

*FIFTEENTH*

**MONA SYMPOSIUM 1994**

**NATURAL PRODUCTS &  
MEDICINAL CHEMISTRY**

Mona, Jamaica  
January 3 – 7  
1994



**SCIENTIFIC PROGRAMME**

AND

**ABSTRACTS OF SHORT PAPERS**

Department of Chemistry  
THE UNIVERSITY OF THE WEST INDIES

## TRIBUTE TO LEONARD HAYNES

The University of the West Indies owes a great deal to Leonard Haynes who was its second Professor of Chemistry. He joined the institution when it was still a University College in special relationship with the University of London and served with distinction as one of the leaders who helped it guide us to full University status and recognition in the fraternity of universities. He expanded our research and promoted new developments in our teaching and, as many of you know, was one of the founders of this conference.

He made a very significant contribution indeed in teaching and research. He was a good judge of people and attracted and encouraged good people and particularly sought out local persons; I dare say the fact that I myself am in UWI is very much at his initiative and even responsibility. He contributed enormously to establishing the departmental consciousness and pride that I believe remains one of the driving forces of the department even today nearly twenty-five years after he left Mona to assume the Chair of Chemistry at the Open University.

UWI appreciates his contribution as Head of Department and Dean of the Faculty of Natural Sciences. After he had joined the Open University he offered valuable assistance as external examiner and visited all our campuses. His contribution at a critical time in our history and his continued assistance over many years created for him a permanent place of honour in the annals of the University of the West Indies.

Many firm friends in this University, and he had made many, remember him with a great respect and warmth which they share with people all over the world who knew him as a fine person and excellent chemist who always enhanced relationships and enriched life.

Professors Chan, Magnus, Stuart and myself and Dr. Alfred Sangster now President of the College of Arts, Science and Technology all of whom now hold posts of high responsibility, wish in a special way, to join in recognising Len Haynes at this forum which for him was so important.

Len Haynes shared the region's hope and faith in the building of the Caribbean to which he contributed much. It seems so appropriate then that he should be remembered at the Fifteenth Natural products Symposium and that an honoured guest on this occasion should be his widow, Mary, for whom this occasion may well invoke memories and longings but no less a sense, I hope of pride and accomplishment.

How better can I close but with a verse of a poem written by a colleague, John Figueroa and read by him at Len's funeral service?

What he seeks in no hereafter  
But everlasting now well done  
The answer in stone and images  
Built for now that is forever  
With every invention finds further perfection.

The Honourable Gerald C. Lalor OJ, CD, MSc. Ph.D  
Pro Vice Chancellor and Principal  
Mona Campus, The U.W.I.

*Leonard John Haynes*  
*27 Nov 1921, Gibraltar-26 May 1992, Bedfordshire, England*



## **ARNOLD ROBERT BROSSI Ph. D.**

The Organising Committee of the Mona Symposium unanimously decided to honour Professor Dr. Arnold Robert Brossi at this our fifteenth consecutive biennial meeting. Professor Brossi was one of the founding members of this series of meetings which has now become an important date on the calendar of natural products chemists all over the world. Arnold Brossi's contribution to the field of natural products chemistry is legendary and we are proud to be associated with him.

Dr. Brossi is at present a Visiting Research Professor at the Department of Chemistry at Georgetown University, Washington, D. C. He was born on December 19, in 1923, Winterthur, Switzerland, received his Ph.D. in Organic Chemistry at the ETH in Zurich, Switzerland, in 1952 and joined Hoffmann-La Roche in Basel, Switzerland, in the same year. He was Director of the Chemical Research Department of that company in Nutley, N.J., U.S.A. (1963—1973), and in Basel (1973-1975). He joined the NIH in Bethesda in 1976 and was Chief of the Section of Natural Products Chemistry at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) for the period 1976-1991, then moved to the Department of Chemistry at Georgetown University in Washington, D.C. in 1992. His major research interests include study and synthesis of biologically active Natural Products and drugs useful in malaria chemotherapy, specialising in studies of antipodal isomers.

