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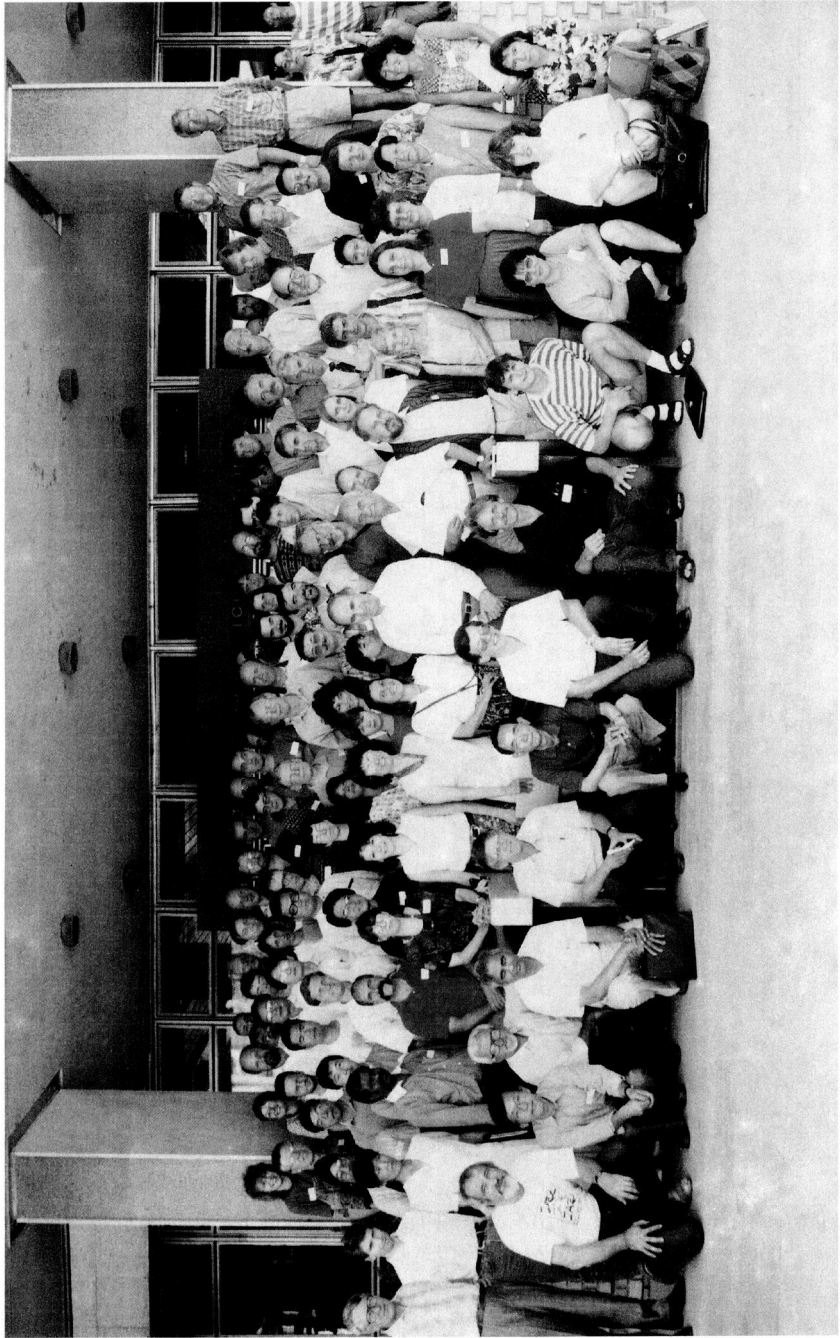
XIth ECDYSONE WORKSHOP

organized by the Institute of Entomology of the Czech Academy of Sciences

České Budějovice (Czech Republic), 29th June – 2nd July 1994

Editor: František SEHNAL

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EDITORIAL: ABOUT THE WORKSHOP

