the cellular and subcellular level are stressed.
 Level: Graduate
 Prerequisites: Microbiology or permission of instructor
 Instructors: G. Mallory Boush and H. C. Coppel
 Institution: University of Wisconsin
 Address: Department of Entomology, 237 Russell Laboratory
 Madison, Wisconsin, 53706, USA

CANADA--The Insect Pathology Research Institute (P.O. Box 490, Sault Ste. Marie, Ontario, Canada offers postdoctoral fellowships sponsored by the National Research Council (Dr. T. A. Angus)

U.S.--The National Oceanic and Atmospheric Administration (Marine Fisheries Service, 4700 Avenue U, Galveston, Texas, 77550, USA) offers a cooperative graduate program in marine biology with the Department of Biology, University of Houston (4800 Calhoun, Houston, Texas, 77004 USA) in which invertebrate pathology is offered, concentrating on diseases of shrimp (Dr. Jorge K. Leong, NOAA)

QUESTIONNAIRE

To assist us in answering inquiries from prospective students of invertebrate pathology, would you please send the following course information to:

*John C. Harshbarger (Secretary, SIP)
National Museum of Natural History
Room W216-A, Smithsonian Institution
Washington, D.C. 20560 USA*

The information will be included in a future SIP Newsletter

Name of course(s):

Scope of course(s):

Level of course(s):

Prerequisites:

When and how often offered:

Name of instructor(s)

Name of institution:

Address of institution:

Additional comments:

Note: If you completed the earlier questionnaire, please provide us with updated information.