He has authored and co-authored more than 380 scientific papers, and is named as inventor and co-inventor on many patents. At the NIH Dr. Brossi directed the research of 41 postdoctoral scholars from 17 different countries.

Dr. Brossi was for many years Editor of "The Alkaloids" (Vols. 21—40) and is currently a Member of the Editorial Boards of Heterocycles (Japan) and Med. Res. Reviews.

The Mona Symposium honours Professor Dr. Arnold Robert Brossi for his outstanding contribution to Natural Products Chemistry.



Dr. E.V. Roberts with Prof. Arnold R. Brossi in deep discussion after hours.  
*A.R. Brossi (19 Dec 1923, Winterthur, Switzerland - 16 Jul 2011, Bethesda, Maryland, U.S.A.)*

# 15TH MONA SYMPOSIUM- - JANUARY 3 - 7 1994

## ORGANISING COMMITTEE

Y.A. Jackson  
H.M. Jacobs  
W. Kraus ( European Coordinator )  
P.S. Manchand (North American Coordinator)  
K.E. Magnus  
D.A. Minott  
K.O. Pascoe (Organising Secretary)  
E.V. Roberts

## ACKNOWLEDGEMENTS

The Organising Committee wishes to acknowledge the assistance of the following:

- Abbott Laboratories
- Glaxo Research Institute
- Hoffmann-La Roche
- Pfizer Inc.
- Zeneca - Pharmaceutical Group
- Board for Graduate Studies, U W I
- Cremo Limited
- Grace Kennedy and Co. Ltd.
- Jamaica Development Bank
- Research and Publications Committee, U W I
- J Wray and Nephew Ltd.

## Plenary speakers at the 1994 Mona Symposium

Prof. Raymond Andersen	University of British Columbia, Canada	9.00 AM Tuesday
Prof. Peter Baeckstrom	Royal Institute of Technology, Sweden	2:00 PM Thursday
Prof. Pat Bailey	Heriot-Watt University, U.K.	9:45 AM Thursday
Prof. Dennis Curran	University of Pittsburgh, U.S.A.	10:55 AM Monday
Prof. Wittko Francke	Universitat Hamburg, Germany	2:15 PM Tuesday
Prof. Bert Fraser-Reid	Duke University, U.S.A.	11:15 AM Friday
Prof. Masahiro Hirama	Tohoku University, Japan	10:25 AM Tuesday
Prof. Kurt Hostettmann	Universite de Lausanne, Switzerland	9:45 AM Monday
Prof. Wolfgang Kraus	University of Hohenheim, Germany	9:00 AM Friday
Prof. Kuo-Hsiung Lee	University of North Carolina, U.S.A.	10:25 AM Thursday
Prof. Ei-ichi Nakamura	Tokyo Institute of Technology, Japan	2:00 PM Monday