The XIth Ecdysone Workshop was organized by the Entomological Institute, Czech Academy of Sciences, on the request of participants of the previous Xth Workshop (Liverpool, 1993). The Programme outline for the XIth Workshop was assembled by an international Programme Committee that included leading scientists in the field: X. Bellés (Spain), P. Cherbas (USA), J.-P. Delbecq (France), L. Dinan (U.K.), L.I. Gilbert (USA), J. Koolman (Germany), L.I. Korochkin (Russia), R. Lafont (France), P. Maróy (Hungary), H.H. Rees (U.K.), L.M. Riddiford (USA), and O. Yamashita (Japan).

Over 140 scientists and PhD students from 22 countries convened at the Workshop, making it a representative forum for reviewing state-of-the-art of current ecdysteroid research. We are most grateful to several sponsors who financially supported the meeting. Participation of most students and young scientists was facilitated by the contribution we obtained for this purpose from the Peter Karlson-Stiftung, which also provided support for the Karlson Lecture. Presence of leading Russian scientists was made possible by grants from the International Science Foundation. Financial contributions were also received from Rohm and Haas Co. (USA), Merck Spol. s r.o. (Czech Republic), and from Blackwell Scientific Publications Ltd. (UK).

Prof. Peter Karlson, who kindly accepted our invitation as Honorary Chairman, opened the XIth Workshop with remarks on the history of ecdysteroid research. The following programme consisted of the prestigious Karlson-Lecture delivered by Prof. Huw H. Rees (see p. 9), 57 oral contributions, and 52 posters. Two round-table discussions were organized: one about coordination of ecdysteroid research and the other about commercial exploitation of ecdysteroids. Profs. P. Karlson and R. Lafont prepared technical notes relevant to these subjects (pp. 7 and 391).

Papers accepted for publication in this issue of *Eur. J. Entomol.* cover all major areas of ecdysteroid research. Some of the topics have little bearing to entomology but selected articles were included for the sake of completeness. A list of unpublished contributions is attached to this editorial. We believe that it will help the readers to assess progress in ecdysteroid research and will facilitate establishment of contacts among scientists working on related projects. Citations are arranged according to their topics.

František Sehnal and Karel Sláma
(on behalf of the organizers)

UNPUBLISHED CONTRIBUTIONS

GENERAL ENDOCRINOLOGY

M.L. Grieneisen (Univ. Nevada, Reno Dept. Biochem. 330, Reno, NV 89557-0014, USA): A set of computer databases relevant to arthropod endocrinology.

ARTHROPOD ECDYSTEROID CHEMISTRY AND METABOLISM

J.T. Warren & L.I. Gilbert (Univ. North Carolina, Dept. Biol., 342 Wilson, Box 3280, Chapel Hill, NC 27599-3280, USA): Cholesterol 7,8-dehydrogenation.

M.F. Feldlaufer & K. Hartfelder (USDA-ARS, Bldg. 467, BARC-EAST, Beltsville, MD 20705, USA): Comparison of neutral sterols and ecdysteroids between the honey bee *Apis mellifera* and the parasitic mite, *Varroa jacobsoni*.

C. Dauphin-Villemant, J.Y. Toullec, D. Böcking, C. Blais & R. Lafont (Ecole Normale Supérieure, URA 686, 46 Rue d'Ulm, 75230 Paris Cedex 05, France): Ecdysteroid biosynthesis by crustacean molting glands: in vitro analysis using dissociated cells of *Carcinus maenas* Y-organs.

D. Böcking, C. Dauphin-Villemant, J.Y. Toullec, C. Blais & R. Lafont (Univ. Bonn, Inst. Zoophysiol., Enderischer Allee 11-13, 53115 Bonn, Germany): Analyzing the early steps of ecdysteroid biosynthesis in crustacean Y-organs: a different in vitro approach.

S. Sakurai, Y. Nomura, M. Komatsuzaki & M. Iwami (Kanazawa Univ., Fac. Science, Dept. Biol., Kakumamachi, Kanazawa 920-11, Japan): 3-Dehydroecdysone reductase in *Bombyx* larval haemolymph.

