

**PHYTOCHEMICAL SOCIETY
OF NORTH AMERICA**

Newsletter

February 1987

Executive Committee PSNA 1986 - 1987

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The Phytochemical Society of North America is a non-profit scientific organization whose membership (currently about 400) is open to anyone with an interest in phytochemistry, the role of plant substances, and in related fields. Annual membership dues are \$15.00 for regular members and \$8.00 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada and Mexico. A newsletter is circulated to members several times a year to keep them informed of upcoming meetings and developments within the Society.

If you would like additional information about the PSNA or if you have material to be included in the newsletter, please contact the Society Secretary. Annual dues and changes in addresses should be sent to the Society Treasurer.

CALL FOR NOMINATIONS AND PROPOSALS FOR AMMENDMENTS TO THE CONSTITUTION

As prescribed by the constitution of the PSNA, the membership is responsible for advancing nominations for officers and for proposing constitutional ammendments. Send proposals for ammendments in writing - thoroughly researched as to implications to all sections of the constitution and by-laws - to the Secretary, PSNA before April 1, 1987. Send one name in nomination for Vice-President (President-Elect), Treasurer and Secretary to the Past-President, Dr. W.D. Loomis (Dept. of Biochem. and Biophysics, Oregon State University, Corvallis, OR 97331) before April 15, 1987.

Recall that a new Vice President (President-Elect) is elected each year. The term of office for Treasurer and Secretary has historically run for 3 to 6 years - for the sake of continuity and efficient operation. Mechanics of budget administration and reporting, assets securement, mailing list preparation, newsletter preparation and mailing, etc., take some time to learn. The present Treasurer and Secretary were elected to office at the 1983 and 1984 meetings, respectively. The current Secretary will step down at the end of this year. You will note that a proposed ammendment concerning the offices of Secretary and Treasurer will be voted on this year. It is presented below.

A form is provided as the last page of this newsletter for the purpose of making nominations for PSNA officers. Please make entries, cut along dotted line, fold, stamp, and mail before April 15, 1987. Nominations or proposed ammendments received after the above dates will not be considered. As prescribed by the constitution, ballots for voting must be distributed to the membership at least 2 months prior to the annual meeting. Some time is required for preparation and distribution of ballots.

At the 1986 Annual Meeting, a constitutional change pertaining to elections was enacted. Since this change became effective after the current PSNA directory was published, it is presented here:

ARTICLE VI, Section 2. (additions underlined) Upon election, the term of office for such officers shall extend through the Business Session of the next Annual Meeting. The Vice President shall automatically ascend to the presidency at the end of his (her) scheduled term of office or at any prior time that the office of President may be vacated. However, he (she) will not be eligible for election to the office of President (or Vice-President) at a later date, and shall not succeed himself (herself) as President after serving the scheduled term of office. There shall be no restriction on the number of terms of office of the Secretary or of the Treasurer.

A new proposal for constitutional change will be on the ballot to be mailed in April. This proposal as presented by the Advisory Committee is reproduced here for your study.

During the Business Meeting of PSNA in Asilomar, Article VI, Section 1 of the Constitution was amended to permit the Nominating Committee to limit nominations on the ballot for these (Secretary and Treasurer) offices to a single name. This was done with the intent to provide continuation of these offices and avoid possible disruption in the continuation of the Society's business by new officers filling the position of President, Secretary and Treasurer, who are not familiar with the Society's past obligations.

While there is merit to this idea, it also restricts input from the membership toward nominating capable and vigorous members of the Society for both the positions of Secretary and Treasurer. The last Annual Meeting is a good example of this, where the names of individuals nominated by the membership did not appear on the ballot.

We are of the opinion that it would be much healthier to have these offices, e.g., Secretary and Treasurer, occupied for a minimum of three years. This would provide continuity in office, and would give a chance for re-election of the incumbents.

Therefore, we suggest that Article VI, Sections 1 and 2 be revised as follows: Delete the sentence "The number of nominations for Secretary and Treasurer may be limited to a single name at the discretion of the Nominating Committee." from Section 1, paragraph 2. Delete the last sentence from Section 2, i.e., "There shall be no restrictions on the number of terms of office of the Secretary and Treasurer." and substitute the following: "The term of office for the Secretary and the Treasurer shall be for three (3) years. This term may be renewable by election". This would permit a continuation in the Executive Committee, and would also permit nomination from the membership.

1987 MEETING AT TAMPA, FLORIDA

Plans are being finalized for our upcoming meeting. A flyer prepared by D. Mansell and J. Romeo which describes meeting details was distributed this past fall to all PSNA members and, in addition, to a substantial number of non-members and institutions who may be interested in attending. A photocopy of the registration form, meeting description and abstract forms contained in that flyer is enclosed here.

You may have noticed the advertisement of this meeting in the January 1987 issue of Trends in Biotechnology. This periodical was considered to be a good

27th Annual Meeting The Phytochemical Society of North America

ABOUT THE MEETING

The 1987 annual meeting of the Phytochemical Society of North America will be held at the University of South Florida in Tampa, Florida, from June 21 through June 26.

The symposium is based on the theme "Opportunities for Phytochemistry in Plant Biotechnology." Primary topics include "Scientific Strategies for Plant Biotechnology" and "The Role of Plant and Microbial Chemicals in the Biology of Plants."

ACCOMMODATIONS

Housing is available in the University Village Complex for \$26.32 per room per night. The Village is comprised of studio/efficiency rooms that accommodate two persons per room. On-campus meals may be purchased with cash at the Argos Center Cafeteria for the following rates: Breakfast - \$3.20, Lunch - \$3.95, and Dinner - \$5.00. Prices entitle participants to all-you-can-eat. There are numerous restaurants in the area, but none are within walking distance. For on-campus housing, please complete and return the housing reservation form.

The following hotels/motels are recommended for participants wishing to reserve rooms off-campus: Holiday Inn, 2701 E. Fowler Avenue, (813) 971-4710; Econo Lodge, 9202 N. 30th Street, (813) 935-7855; Embassy Suites, 11310 N. 30th Street, (813) 971-7690; Safari Resort Inn, 4139 E. Busch Blvd., (813) 988-9191; Days Inn, 2901 E. Busch Blvd., (813) 933-6471.

ENROLLMENT

Registration fee for the annual meeting is \$60.00 (U.S.) per person. The fee includes all meetings and a copy of the published proceedings. Make check or money orders for the registration fee payable to UNIVERSITY OF SOUTH FLORIDA.

Cancellations may be made through June 5 with a refund of \$50. A \$10 administrative fee is charged for processing refunds. No refunds will be made after June 5, but substitutions will be accepted. The deadline for registration is June 5. After June 5, the registration is \$75.

To enroll, complete the attached registration form and return to School of Extended Studies, University of South Florida, LLL 012, Tampa, Florida 33620 or telephone (813) 974-2403.

Registration and check-in will be held on Sunday, June 21, 1-8 p.m., and Monday, June 22, 8 a.m.-5 p.m. Registrants will be notified of exact location when enrollment is received.

HOUSING RESERVATION

Studio/efficiency rooms will be available in the USF Village from Sunday, June 21, through Friday, June 26, 1987. Each efficiency provides two single beds, desks and dressers, private bath, kitchen, ground floor access, and emergency/security system. The complex has a swimming pool, laundry facilities, pay telephones, a convenience store, and ample parking. The reception office is open for 24-hour check-in and as an information center. Except where participants provide cribs for small infants, efficiencies accommodate a maximum of two persons. If special family housing is required, a letter describing specific needs should accompany the reservation materials.

Room rates are \$26.32 per night, double/single. Reservations cannot be guaranteed after June 5. The state of Florida requires

prepayment for goods and services; therefore, full payment by check, money order, or cash will be requested upon arrival.

Mail your reservation request with one night's deposit today/no later than June 2, 1987, to: Village Summer Housing Reservations, Bldg. 31, University of South Florida, Tampa, FL 33620. Phone (813) 974-3645.

TENTATIVE PROGRAM

Sunday, June 21

1:00-8:00 p.m. Registration
7:30-10:30 Social

Monday, June 22

8:00 a.m.-5:00 p.m. Registration
8:30 a.m.-5:00 p.m. Opening Address
Symposium and Contributed Papers
Lettuce Lake Park

Evening

Tuesday, June 23

8:30 a.m.-Noon Symposium
1:30 p.m.-5:00 p.m. Contributed Papers
Evening Poster Session and Social

Wednesday, June 24

8:30 a.m.-11:30 a.m. Symposium
Noon-9:00 p.m. Field Trips

Thursday, June 25

8:30 a.m.-Noon Symposium
1:30 p.m.-4:00 p.m. Contributed Papers
4:00 p.m. Business Meeting
Evening Reception and Banquet

Friday, June 26

8:30 a.m.-Noon Symposium

SYMPOSIUM INFORMATION

"Opportunities for Phytochemistry in Plant Biotechnology"

Session I. Scientific Strategies for Plant Biotechnology

Topics to be discussed include: use of tissue culture for metabolic studies and development of new plant cultivars; plant mutant selection and use in phytochemical studies; strategies for introducing foreign genes into plants; molecular approaches for studying cellular recognition phenomena; phytochemistry - its role in plant biotechnology.

Session II. The Role of Plant and Microbial Chemicals in the Biology of Plants

Topics to be discussed include: secondary plant products in the regulation of gene expression in plant-microbe interactions; microbial toxins in disease expression in plants; biochemical basis for insect tolerance in plants.

Speakers include: P. Filner, C. Somerville, C. Gasser, R. Beachy, K. Peters, E. W. Nester, D. Kuhn, C. A. Ryan, L. Dure.

For further information, please write:

Dr. Richard L. Mansell
Biology Department
University of South Florida
Tampa, FL 33620 USA

Registration Form

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA
27th ANNUAL MEETING
JUNE 21-26, 1987

Program No. 41-81-095 E0

S.S. # _____ Name _____ (last) (first) (MI)

Address _____ (Street or P.O.) (City) (State) (Zip)

Daytime Telephone (____) _____

Institution _____ Title _____

Registration fees:

_____ Conference (\$60.00) \$ _____
_____ Spouse/Guest (\$10.00 per person) \$ _____
Children under age 12 - no charge
Registration Total \$ _____

Special Events Registration: (Pre-registration Required)

- (1) Reception and Banquet, Thursday, June 25
6:30-10:00 p.m. (\$29.00 per person) No. Attending _____ \$ _____
- (2) Wednesday, June 24, Field Trips - Choose one of the following:
 - a. Busch Gardens (\$21 per person) No. Attending _____ \$ _____
(Zoological Gardens & Theme Park)
 - b. Salvador Dali Art Museum/Tour of St. Petersburg (\$10.00 per person) No. Attending _____ \$ _____
- (3) Guest Programs
 - a. A Taste of Tampa Bus & Shopping Tour (\$7 per person) No. Attending _____ \$ _____
 - b. Museum of Science & Industry (\$7 per person) No. Attending _____ \$ _____
 - c. Adventure Island (\$15 per person) (Water Play Park) No. Attending _____ \$ _____

Special Events Total \$ _____

Total Amount Enclosed (Conference and Special Events) \$ _____

No refunds will be given for no shows. Refunds or alternative trips will be available if your choice is over or underbooked.