TUESDAY, JANUARY 1

Morning

SCIENTIFIC PROGRAMME

MONDAY, JANUARY 2

9:00 - 10:00

PLENARY LECTURES

Afternoon

MONDAY, JANUARY 3

Morning

9:45 - 10:45

K Hostettmann

Institut de Pharmacognosie  
et Phytochimie

Ecole de Pharmacia

Universite de Lausanne

Beo: CH 1915

Switzerland

**TITLE:** Recent Advances in the Search of New Bioactive  
Compounds from Plants used in Traditional  
Medicine.

10:55 - 11:55

D P Curran

Department of Chemistry

University of Pittsburgh

Pittsburgh, PA 15260

U S A

**TITLE:** Recent Applications of Radical Reactions in  
Organic Synthesis

MONDAY, JANUARY 3

Afternoon

2:00 - 3:00

E Nakamura

Department of Chemistry

Tokyo Institute of Technology

Meguro-Ku, Tokyo 152

Japan

**TITLE:** New Synthetic Chemistry on Natural and Unnatural Products

TUESDAY, JANUARY 4

Morning

9:00 - 10:00

R J Andersen

Department of Chemistry

University of British Columbia

2036 Main Mall

Vancouver BC V6T 1Z1

Canada

**TITLE:** Biologically Active Secondary Metabolites from Marine Invertebrates and Microorganisms

10:25 - 11:25

M Hirama

Department of Chemistry

Tohoku University

Aoba-Ku, Sendai 980

Japan

**TITLE:** Synthetic Studies on Ciguatera: Absolute Configuration and Design of Haptens for Anti-Ciguatera Antibody.

**Afternoon**

2:15 - 3:15

W Francke  
Institut fur Organische Chemie  
Universitat Hamburg  
Martin-Luther-King-Platz 6  
D-2000 Hamburg 13  
Germany

**TITLE:** Semiochemicals: Structural Principles in the  
Chemistry of Odour Communication.

**THURSDAY, JANUARY 6**

**Morning**

9:45 - 10:00

P D Bailey  
Department of Chemistry  
Heriot - Watt University  
Edinburgh EH14 4AS  
United Kingdom

**TITLE:** Asymmetric Routes to Heterocyclic Natural  
Products.

10:25 - 11:25

K H Lee  
Natural Products Laboratory  
School of Pharmacy  
University of North Carolina  
Chapel Hill, NC 27599-1760  
U S A

**TITLE:** Recent Discoveries of Plant Antitumor and  
Anti-HIV Agents and Their Analogues.

**Afternoon**

2:00 - 3:00

P Baeckstrom  
Department of Organic Chemistry  
The Royal Institute of Technology  
Stockholm, Sweden

**TITLE:** Combined Extraction and Group Separation of  
Natural Products from Plant Material via Gradient  
Elution in Columns.

**FRIDAY, JANUARY 7**

**Morning**

9:00 - 10:00

W Kraus  
Department of Chemistry  
University of Hohenheim  
70593 Stuttgart, Germany

**TITLE:** Biologically Active Constituents of Tropical and  
Subtropical Plants

11:15 - 12:15

B Fraser-Reid  
Department of Chemistry  
Duke University  
Durham, NC 27708-0354  
U S A

**TITLE:** Carbohydrates to Carbocycles: Free Radical  
Strategies for Densely Functionalised Natural  
Products.



DAILY SCHEDULE

MONDAY, JANUARY 3

Morning

- 8:00 - 8:30 Completion of Registration
- 8:30 - 9:20 Opening Ceremony
- 9:20 - 9:30 Announcements
- 9:30 - 9:45 Chairman: Prof W R Chan
- 9:45 - 10:45 Coffee Break
- 9:45 - 10:45 Plenary Lecture
- 10:45 - 10:55 K Hostettmann - Recent Advances in the Bioactive Compounds from Plants Used in Traditional Medicine.
- 10:45 - 10:55 Question and Discussion Period
- 10:55 - 11:55 Plenary Lecture
- 11:55 - 12:05 D P Curran - Recent Applications of Radical Reactions in Organic Synthesis.
- 12:05 - 12:25 Question and Discussion Period
- 12:05 - 12:25 Paper #1
- 12:25 - 12:45 Hans-Jürg Borschberg - Total Synthesis of Some Aristotelia - Alkaloids.
- 12:25 - 12:45 Paper #2
- 12:45 - 12:50 P S Manchand, A Schwartz, S Wolff, P S Belica, P Madan and P Patel - Synthesis of an Orally Active PAF Antagonist.
- 12:45 - 12:50 Question and Discussion Period.