M.J.P. Blackford, B.S. Clarke & L.N. Dinan (Univ. Exeter, Washington-Singer Labs., Perry Road, Exeter EX4 4QG, UK): Metabolism of ingested phytoecdysteroids by larval Lepidoptera.

Jian-Hua Chen, M. Kabbouh, M.J. Fisher & J.H. Rees (Univ. Liverpool, Dept. Biochem., Liverpool L69 3BX, UK): Induction of an ecdysteroid inactivation pathway in last instar larvae of the cotton leaf-worm, *Spodoptera littoralis*.

M. Báthori, H. Kalász & I. Máthé (Albert Szent-Györgyi Med. Univ., Inst. Pharmacognosy, Eötvös Str. 6, 6720 Szeged, Hungary): Displacement thin-layer chromatography of some ecdysteroids.

P.G. Roussel, N.J. Turner & L. Dinan (Univ. Exeter, Chemistry Dept., Stocker Road, Exeter EX4 4QD, UK): Synthesis of structural analogues of ecdysone.

ECDYSTEROID SOURCES AND PRODUCTION CONTROL

J.P. Delbecque, J.L. Connat & R. Lafont (Univ. Bourgogne, Lab. Zool., CNRS 674, 21000-Dijon, France): The diversity of ecdysteroid sources: questions and hypotheses.

M.J. Mitchell & S.L. Smith (Murray State Univ., Dept. Biol. Sci., Blackburn Science Bldg., Murray, KY 42071, USA): Ecdysone 20-monooxygenase activity in adult *Aedes aegypti*: evidence for tissue specific regulation.

L.O. Lomas, R.M. Magee & H.H. Rees (Univ. Liverpool, Dept. Biochem., Liverpool L69 3BX, UK): Tissue-specific incorporation of 3-oxoketodiol into ecdysone precursors in the ixodid tick, *Amblyomma hebraeum* (Koch): an assessment of tissue-specific steroidogenesis.

M. Trabalon, A.M. Bautz, N. Hartmann & P. Porcheron (Univ. Nancy I, Lab. Behavior. Biol., Fac. Sci., B.P. 239, 54506 Vandoeuvre-des Nancy, France): Life cycles, ovarian development and hemolymphatic ecdysteroid levels in *Tegenaria atrica* (Araneae).

H. Decker & R. Foll (Univ. München, Zool. Inst., Luisenstr. 14, 80333 Munich, Germany): Do hemocyanins bind ecdysteroids?

K. Richter (Sächsische Acad. Wissenschaft., Erbertstr. 1, 07703 Jena, Germany): Moulting regulation in the cockroach, *Periplaneta americana*.

K.H. Hoffmann, M. Lenz, M.J. Loeb, R.M. Wagner & J.P. Kochansky (Univ. Ulm, Abt. Allgemeine Zool., 89069 Ulm, Germany): Testis ecdysiotropin from *Lymantria dispar* (Lepidoptera) stimulates ecdysteroid synthesis in adult *Gryllus bimaculatus* (Ensifera).

Y.J. Hua & J. Koolman (Phillips Univ., Physiol.-Chem. Inst., Deutschhausstr. 1, D-35033 Marburg, Germany): Mode of action of a prothoracicostatin.

J. Koolman, Y.J. Hua, D. Bylemans & A. De Loof (as above): Ecdysone biosynthesis in flies is inhibited by a hexapeptide.

H. Birkenbeil (Sächsische Acad. Wissenschaft., Erbertstr. 1, 07703 Jena, Germany): Calcium in prothoracic glands of *Galleria mellonella* L. (Lepidoptera).

D. Žitňan, F. Sehnal & N.E. Beckage (Univ. California, Dept. Entomol., Riverside, CA 92502, USA): Novel neurosecretory pathways and endocrine cells that may regulate activity of the prothoracic glands in moths.