Please make checks or money orders payable to: UNIVERSITY OF SOUTH FLORIDA. Return to: School of Extended Studies, LLL 012, University of South Florida, Tampa, Florida, 33620; telephone (813) 974-2403.

If you prefer to charge fees to your VISA or MasterCard account, please complete the following:

_____ VISA _____ MasterCard
Credit Card Number _____ Exp. Date _____
Card Holder Name _____
Card Holder Signature _____ Telephone (____) _____

Village Housing — Registration Form

PROGRAM TITLE: Phytochemical Annual Meeting

Name _____ S.S.# _____

Address _____ (street or P.O.)

City _____ State _____ Zip _____

Phone (Daytime) _____

Arrival Date _____ Hour _____ a.m. _____ p.m.

Departure Date _____ Hour _____ a.m. _____ p.m.

Amount Deposit Enclosed \$ _____ Date _____

Make check or money orders payable to: University of South Florida. Return to: Village Summer Housing Reservations, Bldg. 31, University of South Florida, Tampa, FL 33620.

site for advertising this particular meeting, given the symposium topic. Finalized titles and speaker's names for the symposium are presented here as a separate flyer (2 copies). Included on it are announcements and directions for the Student Travel Grant and Student Best Paper programs.

| Please Post and Distribute |
these Flyers!

PROGRAMS FOR STUDENTS

Recommendations of the committee organized by Past-President D. Loomis to study the Student Travel Grant Program have been adopted for this year. These recommendations were presented in the Fall 1986 newsletter (Vo. 26, #2). In brief, the programs for the 1987 meeting will include:

- 1) Partial Travel Assistance for all graduate student members of PSNA who apply and present a paper at the 1987 meeting.
- 2) A "Best Paper Award" to a graduate student or recent Ph.D. (6 months from time of presentation).

Interested persons should consult the Fall 1986 newsletter (Volume 26, #2) for details. Application materials should be sent before May 1, 1987 to Dr. R.L. Mansell, University of South Florida, Tampa, FL 33620. Please mark on your abstract that you are applying for travel support and/or would like to participate in the "Best Paper" competition.

1988 MEETING AT IOWA CITY - CALL FOR INFORMATION

The 28th Annual Meeting of the Phytochemical Society of North America will be held on June 26-30, 1988 at the University of Iowa in Iowa City. The topic of the symposium, which will be organized by Jonathan Poulton (Univ. of Iowa) and John Romeo (Univ. of S. Florida), is currently summarized by the broad title "Nitrogen Metabolism in Plants: Primary and Secondary Aspects". The organizers welcome any suggestions by the membership concerning possible topics and speakers. These should be sent to John Poulton, Dept. of Botany, Univ. of Iowa, Iowa City, IA 52242.

UPCOMING QUESTIONNAIRE

How can the PSNA better serve its membership? We want your suggestion/opinions! We will attach to the elections ballot to be distributed in April a questionnaire. The ballot will be anonymous. The questionnaire need not be, but if you wish, you can return it with the ballot anonymously.

This effort, like the recent placing of the elections and ammendment processes into the hands of the entire membership and the institution of the Advisory Committee, is intended to involve the entire membership in society business. Please give a moment of thought to the question of how can the PSNA serve you better in terms of timing and location of meetings, topics for meeting symposia, programs for students, special awards, etc. We Want Your Input!

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

REPORT OF THE TREASURER JANUARY 1987

I am pleased to report that the Society has maintained its strong financial position during 1986. As shown in the attached annual Financial Statement, overall assets grew by almost 11% to reach \$40,821.30. Membership dues represented 40% of our income, and, as in former years, royalties from sales of Recent Advances in Phytochemistry were also a major source of income (29%). As expected, dwindling interest rates have significantly reduced revenues arising from interest on our savings and checking accounts. Our savings are currently in the form of two 6-month insured Money Market Certificates paying 6.65% interest (as compared with 14.8% in 1981 and 10.9% in September 1984). By comparison, our charge-free checking account pays 6.0% interest. Our thanks are once again due to Bock Chan who returned an additional \$1,204.96 to the Treasury upon closing the Asilomar Meeting account. Major expenditures included advances for the 1986 Maryland Meeting (\$2,500) and for publishing and mailing of Directories (\$1,999.09) and Newsletters (\$2,100). Honoring our agreement with the American Society of Pharmacognosy to share the royalties on Vol.13, the sum of \$90.70 was paid to them; this covers the period 1982-85.

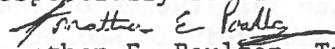
The PSNA has 359 active members, of which 38 are students. Of the total membership, 279 are from the United States, 40 from Canada, while another 40 are from overseas. The attached summary of membership during 1979-1986 shows that the total membership reached a plateau in 1982 and has shown little growth since then. To maintain the vitality of the Society, I would like to suggest that each PSNA member should encourage at least one colleague or student in their department/laboratory to join our Society. Among the many advantages of PSNA membership which might be pointed out are: (a) registration at annual meetings at reduced rates, (b) significant discounts (25-40%) on volumes of Recent Advances in Phytochemistry, (iii) availability of Travel Awards to the annual meeting for students and young scientists, and (d) receipt of the quarterly Newsletter and biennial Directory of members.

May I remind those that have not already done so to remit their 1987 dues as soon as possible. Any members who are about to enter retirement are entitled to emeritus status which exempts them from dues.

The 1986 PSNA Directories were mailed to the membership last summer. This document reflects the addresses and research interests of the members as known by the Treasurer as of March 15, 1986. If you did not receive your copy, please let me know at your earliest convenience. Furthermore, if you are changing your address in the near future, please advise me promptly of your new location so that correspondence to you will not suffer delays.

Copies of all bank statements and the auditor's report are on file. If you have any comments, suggestions or criticisms concerning the Treasury or simply require more information, please feel free to contact me.

Respectfully submitted,


Jonathan E. Poulton, Treasurer
Department of Botany
University of Iowa
Iowa City, IA 52242

TREASURER'S REPORT

Financial Statement

January 1, 1986 - December 31, 1986

<u>Receipts</u>		<u>Expenditures</u>	
Membership Dues	\$ 4,546.00	1986 Meeting Advance	\$2,500.00
Royalties	3,232.38	1986 Travel Awards	500.00
Refund from Asilomar Meeting	1,204.96	Maryland Meeting (EC travel)	337.50
Interest (Savings)	1,597.62	1986 Directories	1,999.09
Interest (Checking)	632.71	Treasurer's Expenses	25.47
Mailing Lists	40.00	Secretary's Expenses	2,100.00
	<hr/>	President's Expenses	69.82
	\$11,253.67	ASP Royalties (82-85)	90.70
		Bank Charges	36.20
			<hr/>
			\$7,658.78

<u>Summary</u>	
Receipts	\$11,253.67
Expenditures	7,658.78
	<hr/>
Net Gain	\$ 3,594.89

<u>Assets - January 1, 1986</u>		<u>Assets - December 31, 1986</u>	
Checking	\$13,074.10	Checking	\$ 4,668.99
Savings	\$23,750.00	Savings	\$36,152.31
	<hr/>		<hr/>
	\$36,824.10		\$40,821.30

INTERIM FINANCIAL REPORT

July 9, 1986 - December 31, 1986

<u>Receipts</u>		<u>Expenditures</u>	
Membership Dues	\$ 554.00	1986 Travel Awards	\$ 500.00
Interest (Savings)	743.60	Secretary's Expenses	700.00
Interest (Checking)	133.84	Maryland Meeting (EC Travel)	337.50
Mailing Lists	40.00	ASP Royalties (1982-83)	90.70
	<hr/>	Treasurer's Expenses	25.47
	\$1,471.44		<hr/>
			\$1,653.67

<u>Summary</u>	
Receipts	\$1,471.44
Expenditures	\$1,653.67
	<hr/>
Net Loss	\$ 182.23

<u>Assets - July 9, 1986</u>		<u>Assets - December 31, 1986</u>	
Checking	\$ 4,851.22	Checking	\$ 4,668.99
Savings	35,750.00	Savings	36,152.31
	<hr/>		<hr/>
	\$40,601.22		\$40,821.30

TREASURER'S REPORT

Annual Meeting, University of Maryland, 1986

<u>Receipts</u>		<u>Expenditures</u>	
Registration, Housing, Banquet and Social Functions	\$ 7,923.29	UM Housing	\$ 4,685.91
Contributions		Speaker's Expenses	2,703.86
E. I. du Pont de Nemours and Company	1,000.00	Banquet	1,856.00
USDA	1,000.00	Advertising	686.00
PSNA	1,974.45	Program Expenses	
Membership Dues	123.00	Folders	675.00
Interest Income	100.92	Transportation	626.27
Miscellaneous Income	5.12	Coffee breaks, misc. expenses	212.62
		Tours	
		Washington	300.00
		Baltimore	240.00
		Postage & Telephone	141.12
	<u>\$12,126.78</u>		<u>\$12,126.78</u>

SUMMARY OF PSNA MEMBERSHIP 1979-1986

	<u>Total membership</u>	<u>Student</u>	<u>USA</u>	<u>Canada</u>	<u>Foreign</u>
1979	290	17	241	34	32
1980	315	29	245	36	34
1981	344	41	270	37	37
1982	364	46	278	46	40
1983	358	- ^a	264	49	45
1984	367	38	273	52	42
1985	373	31	282	50	41
1986	359	- 38	279	40	40

^a Data unavailable

Erratum-PSNA Newsletter Vol. 26, Number 1 (June 1986)

An expenditure (\$600.00 - 1986 Meeting Advance) was unintentionally omitted from the Expenditure column of the Financial Statement for 1/1/85-12/31/85 shown on page 20. The total expenditures for 1985 remain however as shown, i.e. \$8,902.72.

SPECIAL THANKS

To Pat M. Vann of the Plenum Press for sending Volumes 1-4 and 7 of the Recent Advances in Phytochemistry for the society archival collection. We now lack only Volumes 5, 6, and 8. Eric Conn is looking into the possibility of purchasing these out of print volumes. The collection is held by the Secretary.

CONGRATULATIONS

To our current President, Dr. G.H.N. Towers on the occasion of his receiving the Flavelle Award and Medal of the Royal Society of Canada. The award is made every two years for outstanding contributions to biological sciences in the preceding 10 years.

Congratualtions are also due to Past-President (1966) of the PSNA, Dr. T.J. Mabry, on receiving the 1986 award for the Application of Agriculture and Food Chemistry, ACS.

NEW MEMBERS

The following recently joined our society. We welcome you and invite your participation in society business and at our meetings.