Afternoon

- 2:00 - 3:00 Plenary Lecture
- 3:00 - 3:10 E Nakamura - New Synthetic Chemistry on Natural and Unnatural Products.
- 3:10 - 3:10 Question and Discussion Period.
- 3:10 - 3:30 Paper #3
- 3:30 - 3:45 A K Bose, M S Manhas and B K Banik - Strategies for Mirror Image Molecules.
- 3:30 - 3:45 Coffee Break
- 3:45 - 4:05 Paper #4
- 4:05 - 4:25 R Harris - Biosynthesis of Macrolide Antibiotics.
- 4:05 - 4:25 Paper #5
- 4:25 - 4:45 J J Kilama and T Neubert - Enantiomerically Pure Amidation of Unprotected  $\alpha$ -Amino Acids or Esters Via Aluminum Amides.
- 4:25 - 4:45 Paper #6
- 4:45 - 5:05 A Rodriguez, X Wang and B Ramos - Dehydration and Ring Opening of Epoxy Alkynols. A Simple and Efficient Synthesis of [3]-Cumulenals.
- 4:45 - 5:05 Paper #7
- 5:05 - 5:15 J M Cook, Y Bi, L K Hamaker and M S Allen - Enantiospecific Approach Towards the Synthesis of Macroline/Sarpagine/Ajmaline Alkaloids.
- 5:05 - 5:15 Question and Discussion Period.

**TUESDAY, JANUARY 4**

**Morning**

9:00 - 10:00

Plenary Lecture

R J Andersen - Biologically Active

Secondary Metabolites from Marine

Invertebrates and Microorganisms.

Question and Discussion Period.

Coffee Break

Plenary Lecture

M Hiram - Synthetic Studies on

Ciguatoxin: Absolute Configuration

and Design of Haptens for Anti-

Ciguatoxin Antibody.

Question and Discussion Period:

11:25 - 11:35

Paper #8

R Cooper, C Barrow, H H Sun, D Sedlock

and A Gillum - Novel Neurokin Receptor

Antagonists From Microbial Sources.

Paper #9

J W Huffman, D Dai and M Phillips -

Design, Synthesis and Pharmacology

of Some Cannabimimetic Alkylindoles.

Question and Discussion Period

12:15 - 12:25

**Afternoon**

2:15 - 3:15

Plenary Lecture

W Francke - Semiochemicals:

Structural Principles in the Chemistry

of Odour Communication.

Question and Discussion Period.

Coffee Break

Paper #10

W C Groutas, R Kuang and R Venkataraman

- Mechanism-Based Inhibition of Serine

Proteinases By Substituted 3-Oxo-1,2,5-

Thiadiazolidine 1,1-Dioxides.

Paper #11

D J Witter and J C Vederas

In Search of an Enzyme-Catalysed

Diels-Alder Reaction: Biosynthetic

Incorporation of an Advanced

Intermediate into an Acetate-Derived

Polyketide.

Paper #12

T B Grindley - Recent Developments in

Stannylene Acetal Chemistry.

Paper #13

S Howard - Polyhydroxy Indolizidines as

Glycosidase Inhibitors.

4:40 - 5:00

5:00 - 5:20

Paper #14

J Tercio B Ferreira, J A Marques and

J P Marino - Preparation of

rel-(-)-(4S,5S)-4-Methyl-5-Ethyl

δ-Valerolactone a Chiral Key

Intermediate for Serricornin.

Question and Discussion

Posters

5:20 - 5:30  
5:30 - 6:00

SYMPOSIUM IN HONOUR OF PROF ARNOLD BROSSI

THURSDAY, JANUARY 6

Morning

9:00 - 10:00

Plenary Lecture

P D Bailey - Asymmetric Routes to Heterocyclic Natural Products.

Question and Discussion Period.

Coffee Break

10:00 - 10:10  
10:00 - 10:10  
10:25 - 11:25

Plenary Lecture

K H Lee - Recent Discoveries of Plant Antitumor and Anti-HIV Agents and Their Analogues.

11:25 - 11:35

Paper #15

B Witkop - Physostigmin's Growing Importance: From Percy Julian to Arnold Brossi.

11:55 - 11:15

Paper #16

W Kraus, M Koll-Webber, R Maile and T Wunder - Biologically Active Constituents of Tropical and Subtropical Plants.