P. Harvie & P. Bryant (Univ. California, Dev. Biol. Center, Irvine, CA 92717, USA): Enhancer-trapping in the ring gland of *Drosophila melanogaster*.

L.I. Korochkin & I.Y. Rauschenbach (Kolkov Inst. Biol., Acad. Sci., Vavilova str., 117808 Moscow, Russia): Genetic system which controls the neuroendocrine regulation of development in *Drosophila* of the *virilis* group.

EFFECTS AT ORGANISMIC AND TISSUE LEVELS

M.J. Zelle, P.A. Langley & H.H. Rees (Liverpool Univ., Dept. Biochem., P.O.Box 147, Liverpool L69 3BX, UK): Ecdysteroids and juvenile hormones in the development and reproduction of the tsetse fly, *Glossina morsitans morsitans*.

Zhang-wu Zhao & Mei-xun Cao (Shanghai Inst. Entomology, Acad. Sinica, 225 Chongqing Road S., Shanghai 200025, China): Larval diapause of the Asian corn borer *Ostrinia furnacalis* (Guenee).

K. Hartfelder, K. Kostlin & Ch. Hepperle (Univ. Tübingen, Zool. Inst., Auf der Morgenstelle 28, D-72076 Tübingen, Germany): Ecdysteroid-dependent protein synthesis in ovaries of honey bee (*Apis mellifera*) larvae during a critical period of caste differentiation.

D. Žitňan, T.G. Kingan & N.E. Beckage (Univ. California, Dept. Entomol., Riverside, CA 92502, USA) Hornworms under arrest: does parasitism by the wasp *Cotesia congregata* suppress release of neuropeptides from the nervous and endocrine systems of *Manduca sexta*?

C. Royer, P. Porcheron & B. Mauchamp (INRA, Unité Nationale Séricicole, 25 quai J.J. Rousseau, 69350 La Mulatière, France): A new enzyme immunoassay of makisterone A. Quantification of C-24 alkyl ecdysteroids in developing embryos of the cotton bug, *Dysdercus fasciatus*.

A.G. Akimov (St. Petersburg Univ., Lab. Entomol. Stary Petergof, 198904 St. Petersburg, Russia): Role of ecdysone in the control of phenoloxidase cascade activity in the haemolymph of blowfly larvae.

D.E. Babu & D. Sedlmeier (Univ. Bonn, Inst. Zoophysiol., Eendenicher Allee 11-13, 53115 Bonn, Germany): Effect of 20-hydroxyecdysone on protease release from crustacean epidermis.

M. Morinière, P.J. Hatt, H. Oberlander & P. Porcheron (Ecole Normale Supérieure, 46 Rue d'Ulm, 75005 Paris, France): 20-hydroxyecdysone-regulated synthesis of proteoglycans during differentiation of insect epidermal cells in vitro.

P.M. Hopkins & D.S. Durica (Univ. Oklahoma, Dept. Zool., Norman, OK 73019, USA): Ecdysteroids and retinoids in the early blastema of regenerating limbs in the fiddler crab *Uca pugilator*.

CONTROL OF GENE EXPRESSION

H. Beneš, C. Antoniewski & R.L. Willis (Univ. Arkansas for Medical Sci., Dept. Biochem. Mol. Biol., Slot 516, 4301 W. Markham St., Little Rock, AR 72205, USA): Analysis of an EcRE in the fat body-specific *Drosophila* LSP-2 gene.

R. Farkaš (Sibírska 34, 831 02 Bratislava, Slovakia): Gene regulating activity of ecdysteroid-inducible proteins from *Drosophila melanogaster*.

J.A. Lepesant (CNRS Inst. Jacques Monod, Dept. Dev. Biol., Tour 43-2, Place Jussieu, 75251 Paris Cedex, France): Ecdysone regulation of transcription in *Drosophila*.