Mr. Kevin G. Cast
Dept. of Botany and Microbiol.
Oklahoma State University
Stillwater, OK 74078-0289

Mr. Timothy C. Morton
University of South Florida
4202 E. Fowler Ave., Biology Dept., LIF 169
Tampa, FL 33620
(813) 974-2336

Dr. Paul Christou
AGRACETUS
8520, University Green
Middleton, WI 53562
(608) 836-7300

Dr. Muraleedharan G. Nair
428 Plant and Soil Science Bldg.
Michigan State University
East Lansing, MI 48824
(517) 353-3768

Dr. Anton G. Endress
Illinois Natural History Survey
172 Natural Resources Bldg.
607 E. Peabody Dr.
Champaign, IL 61820
(217) 333-6886

Dr. Melanie J. O'Neill
Pharmacognasy Dept.
The School of Pharmacy
University of London
29-39 Brunswick Sq., London WC1N 1AX
01-837-7651

Dr. G.L. Lees
107 Science Crescent
Saskatoon, Sask.
Canada S7N 0XZ
(306) 343-8214

Mrs. Susan Tafur
Philip Morris USA
Box 26583
Richmond, VA 23261
(804) 274-3984

Mr. Thomas M. Glending
Dept. of Botany; Univ. of Iowa
Iowa City, IA 52242
(319) 353-5790

MEETINGS AND PROGRAMS OF INTEREST

BIOCHEMICAL SOCIETY MEETING - Transport and Storage of Secondary Metabolites in Tissue Cultured Plant Cells, Sheffield, UK. For further, information contact Dr. A. Rosevear, Harwell Laboratory, B 353, Harwell, Oxon OX11 0RA, United Kingdom.

TISSUE CULTURE ASSOCIATION ANNUAL MEETING - Washington, D.C., May 27-31, 1987. Symposium on Molecular Genetics of Tissue-Specific Gene Expression. For further information, contact TCA, 19110 Montgomery Village Ave., Suite 3000, Gaithersburg, MD 20879. (301) 869-2900.

PLANT GROWTH REGULATOR SOCIETY OF AMERICA - joint meeting with **JAPANESE SOCIETY FOR CHEMICAL REGULATION OF PLANTS** - Honolulu, Hawaii. For further information, contact David J. Parish, Virginia Tech., Blacksburg, VA 24061.

SYMPOSIUM - Plant Biotechnology: Research Bottlenecks for Commercialization and Beyond - J.C. Thompson Center, The Univ. of Texas at Austin, April 6-7, 1987. For further information, contact Dr. T. Malory, Dept. of Botany, The Univ. of Texas at Austin, Austin, TX 78712. (512) 471-1900.

INTERNATIONAL SOCIETY OF CHEMICAL ECOLOGY, 4TH ANNUAL MEETING - University of Hull, England, July 13-17, 1987. Symposium topics will include: The veracity of bioassays, chemical ecology of plant protection, applications of chemical ecology, biochemical mechanisms of defense compounds. For further information, contact Dr. D.A. Jones, Dept. of Plant Biology and Genetics, University of Hull, Hull, HU66 7RX, England.

XII BELTSVILLE SYMPOSIUM IN AGRICULTURAL RESEARCH - Beltsville, MD, May 3-7, 1987. Symposium entitled Biomechanisms regulating growth and development: keys to progress. For further information, contact Beltsville Symposium XII Office, USDA-ARS, Rm 125, Bldg. 200, BARC-East, Beltsville, MD 20705. (301) 344-2506.

8TH ANNUAL MEETING AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE - joint with **34TH ANNUAL CONGRESS OF THE INTER-AMERICAN SOCIETY FOR TROPICAL HORTICULTURE** - Orlando, FL, Nov. 6-12, 1987. For further information, contact Dr. D.J. Cantliffe, Vegetable Crops Dept., 1251 Fifield Hall, Univ. of Florida, Gainesville, FL 32611. (904) 392-1928.

MEETING OF THE LATIN AMERICAN SOCIETY FOR PHYTOCHEMISTRY - Montevideo, Uruguay, November 15-21, 1987. For further information, contact Dr. L.J. Corcuera, Departamento de Biologia, Universidad de Chile, Casilla 653, Santiago, Chile.

SIXTH ANNUAL SYMPOSIUM ON PLANT BIOCHEMISTRY AND PHYSIOLOGY - University of Missouri - Columbia, April 1-3, 1987. Topics will include: Molecular interactions between phytotoxins and plant cells, stress effects on photosynthesis and hormone regulated gene expression. For further information, contact Dr. D. Randall, Biochemistry Dept., 117 Schweitzer Hall, UMC, Columbia, MO 65211. (314) 882-7796.

ANNUAL MEETING, AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS - Chase Park Plaza Hotel, St. Louis, Missouri, July 19-23, 1987. Symposium topics will include: Genetics and molecular genetics studies on cyanobacterium, signals and mechanisms in plant-microbe interactions, climate and vegetation responses to rising atmospheric CO₂, the shikimate pathway in plant cells, compartmentation, regulation and genetic manipulation. For further information, contact E. Gantt, Smithsonian Env. Res. Ctr., 12411 Perklawn Dr., Rockville, MD 20852.

FIVE-WEEK COURSE IN ECO-PHYSIOLOGY AND CELL BIOLOGY OF MARINE MACROPHYTES - Stanford's Hopkins Marine Station, Pacific Grove, CA, begins June 15. For further information, contact J. Thompson, Hopkins Marine Station, Pacific Grove, CA 93950. (408) 373-0464 or Dr. R.S. Alberte, (213) 825-3149.

POSITIONS AVAILABLE

Research Associate/Postdoctoral Position - Opening for a person who is trained in the phytochemistry, chemical synthesis and structural determination of flavonoid sulfates using modern spectroscopic techniques (¹H and ¹³C NMR, FABMS). In addition, the successful candidate should have good experience in the enzymology of these compounds. Position is available as of April/May 1987 for one year, with a good possibility for renewal. Salary range: Can\$16,000-18,000 per year, depending on qualification and experience. Preference will be given to Canadian citizens or landed immigrants. Applicants should submit a CV, including three names and addresses for reference letters, to Dr. R. Ibrahim, Plant Biochemistry Laboratory, Department of Biology, Concordia University, 1455 De Maisonneuve Blvd. West, Montreal, Quebec, Canada, H3G 1M8. Tel. (514) 848-3399.

Assistant Professor - Plant Biology-Microbiology, Ph.D. Primary responsibilities - undergraduate teaching of plant biology, microbiology and general biology. Send letter of application and curriculum vitae to: Dr. R. Hays, Program in Biology, Transylvania University, Lexington, KY 40508. An Equal Opportunity Employer.

Assistant Professor - Plant Biology. Ph.D. in vascular plant taxonomy - teaching, research. Contact: D. Stern, Biology Dept., University of Missouri - Kansas City, 5100 Rockhill Rd., Kansas City, MO 64100. An equal opportunity employer.

Plant Scientists - BS, MS, Ph.D. levels to conduct research in plant physiology/biochemistry, molecular biology and tissue culture. EniChem Americas, US branch of major European corporation is building agricultur-biotechnology program in Princeton, N.J. area. Send curriculum vitae, potential references and list of publications to: Director of Personnel, EniChem Americas, 1221 Avenue of the Americas, New York, NY 10020.

Plant Scientists - Department of Biology, University of Utah. Several positions in next 5 years in areas of biochemistry, development, physiology genetics. Send resume, copies of recent publications, three letters of reference to Dr. J. Ehleringer, Dept. of Biology, Univ. of Utah, Salt Lake City, UT 84122 (801) 581-7623.

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

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PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

Newsletter

June 1987

**Volume 27
Number 1**

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The Phytochemical Society of North America is a non-profit scientific organization whose membership (currently about 400) is open to anyone with an interest in phytochemistry, the role of plant substances, and in related fields. Annual membership dues are \$15.00 for regular members and \$8.00 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada and Mexico. A newsletter is circulated to members several times a year to keep them informed of upcoming meetings and developments within the Society.

If you would like additional information about the PSNA or if you have material to be included in the newsletter, please contact the Society Secretary. Annual dues and changes in addresses should be sent to the Society Treasurer.

27th ANNUAL MEETING OF THE PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

The meeting program, abstracts of papers and University of South Florida maps are enclosed. The meeting organizing committees welcome you to come and enjoy what promises to be an outstanding meeting.

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

1987 Program, University of South Florida

Sunday June 21, 1987

Morning	Executive Committee Meeting (10:00-12:00 AM) Life Long Learning Confernce Room
Afternoon	Arrival and Registration (1:00-8:00 PM) Housing Office
Evening	Arrival and Registration SOCIAL (7:30-10:30 PM)

Monday June 22, 1987

9:00 a.m.	Welcome Remarks Leon Mandell, Dean of Natural Sciences George Newkome, Vice Provost, Dean of the Graduate School (E.E. Conn, Presiding)
9:30 -10:30	Symposium 1 GAINING ACCESS TO REACTIONS AND COMPOUNDS THROUGH CULTURED PLANT CELLS <u>Philip Filner.</u>
10:30-11:00	Coffee Break
11:00-12:00	Symposium 2 SOMACLONAL VARIATION-ITS GENETIC BASIS AND PROMISE FOR BIOTECHNOLOGY <u>David Evans.</u>
12:00- 1:30	Lunch Break

(Nikolaus H. Fischer, Presiding)

- 1:30 - 1:45 Contributed Paper 1
METHIONINE AMINOTRANSFERASE ACTIVITIES FROM
BRASSICA CARINATA
J.R. Glover and B.E. Ellis.
- 1:45 - 2:00 Contributed Paper 2
3',4'-ANHYDROVINBLASTINE IN CATHARANTHUS ROSEUS
Anne Goodbody, T. Endo, J. Vukovic, C. Watson, and
M. Misawa.
- 2:00 - 2:15 Contributed Paper 3
BIOSYNTHESIS OF SUCROSE ESTERS AND DITERPENES IN
TRICHOME HEAD CELLS OF TOBACCO
L. Kandra and G.J.Wagner.
- 2:15 - 2:30 Contributed Paper 4
LIGNIN BIODEGRADATION BY PEROXIDASES
N.G. Lewis, R.A. Razal, and E. Yamamoto.
- 2:30 - 2:45 Contributed Paper 5
ISOLATION OF PAPS: DESULFOBENZYLGLUCOSINOLATE
SULFOTRANSFERASE AND MYROSINASE FROM CRESS
(Lepidium sativum) SEEDLINGS
Thomas M. Glendening and Jonathan E. Poulton.
- 2:45 - 3:00 Contributed Paper 6
ISOLATION AND CHARACTERISATION OF A SPECIFIC N-
METHYLTRANSFERASE INVOLVED IN INDOLE ALKALOID
BIOSYNTHESIS FROM CATHARANTHUS ROSEUS
V. Deluca, J. Balsevich, R. Tyler and W.G.W. Kurz.
- 3:00 - 3:30 Coffee Break
- 3:30 - 3:45 Contributed Paper 7
SESQUITERPENE LACTONES FROM LECOCARPUS
PINNATIFIDUS (ASTERACEAE)
Francisco A. Macias and Nikolaus H. Fischer.
- 3:45 - 4:00 Contributed Paper 8
STRUCTURE ELUCIDATION OF 3 -HYDROARGENTATIN B
Felix J. Parodi and Nikolaus H. Fischer.
- 4:00 - 4:15 Contributed Paper 9
PURIFICATION AND SOME PROPERTIES OF AN ISOFLAVONE-
SPECIFIC 5-O-METHYLTRANSFERASE FROM YELLOW LUPIN
Henry E. Khouri, Satoshi Tahara and Ragai K.
Ibrahim.
- 7:00 Bus Trip to Lettuce Lake Park