12:15 - 12:35

Paper #17

Qian-sheng Yu and Bao-yuan Lu - Total Synthesis of Racemic Physostigmine, Physovenine and its Sulphur Analogue Thiaphysovenine Starting from Metol. Question and Discussion Period.

12:25 - 12:45

Afternoon

2:00 - 3:00

Plenary Lecture

P Baeckstrom - Combined Extraction and Group Separation of Natural Products From Plant Material Via Gradient Elution in Columns.

3:00 - 3:10

Question and Discussion Period.

3:10 - 3:25

Coffee Break

3:25 - 3:45

Paper #18

Y Ban - Some Reactions in the Synthesis of Natural Products.

3:45 - 4:05

Paper #19

G N Belofsky and J B Gloer - New Bioactive Indole Alkaloids from the Ascostromata of *Eupenicillium Shearii*.

4:05 - 4:25

Paper # 20

Xue-Feng Pei, N H Greig and J L Flippen-Anderson - Synthesis of Calabar Alkaloids From 1,3-Dimethyl-5-Methoxy-Oxindoles.

4:25 - 4:45

Paper #21

N H Greig, T T Somcrant, Xue-Feng Pei, D K Ingram and A Bossi - Phenylcarbamates of (-)-Eseroline, (-)-N(1)-Noreseroline and (-)-Thiaphysovenol as Selective Inhibitors of Acetylcholinesterase for the Treatment of Alzheimer's Disease.

4:45 - 4:55

Question and Discussion Period

Remarks by Prof Arnold Bossi

FRIDAY, JANUARY 7

Morning

9:00 - 10:00 W Kraus - Biologically Active

Constituents of Tropical and Subtropical Plants

10:00 - 10:10

Question and Discussion Period

10:10 - 10:30

Paper #22

R Schwartz, G L Helms, E A Bolessa, R A Giacobbe, I S Tkacz, G F Bills, J M Liesch, D L Zink, B Pramanik and J C

Obishi - Pramanicin, a Novel Antimicrobial Agent from a Fungal Fermentation

10:30 - 10:50

Paper #23

I G Smirnova and N V Kozlova - Preparation and Characterisation of Heterobisantibiotics.

10:50 - 11:00

Question and Discussion Period

11:00 - 11:15

Coffee Break

11:15 - 12:15

Plenary Lecture

B Fraser-Reid - Carbohydrates to Carboycles: Free Radical Strategies for Densely Functionalised Natural Products.

12:15 - 12:25

Question and Discussion Period

12:25 - 12:40

Closing Ceremony

## REGISTERED VISITING PARTICIPANTS

ALI, A.	GRINDLEY, B.	MILLER, S.
ANDERSEN, R.	GROUTAS, W.	MOLINSKI, T.
BAEKSTROM, P.	HIRAMA, M.	NAKAMURA, E.
BAILEY, P.	HARRIS, R.	PEI, X.
BAN, Y.	HARRISON, P.	POLK, H.
BELOFSKY, G.	HOLLINGSWORTH, R.	RAMA RAO, A.
BOSE, A.	HOSTETTMANN, K.	RAMSEWAK, R.
BOLESSA, E.	HOWARD, S.	RODRIGO, R.
BORSCHBERG, G.	HUFFMAN, J.	RODRIGUEZ, A.
BROSSI, A.	JOHN, L.	SCHWARTZ, R
CAVA, M.	KAO, W.	SMIRNOVA, I.
CHAN, W.R.	KILAMA, J.	SMITH, C
COOK, J.	KRAUS, W.	TINTO, W.
COOPER, R.	LAKSHMIKANTHAM, M.	TYLER, L.
CURRAN, D.	LEE, J.	WITTER, D.
FERREIRA, J.	LEE, K.	WITKOP. B.
FRANCKE, W.	LESS, S.	YOUNG, R.
FRASER-REID, B.	MAHCHAND, P.	YU, Q.
GREIG, N.	MAXWELL, A.	PINCAL, R.
	SHARMA, R.	