C. Antoniewski, M. Laval, A. Dahan & J.A. Lepesant (CNRS Inst. Jacques Monod, Dept. Dev. Biol., Tour 43-2, Place Jussieu, 75251 Paris Cedex, France): Characterization of an ecdysone response element in the proximal promoter of the ecdysone-inducible Fbpl gene of *D. melanogaster*.

H. Hirsch, G. Kelber, B. Obermaier-Skrobranek & P. Wolbert (Theodor-Boveri-Inst., Lehrstuhl Zool. 1, Am Hubland, D-97074 Würzburg, Germany): Molecular characterization and developmentally regulated expression of a pupal cuticular protein in *Galleria mellonella* L.

M. Lehman & G. Korge (Freie Univ. Berlin, Genetic Inst., Arnimallee 5-7, D-14195 Berlin, Germany): Ecdysone receptor and sebp 3 synergistically activate transcription of the *Drosophila melanogaster* SGS-4 gene.

Cherbas L. & Cherbas P. (Dep. Biol., Indiana Univ., Jordan Hall 142, Bloomington, USA): Targeted mutagenesis of EcR in *Drosophila* Kc cells.

K. Hiruma, R. Lafont & L.M. Riddiford (Univ. Washington, Dept. Zool., Seattle, WA 98195, USA): Biological activities of various ecdysteroids in *Manduca sexta*.

M. Lezzi (Inst. Cell Biology, ETH-Honggerberg, CH-8093 Zürich, Switzerland): Questions about the ecdysteroid receptor.

J.F. Mouillet, L. Bretillon, B. Quennedey, H. Bouhin & J. Delachambre (Univ. de Bourgogne, Fac. Sci., URA-CNRS 674, F-21000 Dijon, France): Developmental profiles of EcR and several members of the steroid hormone receptor superfamily during the metamorphosis of *Tenebrio* epidermis.

L.M. Riddiford, H. Fujiwara, R. Newitt, S.R. Palli, L. Maves, K. Hiruma, M. Jindra, J. Huang & F. Malone (Univ. Washington, Dept. Zool., NJ 15, Seattle, WA 98195, USA): Developmental expression of the ecdysone receptor and ups in *Manduca* epidermis and wing discs during larval life and metamorphosis.

L. Swevers, J. Drevet, M. Lunke & K. Iatrou (Univ. Calgary, Dept. Medical Biochem., 3330 Hospital Dr. N.W., Calgary, Alberta T2N 4N4, Canada): Cloning and expression of the ecdysone receptor of *Bombyx mori* during follicular cell differentiation.

A. Tsitsekli & L. Dinan (Dept. Biol. Sci., Washington Singer Labs., Perry Road, Exeter EX4 4QG, U.K.): Molecular size and composition of the ecdysteroid receptor complex in the tumorous BII cell line of *Drosophila melanogaster*.

M. Lezzi, I. Wegmann, R. Tanguay & M. Vogtli (Inst. Cell Biol., ETH-Honggerberg, CH-8093 Zürich, Switzerland): Co-localization of ecdysteroid receptor and heat shock proteins at specific loci of polytene chromosomes of *Chironomus*.

PHYTOECDYSTEROIDS

Chong-Ren Yang (Kunming Inst. Botany, Acad. Sinica, Lab. Phytochem., Heilontan, 650204 Kunming, China): Occurrence of β -ecdysone in *Cyanotis arachinoidea* and other commelinaceous plants.

J.H. Adler, R.J. Grebenok & S. Ventakachari (Michigan Technological Univ., Houghton, MI 49931, USA): Biosynthesis and putative regulation of ecdysteroids in spinach.

U.A. Baltaev (Inst. Plant Compound Chem., Uzbek Acad. Sci., Tashkent, Uzbekistan): Ecdysteroids of *Rhaponticum* genus.

E. Varga, Z. Hajdu, K. Veres, L. Hornok & I. Máthé (Albert Szent Györgyi Medical Univ., Inst. Pharmacognosy, Eötvös str. 6, H-6720 Szeged, Hungary): *Leuzea carthamoides* DC., an ecdysteroid-containing adaptogenic plant.