Tuesday June 23, 1987

(Clarence A. Ryan, Presiding)

- 8:30 - 9:30 Symposium 3
SELECTION OF PLANT MUTANTS AND THEIR USE IN
STUDYING PHYTOCHEMISTRY
C.R. Somerville and J. Browse.
- 9:30 - 10:30 Symposium 4
PROGRESS IN UNDERSTANDING PLANT GENE EXPRESSION:
STUDIES ON EPSP SYNTHASE AND FLORAL SPECIFIC GENES
Charles S. Gasser, Dilip M. Shah, Guy Della-
Cioppa, Stephen M. Padgett, Ganesh M. Kishore,
Alan G. Smith, Kim A. Sachs, Stephen G. Rogers,
Robert B. Horsch, and Robert T. Fraley.
- 10:30-11:00 Coffee Break
- 11:00-12:00 Symposium 5
PLANT TRANSFORMATION TO CONFER PROTECTION AGAINST
VIRUS INFECTION
R.N. Beachy, P. Powell Abel, R.S. Nelson, J.
Register III, G. Clark, N. Tumer, R.T. Fraley, and
D. Shah.
- 12:00 - 1:30 Lunch Break
- (Ragai K. Ibrahim, Presiding)
- 1:30 - 1:45 Contributed Paper 10
SOLID 13C-NMR ANALYSIS OF WHEAT ROOT LIGNIN
N.G. Lewis, T.L. Eberhardt, E. Yamamoto, C. Ivey
and J.B. Wooten.
- 1:45 - 2:00 Contributed Paper 11
CARBOHYDRATE ANALYSES WITH PELLICULAR ANION
EXCHANGE CHROMATOGRAPHY AND PULSED AMPEROMETRIC
DETECTION
Leon Dure.
- 2:00 - 2:15 Contributed Paper 12
PRODUCTION AND IDENTIFICATION OF MONOCLONAL
ANTIBODIES TO FLAVONOL-RING B-SPECIFIC O-
GLUCOSYLTRANSFERASES BY IN VITRO IMMUNIZATION
Lilian Latchinian, Jacynthe Seguin, and Ragai K.
Ibrahim.

- 2:15 - 2:30 Contributed Paper 13
THE USE OF PATTERN RECOGNITION TECHNIQUES TO
DIFFERENTIATE CITRUS SPECIES USING JUICE FLAVONOID
PEAK PROFILES
R.L. Rouseff and S.F. Martin.
- 2:30 - 2:45 Contributed Paper 14
INCREASE OF γ -GLUTAMYL-CYSTEINE SYNTHETASE ACTIVITY
IN CADMIUM-RESISTANT TOMATO CELLS
John C. Steffens and Bill G. Williams.
- 2:45 - 3:00 Contributed Paper 15
INVESTIGATION AND PURIFICATION OF CHORISMATE
MUTASE FROM CELL CULTURES OF PARSLEY (PETROSELINUM
HORTENSE)
Kent F. McCue and Eric E. Conn.
- 3:00 - 3:30 Coffee Break
- 3:30 - 3:45 Contributed Paper 16
CYTOKININ ANTAGONIST ACTIVITY OF SUBSTITUTED
PHENETHYLAMINES IN PLANT CELL CULTURE
Paul Christou, Kenneth A. Barton and Barbara
Keller.
- 3:45 - 4:00 Contributed Paper 17
ACCUMULATION OF ANTIFUNGAL POLYACETYLENES IN HAIRY
ROOT CULTURES OF CHAENACTIS DOUGLASII (COMPOSITAE)
P. Constabel and G.H.N. Towers.
- 4:00 - 4:15 Contributed Paper 18
ELICITOR-INDUCED FURANOCOUMARIN
BIOSYNTHESIS IN AMMI MAJUS L. CELL SUSPENSION
CULTURES
Ulrich Matern and Daria Hamerski.
- 4:15 - 4:30 Contributed Paper 19
ELICITOR-INDUCED TYROSINE DECARBOXYLASE
IN ISOQUINOLINE ALKALOID PRODUCING PLANT CELL
SUSPENSION CULTURES
Peter Brodehus and I. Marques.
- 7:30 - 10:30 Poster Session and Social

Wednesday June 24, 1987

(Ulrich Matern, Presiding)

- 9:00 -10:00 Symposium 6
MOLECULAR APPROACHES TO STUDYING CELLULAR
RECOGNITION IN PLANTS
Adrienne Clarke.
- 10:00-11:00 Symposium 7
THE ROLE OF PLANT COMPOUNDS IN THE REGULATION OF
RHIZOBIUM NODULATION GENES.
N. Kent Peters and Sharon R. Long.

REMAINDER OF DAY FREE FOR FIELD TRIPS

Thursday June 25, 1987

(B.E. Ellis, Presiding)

- 9:00 -10:00 Symposium 8
INITIAL INTERACTIONS BETWEEN PLANT CELLS AND
AGROBACTERIUM TUMEFACIENS IN CROWN GALL TUMOR
FORMATION
Gerard A. Cangelosi and Eugene W. Nester.
- 10:00-10:30 Coffee Break
- 10:30 -11:30 Symposium 9
CHALCONE SYNTHASE mRNA INDUCTION IN ROOTS AND
LEAVES IN RESPONSE TO PATHOGENS
D.N. Kuhn, G. Souciet and C.B. Jonsson.
- 11:30-12:00 OPEN DISCUSSION
- 12:00- 1:30 Lunch Break
- (Stewart A. Brown, Presiding)
- 1:30 - 1:45 Contributed Paper 20
HISTOLOGICAL AND CYTOLOGICAL LOCALIZATION OF
FURANOCOUMARINS IN SHOOTS OF RUTA GRAVEOLENS L.
Alicja M. Zobel and Stewart A. Brown.
- 1:45 - 2:00 Contributed Paper 21
HISTOLOGICAL LOCALIZATION OF CHALCONE SYNTHASE IN
THE SHOOT APICES OF BRASSICA, FAGOPYRUM,
HIPPEASTRUM AND PISUM
Alicja M. Zobel and Geza Hrazdina.

- 2:00 - 2:15 Contributed Paper 22
 ULTRASTRUCTURAL CHANGES ASSOCIATED WITH
 MONOTERPENE LOSS FROM THE GLANDULAR HAIRS OF
 MENTHA PIPERITA (PEPPERMINT)
Jonathan Gershenzon, Rick L. Ridgway and Rodney B.
 Croteau.
- 2:15 - 2:30 Contributed Paper 23
 BIOCHEMICAL BASIS OF WHEAT RESISTANCE TO APHIDS
Hermann M. Niemeyer and Francisco J. Perez.
- 2:30 - 2:45 Contributed Paper 24
 EFFECTS OF AZADIRACHTIN ON THE MIGRATORY
 GRASSHOPPER, MELANOPLUS SANGUINEPES
D.E. Champagne, M.B. Isman and G.H.N Towers.
- 2:45 - 3:00 Contributed Paper 25
 SPECIFICITY OF VIR GENE INDUCING PHYTOCHEMICALS
 FOR AGROBACTERIUM TUMEFACIENS
P.A. Spencer, E.W. Nester, and G.H.N. Towers.
- 3:00 - 3:30 COFFEE BREAK
- 3:30 - 3:45 Contributed Paper 26
 ATTEMPTS TO MODIFY CADMIUM ACCUMULATION IN PLANTS
 THROUGH TISSUE-SPECIFIC EXPRESSION OF THE MOUSE
 METALLOTHIONEIN GENE
I.B. Maiti, A. Hunt, G.J. Wagner.
- 3:45 - 4:00 Contributed Paper 27
 EXPRESSION OF TOMATO RESISTANCE TO VERTICILLIUM
 ALBO-ATRUM IN VITRO
Mark Bernards and Brian E. Ellis.
- 4:15 - Business Meeting
- 6:30 - Banquet

Friday June 26, 1987

(George J. Wagner, Presiding)

- 9:00 -10:00 Symposium 10
 OLIGOSACCHARIDE SIGNALLING FOR SYNTHESIS OF WOUND-
 INDUCIBLE PROTEINASE INHIBITORS IN PLANTS
C.A. Ryan, G. An, R.A. Thornburg, G. Pearce, G.
 Hall, T. McLooshok and R. Johnson.

10:00-10:30 Coffee Break

10:30-11:30 Symposium 11
PHYTOCHEMISTRY-ITS ROLE IN THE FUTURE OF PLANT
BIOTECHNOLOGY
Leon Dure.

11:30 CLOSING REMARKS

Monday 9:30-10:30

Symposium 1

GAINING ACCESS TO REACTIONS AND COMPOUNDS THROUGH CULTURED PLANT CELLS
Philip Filner, Sungene Technologies Corp., Palo Alto, California 94304.

Plant cells will take up and utilize metabolic intermediates which may never be outside a cell in a normal plant. Because utilization of a suspected metabolite can often be made rate-limiting for growth, it is possible to select for expression of latent metabolic potential in cultured cells. Evidence for a previously unknown pathway from putrescine to GABA via hydroxycinnamic amide intermediates has been obtained in this way in cultured tobacco cells. The XD line of cultured tobacco cells cannot grow on putrescine nitrogen, but accumulates caffeoylputrescine (CP). A putrescine-utilizing variant (PUT) was selected. Growth of PUT cells on putrescine is inhibited by aminoxyphenylpropionic acid, which blocks cinnamic acid synthesis. PUT cells make a novel compound, cinnamoylGABA (CG), but XD cells do not. CG was found, as predicted, in reproductive plant tissue also, paralleling the flower-specific occurrence of CP.

Monday 11:00-12:00

Symposium 2

SOMACLONAL VARIATION-ITS GENETIC BASIS AND PROMISE FOR BIOTECHNOLOGY
David Evans, DNA Plant Technology, 2611 Branch Pike, Cinnaminson, NJ 08077.

ABSTRACT NOT AVAILABLE

Tuesday 8:30-9:30

Symposium 3

SELECTION OF PLANT MUTANTS AND THEIR USE IN STUDYING PHYTOCHEMISTRY

C.R. Somerville and J. Browse, DOE Plant Research Laboratory, Michigan State University, East Lansing MI 48824.

The investigation of many aspects of plant biochemistry which are not amenable to study by direct methods can be substantially simplified by the identification of appropriate mutants. This is exemplified by the successful use of mutants in the study of gibberellin and starch metabolism in maize, wax biosynthesis in barley and photorespiration in *Arabidopsis*. However, the approach need not be limited to the isolation of mutants with a visible or selectable phenotype. As demonstrated in the isolation of nitrate reductase deficient mutants of barley, useful mutants can be identified by direct screening for a specific biochemical defect. We have recently used this approach to isolate a series of mutants of *Arabidopsis* with altered lipid metabolism. Analysis of the mutants has provided new insights into both the regulation of glycerolipid biosynthesis and the functional significance of acyl chain length and unsaturation in plant membranes.

Tuesday 9:30-10:30

Symposium 4

PROGRESS IN UNDERSTANDING PLANT GENE EXPRESSION: STUDIES ON EPSP SYNTHASE AND FLORAL SPECIFIC GENES

Charles S. Gasser, Dilip M. Shah, Guy Della-Cioppa, Stephen M. Padgett, Ganesh M. Kishore, Alan G. Smith, Kim A. Sachs, Stephen G. Rogers, Robert B. Horsch, and Robert T. Fraley, Plant Molecular Biology, Monsanto Co., 700 Chesterfield Village, Chesterfield, MO 63198.

5-Enolpyruvylshikimate-3-phosphate (EPSP) synthase is a plastid-localized enzyme of the shikimate pathway that is essential for the de novo synthesis of aromatic amino acids in plants. It is the target of the broad spectrum herbicide, glyphosate. We have isolated EPSP synthase cDNA and genomic clones from a number of higher plants. The genes have been characterized in terms of the organ specificity of their expression, their relationship to EPSP synthase genes of other organisms, and the structure and function of the transit peptides. Expression of plant EPSP synthase in bacteria has allowed the production of large amounts of enzyme for biochemical characterization. The genes have been used to genetically engineer plants with elevated tolerance to glyphosate based herbicides. In a separate project a differential screening method has been used to isolate genes which are specifically expressed in floral tissues of tomato. The genes exhibit precise temporal regulation. In situ hybridization has been used to precisely map the pattern of expression of these genes.

Tuesday 11:00-12:00

Symposium 5

PLANT TRANSFORMATION TO CONFER PROTECTION AGAINST VIRUS INFECTION
R.N. Beachy, P. Powell Abel, R.S. Nelson, J. Register III, G. Clark, N. Tumer, R.T. Fraley, and D. Shah, Department of Biology, Washington University, St. Louis, MO, 63130; Monsanto Company, St. Louis, MO, 63198.

Plants that are infected with one virus are generally protected against superinfection by a second virus related to the first. This phenomenon is referred to as "cross-protection." The cellular or molecular mechanism(s) responsible for the interference seen in cross-protection is/are not identified. Recently we demonstrated that transgenic tobacco and tomato plants that express the coat protein coding sequence of tobacco mosaic virus (TMV) are resistant to infection by a number of different tobacco and tomato strains of TMV (*Science* 232, 738-743, 1986). The characteristics of the protection in transgenic plants are similar to those reported for plants that were cross-protected in the classical sense. Similarly, transgenic plants that express the coat protein coding sequences of an unrelated virus, alfalfa mosaic virus, were resistant to infection by that virus (*EMBO J* 7, in press, 1987). Protection, which is positively correlated with the level of expression of the coat protein gene, is manifested as a reduction in the numbers of cells that become infected, and a reduced rate of spread throughout the plant. As a result, plants either escape infection or, if infected, develop less severe disease symptoms compared to non-transgenic control plants. The implications of these results in agriculture will be discussed.

Wednesday 9:00-10:00

Symposium 6

MOLECULAR APPROACHES TO STUDYING CELLULAR RECOGNITION IN PLANTS
Adrienne Clarke, School of Botany, University of Melbourne, Parkville, Victoria, Australia.

ABSTRACT NOT AVAILABLE

Wednesday 10:00-11:00

Symposium 7

THE ROLE OF PLANT COMPOUNDS IN THE REGULATION OF RHIZOBIUM NODULATION GENES.

N. Kent Peters and Sharon R. Long, Department of Biological Sciences, Stanford University, Stanford, CA 94305.

The plant flavone, luteolin, induces the nodulation genes of R. meliloti. Several flavonoid molecules structurally related to luteolin such as apigenin, eriodictyol, naringenin and quercetin, do not induce the nodulation genes as well as luteolin. We have found that the molecules similar in structure to luteolin can antagonize the induction by luteolin, suggesting competition for the same allosteric binding site. This finding further suggests the requirement for control of the various branches within the flavonoid pathway as well as the committing step of chalcone synthase.

Thursday 9:00-10:00

Symposium 8

INITIAL INTERACTIONS BETWEEN PLANT CELLS AND AGROBACTERIUM TUMEFACIENS IN CROWN GALL TUMOR FORMATION

Gerard A. Cangelosi and Eugene W. Nester, Department of Microbiology SC-42, University of Washington, Seattle, WA 98195.

Formation of crown gall tumors on dicotyledonous plants results from the transfer of a segment of bacterial plasmid DNA, termed T-DNA, from Agrobacterium tumefaciens to susceptible plant cells. Expression of T-DNA genes in the plant causes the tumorous growth, and is independent of the presence of the bacteria. The initial steps of the transfer process involve the active participation of both plant and bacterial metabolites. The first step in the infection is attachment of the bacteria to specific sites on susceptible plant cell walls. Attachment is specified by bacterial chromosomal genes, at least two of which are also involved in the synthesis of a cyclic β -1,2-glucan. Subsequent steps are mediated by bacterial plasmid genes, termed the virulence (vir) genes. The vir genes are positively regulated by phenolic compounds which are produced by wounded plant tissue.

Thursday 10:30-11:30

Symposium 9

CHALCONE SYNTHASE mRNA INDUCTION IN ROOTS AND LEAVES IN RESPONSE TO PATHOGENS

D.N. Kuhn, G. Souciet and C.B. Jonsson, Biochemistry Dept., Purdue University, W. Lafayette, IN 47907.

Chalcone synthase (CHS) catalyses the first committed step in flavonoid biosynthesis. In legumes, isoflavonoid and pterocarpan phytoalexins are produced in response to pathogen inoculation. Pathogen inoculation also induces a rapid increase in CHS activity and mRNA amount. CHS mRNA induction has been correlated with race-specific resistance. In the interaction of soybean leaves with Pseudomonas syringae pv. glycinea races, CHS mRNA is strongly induced in resistant plants and weakly induced in susceptible plants. In soybean roots inoculated with Phytophthora megasperma f.sp. glycinea races, CHS mRNA induction is identical in resistant and susceptible plants. In uninoculated plants, CHS mRNA is more abundant in roots than in leaves. The role of CHS in resistance may be different in roots and leaves. We have identified several soybean CHS genes and will investigate the differential expression of these genes in roots and leaves before and after pathogen inoculation.

Friday 9:00-10:00

Symposium 10

OLIGOSACCHARIDE SIGNALLING FOR SYNTHESIS OF WOUND-INDUCIBLE PROTEINASE INHIBITORS IN PLANTS

C.A. Ryan, G. An, R.A. Thornburg, G. Pearce, G. Hall, T. Moloshok and R. Johnson, Institute of Biological Chemistry, Washington State University, Pullman WA 99163.

The role of oligogalacturonic acid fragments, derived from the plant cell wall in response to wounding or insect attacks, in activating the expression of proteinase inhibitor genes is being studied by two approaches; (1) investigating the steps involved in the signalling process initiated by oligogalacturonans, and (2) isolating proteinase inhibitor genes to determine the regions regulated by wound-induced transacting factors and to eventually identify and isolate these factors for further study. Data will be presented concerning the chemical nature of the smallest oligomers that regulate inhibitor gene expression as well as recent evidence to support a regulatory role for nucleotide sequences in the 3' region of a wound-inducible proteinase inhibitor gene.

Friday 10:30-11:30

Symposium 11

PHYTOCHEMISTRY-ITS ROLE IN THE FUTURE OF PLANT BIOTECHNOLOGY

Leon Dure, Department of Biochemistry, University of Georgia, Athens, GA 30602.

ABSTRACT NOT AVAILABLE

Monday 1:30-1:45

Paper 1

METHIONINE AMINOTRANSFERASE ACTIVITIES FROM BRASSICA CARINATA

J.R. Glover and B.E. Ellis, University of Guelph, Canada.

Formation of the keto acid of methionine has been proposed to be the first step in the chain-extension pathway which ultimately leads to the biosynthesis of alkylglucosinolates in Brassica and allied species. 2-Keto-4-methylthiobutyrate is, however, also a key intermediate in other aspects of methionine metabolism. Aminotransferases which can utilize methionine and its keto acid as substrates may be, therefore, not specific to glucosinolate-forming systems. Fractionation of partially purified protein extracts from B. carinata seedlings on anion exchange FPLC resolves three forms of putative methionine aminotransferase. Details of the purification and subsequent characterization of these forms will be presented and the implications of their coincident occurrence discussed.

Monday 1:45-2:00

Paper 2

3',4'-ANHYDROVINBLASTINE IN CATHARANTHUS ROSEUS
Anne Goodbody, T. Endo, J. Vukovic, C. Watson, and M. Misawa,
Allelix Inc., 6850 Goreway Drive, Mississauga, Ontario, Canada,
L4V 1P1.

The *in vivo* synthesis of bis-indole alkaloids in *Catharanthus roseus* is believed to occur through the coupling of the indole alkaloids catharanthine and vindoline to 3',4'-anhydrovinblastine (AVLB). Thus, AVLB is considered to be a key intermediate in the biosynthesis of other bis-indole alkaloids, including the valuable oncolytic drugs vinblastine and vincristine. We have shown that high yields of AVLB can be obtained from the enzymic coupling of catharanthine and vindoline by *C. roseus* peroxidase isoenzymes, horseradish peroxidase or other haemoproteins. Although AVLB is thought to be a natural product, it has rarely been isolated from plants, possibly because of the ease with which it can be decomposed. We have developed a method for the extraction of alkaloids from *C. roseus* leaves that yields AVLB at up to 0.2% of the dry weight, which is greatly in excess of the levels of other dimers.

Monday 2:00-2:15

Paper 3

BIOSYNTHESIS OF SUCROSE ESTERS AND DITERPENES IN TRICHOME HEAD CELLS OF TOBACCO

L. Kandra and G. J. Wagner, Plant Physiology/Biochemistry/Molecular Biology Program, Agronomy Department, University of Kentucky, Lexington KY 40546-0091.

Leaf hairs of Tobacco T.I. 1068 exude substantial quantities of sucrose acyl esters (SE) and diterpenes (DVT) which collect in a droplet outside of the 6 to 8 cell glandular trichome head. Data will be presented which show that glandular head cells are the site of SE as well as DVT biosynthesis. Results of labeling studies using ¹⁴C- sucrose, glucose or acetate indicate that sucrose via epidermis or subepidermis is used directly in the formation of SE. Also, inhibitor studies suggest that head cell photosynthetic capacity is required in the formation of DVT via the mevalonate pathway but not for utilization of sucrose or formation of acyl groups in formation of SE. After labeling, epidermal peels were extracted with acetonitrile, exudate compounds were partitioned into CHCl₃, fractionated by HPLC, and SE were saponified to produce sucrose which was hydrolyzed with invertase to analyze labeling patterns in the sucrose moiety. The role of abundant chloroplasts of glandular head cells in exudate compound formation is being studied further. Patterns of labeling in acyl groups of SE are also being determined.

Monday 2:15-2:30

Paper 4

LIGNIN BIODEGRADATION BY PEROXIDASES

N.G. Lewis, R.A. Razal, and E. Yamamoto, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

Recently, extracellular enzymes described as ligninases have been isolated from cultures of *Phanerochaete chrysosporium* and have been shown to be peroxidases. Most biodegradation studies employ simple model compound systems rather than lignin itself. In this paper, the efficacy of lignin biodegradation by peroxidase, in organic and aqueous media, was investigated. None of the biochemical treatments studied compared favorably with simple chemically-induced degradation.