J. Havelka, J. Zelený & K. Sláma (Inst. Entomol., Czech Acad. Sci., Branišovská 31, 370 05 České Budějovice, Czech Republic): Interactions between ecdysteroids of *Leuzea carthamoides* and entomofauna of an agroecosystem.

P. Šimek, H. Zahradníčková, A. Heydová, K. Sláma & A. Jegorov (Inst. Entomol., Czech Acad. Sci., Branišovská 31, 370 05 České Budějovice, Czech Republic): Large-scale isolation of ecdysteroids from *Leuzea*.

M. Báthori, K. Melis, L. Praszna, I. Máthé, J.P. Girault & R. Lafont (Albert Szent-Györgyi Med. Univ., Institut Pharmacognosy, Eötvös Str. 6, 6720 Szeged, Hungary): *Serratula* species with high 20-hydroxyecdysone content: *Serratula tinctoria* (L.), a plant that has a peculiar ecdysteroid spectrum.

N. Reixach, J. Coll, F. Sanchez-Baeza, F. Camps & J. Casas (CSIC, Dept. Biol. Org. Chem., J. Girona 18-24, 08034 Barcelona, Spain): Identification of new phytoecdysteroids in in vitro cultures of *Polypodium vulgare*.

N. Reixach, E. Melé, J. Messegueur, F. Camps & J. Casas (CSIC, Dept. Biol. Org. Chem., J. Girona 18-24, 08034 Barcelona, Spain): Ecdysteroid production in prothalli culture of *Polypodium vulgare*.

K. Vokáč, M. Buděšínský & J. Harmatha (Inst. Org. Chem. Biochem., Czech Acad. Sci., Flemingovo nám. 2, 166 10 Praha 6, Czech Republic): Ecdysteroids from the mushroom *Tapinella panuoides* (syn. *Paxillus panuoides*).

M.P. Calcagno, F. Camps, J. Coll, E. Melé & J. Messegueur (CSIC, Dept. Biol. Org. Chem., J. Girona 18, 08034 Barcelona, Spain): Variability of ecdysteroid production in *Ajuga reptans*.

M.P. Calcagno, F. Camps, J. Coll & E. Melé (CSIC, Dept. Biol. Org. Chem., J. Girona 18, 08034 Barcelona, Spain): New 22-oxoecdysteroids from *Ajuga reptans*.

NON-STEROIDAL MOLTING HORMONE AGONISTS

G.R. Carlson, T.S. Dhadialla, C. Thompson, R. Ramsay, M. Thirugnanam, W. James & R. Slawecki (Rohn and Haas Co, 727 Norristown Rd, Spring House, PA 19454, USA): Insect toxicity, metabolism and receptor binding characteristics of the non-steroidal ecdysone agonist, RH-5992.

J.J. Brown (Washington State Univ., Dep. Entomol., Pullman, WA 99164-6382, USA): Movement of a non-steroidal ecdysteroid agonist through three trophic levels: food, host and primary parasitoid.

M. Friedländer & J.J. Brown (Ben Gurion Univ., Dept. Life Sci., Beer Sheva 84105, Izrael): Mimic® a non-ecdysteroid ecdysone agonist, induces spermatogenesis reinitiation in isolated abdomens of diapausing codling moth larvae.

MEDICAL PROSPECTS OF ECDYSTEROID RESEARCH

L. Šelepová, D. Magić & V. Vajda (Univ. Veter. Medicine, Komenského 73, 041 81 Košice, Slovakia): The effect of *Rhaponticum carthamoides* Wild on growth and development of the reproductive organs in mammals.

V. Volodin, Yu. Tyukavin, N. Politova & V. Proshera (Inst. Biol., Russian Acad. Sci., Kommunisticheskaya ul. 28, 167610 Syktyvar, Komi, Russia): Perspectives of use of conjugates of 20-hydroxyecdysone with membranotropic agents in drug delivery systems.