Monday 2:30-2:45

Paper 5

ISOLATION OF PAPS: DESULFOBENZYLGLUCOSINOLATE SULFOTRANSFERASE AND MYROSINASE FROM CRESS (*Lepidium sativum*) SEEDLINGS

Thomas M. Glendening and Jonathan E. Poulton, Department of Botany, University of Iowa, Iowa City, Iowa 52242.

Young cress (*Lepidium sativum*) seedlings accumulate benzylglucosinolate. Upon tissue disruption, this glucosinolate is hydrolysed by the thioglucoside glucohydrolase myrosinase. Cell-free extracts of 4 day-old light grown seedlings, after passage through Sephadex G-25 and concanavalin A-Sepharose to remove contaminating myrosinase activity, catalyse the sulfation of desulFOBENZYLGLUCOSINOLATE to benzylglucosinolate using 3'-phosphoadenosine 5'-phosphosulfate (PAPS) as sulfate donor. In Tris-HCl buffer, maximum activity was observed at pH 9.0. The enzyme showed slight stimulation by 10 mM MgCl₂ but was inhibited by EDTA and β-mercaptoethanol. The myrosinase activity was further purified by DEAE-cellulose and hydroxyapatite chromatography. The purification and characterization of both enzymes will be described.

Monday 2:45-3:00

Paper 6

ISOLATION AND CHARACTERISATION OF A SPECIFIC N-METHYLTRANSFERASE INVOLVED IN INDOLE ALKALOID BIOSYNTHESIS FROM CATHARANTHUS ROSEUS

V. Deluca, J. Balsevich, R. Tyler and W.G.W. Kurz, Plant Biotechnology Institute, National Research Council of Canada, Saskatoon, Saskatchewan, Canada S7N 0W9.

Young leaves of *Catharanthus roseus* contain a novel N-methyltransferase which transfers the methyl group from S-adenosyl-L-methionine specifically to position 1 of (2R,3R)-2,3-dihydro-3-hydroxytabersonine, producing the N-methylated product. The enzyme showed a high degree of specificity towards substrates containing a reduced double bond at position 2,3 of tabersonine derivatives but the more substituted N-demethyldeacetylindoline did not act as a substrate. The studies and previous research support the hypothesis that N-methyltransferase catalyses the third last step in vindoline biosynthesis.

Lack of this enzyme activity in *C. roseus* tissue cultures is also documented. N-methyltransferase activity could not be found in cell suspension cultures when they were treated with fungal elicitors or when cells were transferred to alkaloid production medium. Hormone autotrophic or photoautotrophic cell lines produced low levels of indole alkaloids, but N-methyltransferase activity could not be found in any of these lines.

Monday 3:30-3:45

Paper 7

SESQUITERPENE LACTONES FROM LECOCARPUS PINNATIFIDUS (ASTERACEAE)

Francisco A. Macias and Nikolaus H. Fischer, Department of Chemistry, Louisiana State University, Baton Rouge, Louisiana 70803-1804.

The aerial parts of *Lecocarpus pinnatifidus* Decaisne, endemic to the Galapagos Islands (Ecuador), afforded in addition to the known flavonoid penduletin and the sesquiterpene lactone 15-hydroxy-8β-(2-methylbutyryloxy)-14-oxo-acanthospermolide, three new melampolides that were named lecocarpinolides A, B, and C. The structures of these compounds and their derivatives were elucidated by high field ¹H NMR, ¹³C NMR, ¹H COSY-45 2D and ¹³C C-H correlated 2-D. Taxonomic aspect will be discussed briefly.

Monday 3:45-4:00

Paper 8

STRUCTURE ELUCIDATION OF 3-HYDROARGENTATIN B
Felix J. Parodi and Nikolaus H. Fischer, Department of Chemistry,
Louisiana State University, Baton Rouge, LA 70803.

A new cycloartenol derivative, 3 β -hydroargentatin B (1), was isolated from Parthenium argentatum (Guayule). Its ¹H and ¹³C nmr spectra were assigned using homo- and heteronuclear correlation methods, including nuclear Overhauser effect (NOE) difference spectroscopy and in situ chemical derivatization, which allowed the relative configuration and conformation of 3 β -hydroargentatin B (1) to be established. Strategies for the structure elucidation of the new triterpene will be presented.

Tuesday 1:45-2:00

Paper 11

CARBOHYDRATE ANALYSES WITH PELLICULAR ANION EXCHANGE CHROMATOGRAPHY AND PULSED AMPEROMETRIC DETECTION
Joseph D. Olechno, W.T. Edwards, D.G. Gillen, and W. Rich, Dionex Corporation, 501 Mercury Drive, Sunnyvale, CA 94086.

Chromatographic analyses of carbohydrates are limited to two distinct areas: Separations of analytes and detection. Pellicular anion exchange resins give excellent resolution of very similar carbohydrates including epimers and the structural isomers of oligomers. Pulsed amperometry offers a new technique for the detection of carbohydrates. Samples as small as picomoles carbohydrate per injection have been analyzed. The pulsed amperometric detector is also gradient compatible. Both reducing and non-reducing sugars are detected with the PAD with equal sensitivity. Both isocratic and gradient elutions of carbohydrates will be shown including the separation of oligosaccharides derived from glycoproteins and the separation of oligosaccharides.

Monday 4:00-4:15

Paper 9

PURIFICATION AND SOME PROPERTIES OF AN ISOFLAVONE-SPECIFIC 5-O-METHYLTRANSFERASE FROM YELLOW LUPIN

Henry E. Khouri, Satoshi Tahara and Ragai K. Ibrahim, Plant Biochemistry Laboratory, Biology Department, Concordia University, Montreal, Quebec, Canada H3G 1M8.

An isoflavone 5-O-methyltransferase (OMT) was partially purified from roots of yellow lupin (Lupinus luteus L. cv. Bapine) by fractional precipitation with ammonium sulfate, followed by gel filtration and ion exchange chromatography using an FPLC system. This novel enzyme, which was purified 810-fold, catalyzed position-specific methylation of the 5-OH group of a number of substituted isoflavones. The OMT had a pH optimum of 7 in Pi buffer, an apparent pI of 5.2, a molecular weight of 55,000, no requirement for Mg²⁺ and was inhibited by various SH-group reagents. The K_m values for the isoflavone substrates varied between 1 and 10 μ M and that for SAM was 100 μ M. The role of this enzyme will be discussed in relation to the biosynthesis of the 5-O-methylisoflavones that accumulate in this tissue.

Tuesday 2:00-2:15

Paper 12

PRODUCTION AND IDENTIFICATION OF MONOCLONAL ANTIBODIES TO FLAVONOL-RING B-SPECIFIC O-GLUCOSYLTRANSFERASES BY IN VITRO IMMUNIZATION

Lilian Latchinian, Jacynthe Seguin, and Ragai K. Ibrahim, Plant Biochemistry Lab., Chemistry Graduate Faculty and Biology Department, Concordia University, Montreal, Quebec, H3G 1M8.

Murine monoclonal antibodies to 2'- and 5'-glucosyltransferases (GTs) were produced by in vitro immunization with a partially purified protein fraction from the shoot tips of Chrysosplenium americanum. Hybridomas were produced by fusion of mouse myeloma cells with in vitro immunized spleen cells from Balb c mice. Culture supernatants from the resulting hybridomas were screened by Enzyme Linked Immuno-Sorbent Assay (ELISA) for (a) their ability to produce immunoglobulins (Ig), (b) their specificity to react with partially purified enzyme preparation. The majority of positive clones produced antibodies of IgM class. Further characterization was performed by immuno-blotting (Western blotting) and by enzyme inhibition studies. The use of these monoclonal antibodies in the immunocytochemical localization of GTs will be demonstrated in C. americanum.

Tuesday 1:30-1:45

Paper 10

SOLID ¹³C-NMR ANALYSIS OF WHEAT ROOT LIGNIN

N.G. Lewis, T.L. Eberhardt, E. Yamamoto, C. Ivey and J.B. Wooten, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

Feland wheat (Triticum aestivum L.) was grown on agar medium in the presence of [1-¹³C], [2-¹³C], and [3-¹³C] ferulic acid, respectively, for three weeks. The resulting wheat roots were frozen in liq. N₂ immediately after washing, and freeze-dried. The freeze-dried tissue was then subjected to ¹³C CP/MAS NMR analysis.

¹³C-NMR spectra showed the presence of cell wall bound ferulic acid in both esterified and free form. Unexpectedly amongst the lignin signals observed, those pertaining to pinoresinol and phenylcoumaran like structures and 2-O-aryl linkages, which are typical for DHP and milled wood lignin, were essentially absent.

A comparison of isolated wheat root lignin to lignins from other sources will be discussed.

Tuesday 2:15-2:30

Paper 13

THE USE OF PATTERN RECOGNITION TECHNIQUES TO DIFFERENTIATE CITRUS SPECIES USING JUICE FLAVONOID PEAK PROFILES

R.L. Rouseff and S.F. Martin, Florida Department of Citrus, USA.

Flavonoid peak area data from 39 cultivars comprised of six common Citrus species (Swingle) were analyzed using Arthur81, multivariate statistical package. Thirteen flavonoid peaks were separated and quantified along with total peak area using ternary HPLC gradient system. The species represented were C. reticulata, C. sinensis, C. limon, C. grandis, C. paradisi and C. aurantium. Principle component analysis, Fisher and variance weighting were used to determine which combination of the 14 variables would best separate each cultivar into the correct species grouping. Using K Nearest Neighbor, KNN, with eigenvectors comprised of all 14 variables, 87.5% of the sample could be correctly identified. Classification accuracies increased to 95% using only five non-redundant variables. These variables consisted of the peaks from narirutin, naringin, neoeriocitrin, poncirin and an unidentified flavonoid peak. Classification results from hybrids or cultivars of uncertain origin will also be discussed.

Tuesday 2:30-2:45

Paper 14

INCREASE OF γ -GLUTAMYL-CYSTEINE SYNTHETASE ACTIVITY IN CADMIUM-RESISTANT TOMATO CELLS

John C. Steffens and Bill G. Williams, Department of Plant Breeding, Cornell University, Ithaca, NY 14853, and Biovision Inc., San Jose, CA 95135.

Tomato cell cultures exposed to sublethal concentrations of cadmium ion synthesize the metal binding polypeptides (γ -Glu-Cys)₃-Gly and (γ -Glu-Cys)₄-Gly. Cells selected for growth on normally lethal concentrations of CdCl₂ (Cd^R) accumulate these peptides more rapidly and in higher amounts than Cd^S cells when exposed to heavy metals, and the pool of precursor γ -Glu-Cys increases five-fold over the same pool in Cd^S cells. Specific inhibition of γ -Glutamylcysteine synthetase by buthionine sulfoximine prevents the accumulation of these peptides, and abolishes resistance to heavy metals. In the absence of Cd ion, growth of Cd^R cells is less sensitive to inhibition by buthionine sulfoximine than Cd^S cells, indicating that the activity of the target enzyme may be altered in Cd^R cells. Enzymatic assay for γ -glutamylcysteine synthetase shows that activity of this enzyme in Cd^R tomato cells is about four-fold higher than in Cd^S cells.

Tuesday 2:45-3:00

Paper 15

INVESTIGATION AND PURIFICATION OF CHORISMATE MUTASE FROM CELL CULTURES OF PARSLEY (*PETROSELINUM HORTENSE*)

Kent F. McCue and Eric E. Conn, Department of Biochemistry and Biophysics, University of California, Davis, CA.

Chorismate mutase activity in parsley (*Petroselinum hortense*) suspension cultures is increased by inductive treatment with light. The majority of the activity is due to a regulated form (CMR), which has been purified ~100 fold by DEAE-cellulose chromatography, chromatofocusing and sephadex gel filtration. Purification provided an isoelectric point at pH 4.7 and a molecular weight of 50 kD. The Km for CMR was 90 μ M in the presence of trp. Half maximal activation was observed at 0.6 μ M trp. Inhibition studies with phe and tyr gave I_{0.5} of 40 and 10 μ M respectively. Examination of the pH optima indicated a peak of activity at pH 8.5. Preliminary results indicate the presence of a second unregulated form (CMU), which has a molecular weight of 67 kD and a Km of 1.2 mM.

(Supported in part by a McKnight Foundation fellowship and USPHS GM-05301-29).

Tuesday 3:30-3:45

Paper 16

CYTOKININ ANTAGONIST ACTIVITY OF SUBSTITUTED PHENETHYLAMINES IN PLANT CELL CULTURE

Paul Christou, Kenneth A. Barton and Barbara Keller, Agracetus, 8520 University Green, Middleton, WI 53562.

Substituted phenethylamines exhibit an antagonistic effect on the cytokinin metabolism of plant tissue cultures. Compounds possessing an aromatic hydroxyl and a primary aliphatic amino group are toxic to wild type tobacco, sunflower, cotton, corn and soybean callus cultures in the absence of exogenously supplied cytokinins. Crown gall tissues containing *Agrobacterium tumefaciens* T-DNA which encodes a cytokinin biosynthetic gene were not affected by these compounds. The toxicity toward wild type callus cultures could be prevented by the incorporation of cytokinin in the growth media. However, phenethylamines possessing an additional aromatic hydroxyl group were found to be toxic to all types of tissues tested. Our results demonstrate that there are significant differences between the metabolism of cytokinins in wild type plant tissue and crown gall tissue, with the basis for the differential effect most likely being due to an additional biosynthetic enzyme in crown gall. We have thus discovered a class of compounds which may be used as probes in the study of cytokinin metabolism in PTC.

Tuesday 3:45-4:00

Paper 17

ACCUMULATION OF ANTIFUNGAL POLYACETYLENES IN HAIRY ROOT CULTURES OF *CHAENACTIS DOUGLASII* (COMPOSITAE)

P. Constabel and G.H.N. Towers, University of British Columbia, Canada.

Hairy roots were induced on leaf explants of *Chaenactis douglasii* using *Agrobacterium rhizogenes* strain TR 7. The resulting roots were cultured on solid and liquid media. Accumulation of the highly antifungal dithiacyclohexadiene polyines (thiarubrine A and B) as well as other polyacetylenes was followed over time and under a variety of conditions.

The transformed root cultures produced substantially higher levels of the compounds than control root cultures grown with exogenous auxin. The higher efficiency of hairy root cultures in synthesizing the compounds makes this an attractive system for investigating the biosynthesis and biogenetic relationships of these polyacetylenes. The advantages of hairy root cultures will also be discussed.

Tuesday 4:00-4:15

Paper 18

ELICITOR-INDUCED FURANOCOUMARIN BIOSYNTHESIS IN *AMMI MAJUS* L. CELL SUSPENSION CULTURES

Ulrich Matern and Daria Hamerski, University of Freiburg, West Germany.

Elicitor preparations isolated from phytopathogenic *Alternaria* or *Phytophthora* ssp. induced the accumulation of various linear furanocoumarins in *Ammi majus* L. cell suspension cultures. Microsomes prepared from the induced cells catalyzed three consecutive reactions which have been postulated to be part of the furanocoumarin biosynthetic pathway, converting demethylsuberosin into bergaptol via (+)marmesin and psoralen. Each of these reactions was studied individually in vitro, employing the appropriate labelled substrate in combination with various compounds known to inhibit cytochrome P 450-dependent reactions. Our results suggest that fungal elicitors induce a specific set of cytochrome P 450-dependent hydroxylases in *Ammi majus* L. cells.

Tuesday 4:15-4:30

Paper 19

ELICITOR-INDUCED TYROSINE DECARBOXYLASE IN ISOQUINOLINE ALKALOID PRODUCING PLANT CELL SUSPENSION CULTURES

Peter Brodelius and I. Marques, Swiss Federal Institute of Technology, Switzerland.

Tyrosine decarboxylase (TDC) is induced in cell suspension cultures of *Thalictrum ruigosum* and *Eschscholzia californica* after treatment with a yeast glucan elicitor. A good correlation between induced TDC-activity and amount of berberine produced by *T. ruigosum* cultures has been established. The level of TDC-activity induced depends on elicitor concentration, incubation time after addition of elicitor and the physiological state of the cells. The best response to the elicitor treatment is observed in late exponential and early stationary growth stage. TDC has been purified from the two cultures and partly characterized. Both enzymes show optimum activity at pH = 8.4. Tyrosine and DOPA are equally good substrates and the Km-values are around 0.25 mM for both enzymes. The enzyme from *E. californica* is not inhibited by the suicide inhibitors difluoromethyl tyrosine or fluoromethyl DOPA. However, aminoxy-phenylpropionate (AOPP) is a strong inhibitor of TDC. Furthermore, the enzyme is a dimer and the molecular weight is 112 600 as determined by SDS gel electrophoresis.

Thursday 1:30-1:45

Paper 20

HISTOLOGICAL AND CYTOLOGICAL LOCALIZATION OF FURANOCOUMARINS IN SHOOTS OF Ruta graveolens L.

Alicia M. Zobel and Stewart A. Brown , Department of Chemistry, Trent University, Peterborough, Ont. K9J 7B8.

Coumarins, as compounds somewhat soluble in water, are difficult to localize histologically in the plant because of washing out during preparation for the light or electron microscope. Up to now identification has been made in segregated whole organs - roots, shoots, leaves, flowers, etc. The present work with R. graveolens has been at the tissue level, allowing the constituent furanocoumarins to be localized and the amounts of the three main components - psoralen, bergapten, and xanthotoxin - to be analysed and compared in different cell types. For this material we developed an embedding technique, using xylene instead of alcohol and acetone, which allowed visualization of these coumarins under the microscope in unfixed material and in material specially fixed in a mixture of paraformaldehyde-glutaraldehyde with the addition of 1% caffeine, potassium dichromate, or ferric chloride. Highest amounts of coumarins were found in the epidermis, with a significant amount outside on the cuticular surface, and a lesser amount in the parenchyma of the cortex. None was detected in the xylem or pith parenchyma.

Thursday 2:15-2:30

Paper 23

BIOCHEMICAL BASIS OF WHEAT RESISTANCE TO APHIDS

Hermann M. Niemeyer and Francisco J. Perez , Facultad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile.

Wheat extracts contain hydroxamic acids (Hx) which play an important role in the resistance of the plant to aphids. The inhibition by DIMBOA, the main Hx in wheat, of several mitochondrial functions provides a basis for its toxicity. A possible chemical mechanism for the alteration of an enzyme by DIMBOA involves its reaction with sulfhydryl groups of the enzyme. This is supported by data on the reaction of DIMBOA with thiols in aqueous solution and with the sulfhydryl group at the active site of papain.

Suitable germplasm for breeding for high Hx levels in wheat was found in Triticum and Aegilops species, as well as other wild Gramineae hybridizable with wheat.

Data leading to these conclusions will be presented and discussed.

Thursday 1:45-2:00

Paper 21

HISTOLOGICAL LOCALIZATION OF CHALCONE SYNTHASE IN THE SHOOT APICES OF Brassica , Fagopyrum , Hippeastrum AND Pisum

Alicia M. Zobel and Geza Hrazdina , Institute of Food Science, Cornell University, Geneva, N.Y. 14456.

The cellular localization of chalcone synthase, the key enzyme in flavonoid biosynthesis, was investigated in the shoot apices of Brassica , Fagopyrum , Hippeastrum and Pisum cultivars. Chalcone synthase was detected by the use of a monospecific polyclonal antiserum preparation and a 20 nm IgG immunogold conjugate. Chalcone synthase was found to be present in the earliest stages of shoot apex ontogenesis. In buckwheat and pea, the enzyme was present in the tunica and in some cells of the promeristem central zone. In red cabbage seedlings, where anthocyanins were already visible in the leaf primordia, chalcone synthase was located in the area of pigment production. In Hippeastrum , chalcone synthase was present in the cells of the leaf primordium subprotodermal layer. These data show an early start of flavonoid production in the ontogenesis of the shoot apex, and points that cell differentiation already is in the promeristem.

Thursday 2:30-2:45

Paper 24

EFFECTS OF AZADIRACTIN ON THE MIGRATORY GRASSHOPPER, MELANOPLUS SANGUINEPES

D.E. Champagne, M.B. Isman and G.H.N. Towers , Dept. of Botany, University of British Columbia, Vancouver, B.C., Canada V6T 2B1.

Azadirachtin, a tetranortriterpenoid from Azadirachta indica and Melia azadiracht , exhibits potent antifeedant and moulting inhibition activity in a diversity of insects. However, New World grasshoppers including Melanoplus sanguinepes have been reported to be unaffected by this compound. We have confirmed that azadirachtin is not antifeedant at dietary concentrations as high as 500 µg/g f.w. However, even low doses produce severe physiological effects. Staged fifth instar nymphs fed doses up to 6 µg/g insect exhibit dose-dependent delay of moult. Between 6 and 10 µg/g, nymphs moult to adults showing various degrees of deformity. Above this dose nymphs are unable to complete moulting and die in a pharate condition. At doses above 20 µg/g, permanent nymphs which never attempt to moult are produced. Injected azadirachtin elicits similar responses at about half the dose. Adult females fed azadirachtin show dose-dependent reduction in fecundity. Melanoplus sanguinepes may be useful for studies of the mechanism of moult inhibition in the absence of confounding antifeedant effects.

Thursday 2:00-2:15

Paper 22

ULTRASTRUCTURAL CHANGES ASSOCIATED WITH MONOTERPENE LOSS FROM THE GLANDULAR HAIRS OF MENTHA PIPERITA (PEPPERMINT)

Jonathan Gershenzon, Rick L. Ridgway and Rodney B. Croteau , Institute of Biological Chemistry, Washington State University, Pullman, WA 99164-6340.

The monoterpenes of peppermint are synthesized and stored in glandular hairs found on the leaf surfaces. These structures are initiated and filled very early in leaf development. Following flowering, over 50% of the accumulated monoterpenes are lost from the mature leaves. The principal monoterpene constituent, (-)-menthone, is reduced to near equal amounts of (-)-menthol and (+)-neomenthol, with the neomenthol being subsequently glucosylated and transported to the rhizome. We will describe the ultrastructural changes in the glandular hairs coincident with these transformations and correlate these changes with the chemical and biochemical processes occurring at this time. The monoterpenes appear to be transported out of their subcuticular storage cavity into the cytoplasm of the gland cells where they are reduced and glucosylated. The basal cell of the gland is particularly active metabolically and may be a principal site of these transformations.

Thursday 2:45-3:00

Paper 25

SPECIFICITY OF VIR GENE INDUCING PHYTOCHEMICALS FOR AGROBACTERIUM TUMEFACIENS

P.A. Spencer, E.W. Nester, and G.H.N. Towers , Dept of Botany, University of British Columbia, Vancouver, B.C. Canada V6T 2B1.

Acetosyringone and hydroxy-acetosyringone have been identified as compounds produced by Nicotiana tabacum inducing the virulence genes of the Ti-plasmid of Agrobacterium tumefaciens (Stachel et al. , 1985). Other phenolics, tested in combination, have also been implicated in vir -induction, including catechol, vanillin, and protocatechuic, gallic, pyrogallol, p -resorcylic, p -hydroxybenzoic acids (Bolton et al. , 1986). We have assayed vir -induction by each of these compounds individually. In addition, we have examined a number of different phenolic compounds in order to determine the range of effective phenolics with a view to understanding structure/activity relationships. The results of this survey will be presented.

Thursday 3:30-3:45

Paper 26

ATTEMPTS TO MODIFY CADMIUM ACCUMULATION IN PLANTS THROUGH TISSUE-SPECIFIC EXPRESSION OF THE MOUSE METALLOTHIONEIN GENE

I.B. Maitl, A. Hunt, G.J. Wagner, Plant Physiology/Biochemistry/Molecular Biology Program, Agronomy Department, University of Kentucky, Lexington, KY 40546-0091.

Binary plasmids were used to construct transformation vectors containing the constitutive promoter 35S from cauliflower mosaic virus or the light-regulated rbcS promoter from pea. Expression cassettes from the resulting plasmids were further modified to contain the mouse MT-1 cDNA clone in both the sense and antisense configurations. Tri-parental mating was used to introduce plasmids into Agrobacterium tumefaciens and co-cultivation to infect tobacco tissue. Kanamycin resistant callus is being analyzed for the presence of the MT protein and gene using gel filtration after ¹⁰⁹Cd exchange-binding, SDS Page, immunochemical methods, and Northern and Southern hybridization analysis. Cadmium accumulation and partitioning between leaves and roots will be tested under root-specific, leaf-specific and total plant expression conditions to determine if this non-essential, pollutant metal can be sequestered in non-consumed portions of plants by tissue-specific sequestration with the animal metallothionein protein.

Thursday 3:45-4:00

Paper 27

EXPRESSION OF TOMATO RESISTANCE TO VERTICILLIUM ALBO-ATRUM IN VITRO

Mark Bernards and Brian E. Ellis, Department of Chemistry and Biochemistry, University of Guelph, Guelph, Ontario, N1G 2W1, Canada.

Classical genetic studies indicate that resistance to Verticillium albo-atrum (a vascular wilt pathogen) is monogenically controlled in tomato by the Ve gene. Demonstration of Ve gene expression *in vitro* would allow study of the Ve gene at the molecular biological level without the anatomical and timing difficulties inherent in whole plant studies. Our results show that V. albo-atrum grows less vigorously in co-cultivation with resistant (Ve⁺) than susceptible (Ve⁻) cell cultures of the near-isogenic tomato cv. Craigella. Fungal growth, estimated by a colourimetric determination of the chitin content of fungal cell walls is significantly different at P=0.9995. This growth differential is indicative of Ve gene expression *in vitro* and appears to be culture age dependent. Verification and authentication of these results is presently underway. Once verified, this *in vitro* co-cultivation system offers tremendous potential for studying the role of the Ve gene in tomato resistance to V. albo-atrum.

Poster Session

Paper 1

CHANGES IN COTTON LEAF CHEMISTRY INDUCED BY VOLATILE ELICITORS

H.J. Zeringue, Jr., USDA, ARS, Southern Regional Research Center, P.O. Box 19687, New Orleans, Louisiana 70179.

Cotton (Gossypium hirsutum) leaves were exposed for 7 days to volatile chemicals originating from either Aspergillus flavus-infected cotton leaves, A. flavus cultures, or mechanically damaged cotton leaves. Volatiles from A. flavus-infected leaves triggered significant increases of 52 and 34% in phloroglucinol-reactive compounds in wounded or undamaged cotton leaves, respectively. Increased production of heliocides (C₂₅ terpenoid aldehydes) were found in the volatile recipient wounded or undamaged cotton leaves. The heliocides are natural insecticides presumed localized in the subepidermal pigment glands in leaves. Myrcene, a volatile precursor of heliocide H₂, also caused significant increases in heliocide production when leaves were exposed to the volatilized chemical.

Poster Session

Paper 2

METHOD FOR DETERMINING METABOLITE RESPONSE OF TOBACCO CELL CULTURES TO OZONE STRESS

R.M. Zacharius, J.A. Saunders, and E.H. Lee, USDA, ARS, Plant Stress Laboratory, and Germplasm Quality & Enhancement Lab, Beltsville, MD 20705.

One of us (RMZ) has reported finding the stress metabolite, glyceollin, in ozone (O₃) stressed soybean cell suspensions. Herein we have sought to determine if there is a differential metabolite response to O₃ by tobacco suspension cells derived from O₃-sensitive Bel W-3 and O₃-tolerant Bel B plants. A method is described for determining Nicotiana alkaloids and sesquiterpenoid stress compounds using an HPLC rapid scanning photodiode detector. Utilization of spectral scans during the HPLC separation allows reproducible differentiation of incompletely resolved compounds. Preliminary results indicate that both cell lines respond similarly in that neither was induced by O₃ to accumulate alkaloid or sesquiterpenoid compounds over untreated controls.

Poster Session

Paper 3

CORRELATION OF VOLATILE COMPONENTS OF ASPERGILLUS FLAVUS WITH TOXIN PRODUCTION

S.P. McCormick and H. Zeringue, USDA-SRRC, P.O. Box 19687, New Orleans, LA 70179.

Aspergillus flavus produces the carcinogenic aflatoxins. Both toxigenic (TS) and nontoxigenic (NTS) strains exist in nature. NTS have also been developed through serial transfer; mixed populations of these new strains and TS are nontoxigenic. Alteration of the gaseous environment has been shown to cause changes in the growth, sporulation and toxin production of fungi. We examined TS and NTS over a 5 to 8 day period to see if differences exist in their volatile profiles. Aflatoxin biosynthesis begins on day 2 to 3. Head space volatiles were purged from the culture containers onto Tenax traps; the tubes were heat desorbed and the volatiles analyzed with capillary GC/MS. Both TS and NTS produce a variety of low molecular weight alcohols and aldehydes (eg. 3-methyl butanol, 1-octen-3-ol, 2-methyl propanol, 2-ethyl hexanol). These compounds reach a peak concentration at day 4. The major difference between TS and NTS is in the production by TS of a number of sesquiterpene hydrocarbons. Only one sesquiterpene, cadinene, was detected in NTS and in relatively small amounts. The sesquiterpenes begin to appear at day 2, peak at day 3 and are not detected at day 8. Production of aflatoxin seems to be correlated with the production of sesquiterpenes.

Poster Session

Paper 4

THE CO-OCCURRENCE OF LINAMARIN AND LINUSTATIN

Marco Frehner, Dirk Selmar, and Eric E. Conn, Department of Biochemistry and Biophysics, University of California, Davis, USA.

The "metabolization" of linamarin in Hevea involves a transport process with linustatin as the transport form (1). This "linustatin pathway" allows a metabolization of linamarin without its cleavage by β -glucosidases and without subsequent liberation of HCN (1). The extra-cellular localization of linamarin β -glucosidases is known for several plants (2). Therefore, plants which are metabolizing linamarin by the "linustatin pathway" should contain linustatin, at least in trace amounts. We report the occurrence of linustatin in several genera (e.g., Phaseolus, Dimorphotheca, Acacia). These findings support the "linustatin pathway" as a common property of linamarin containing plants.

(1) Selmar, D., Lieberei, R., Biehl, B. (1987) Plant Physiol., submitted.

(2) Frehner, M. and Conn, E.E. (1987) Plant Physiol. in press.

CHANGES IN THE RATIO OF CYANOGENIC MONO/DIGLUCOSIDES IN *HEVEA* SEEDS

During the development of seedlings of *Hevea brasiliensis* the cyanogenic glucoside linamarin is metabolized (1). In the course of this "metabolization" the cyanogenic diglucoside linustatin is also detectable (2), implying that linamarin is glucosylated to form this diglucoside. In contrast to linamarin this compound is protected against hydrolytic cleavage by β -glucosidases. The analysis of cyanogenic glucosides in mature but fresh, unstored *Hevea* seeds showed that no diglucosides corresponding to the cyanogenic monoglucosides were detectable. In contrast, seeds stored under non-germinating conditions contained varying amounts of the diglucoside linustatin. In several other *Hevea* species which contain lotaustralin as well as linamarin, the co-occurrence of neolinustatin, the diglucoside corresponding to lotaustralin, confirms the transport and metabolization hypothesis, demonstrating a lotaustralin/neolinustatin system analogous to linamarin/linustatin.

(1) Lieberei, R., Selmar, D., Biehl, B. (1985) *Pl. Syst. Evol.* **150**, 49-63.

(2) Selmar, D., Lieberei, R., Biehl, B. (1987) *Plant Physiol.* submitted.

THE LEVEL OF NEUROTOXIN ODAP IN *LATHYRUS SATIVUS* DURING GERMINATION AND DEVELOPMENT

G. Ongena, Y.H. Kuo, and F. Lambein, Laboratory for Fysiologica Chemistry, State University of Ghent, K.L. Ledeganckstraat 35 GENT, BELGIUM.

The presence of ODAP (α -N-oxalyl-L-glutamic acid) in *Lathyrus sativus* seeds, is the major cause of the paralytic disease "Lathyrism", induced by overconsumption of these seeds in semi-arid areas of Asia and Africa.

As a basis for our study on the biosynthesis of ODAP, we have examined the ODAP concentration during the germination and development of *Lathyrus sativus* cv. Pahartoli, a high toxic variety. After 2 days germination the total ODAP concentration reached a peak value (203.6 μ mol/g.dr.wt.). This is 500% higher than in the dry seeds. During further development, the above ground parts of the plants constantly showed the highest concentration of ODAP. In the roots, the ODAP concentration gradually decreased. This can partly be explained by root exudation of non-protein amino-acids. In the cotyledons a drastic decrease of ODAP occurred during germination. In the flowering branches of the 3 month old plants, we found the highest concentrations in the pericarp, followed by immature seeds. Leaves contained higher concentration than stems. Younger stems of leaves showed higher concentration than the older ones.

EVALUATION OF TROPICAL RAINFOREST PLANTS FOR THEIR TOXICITY AND ANTIBACTERIAL ACTIVITIES

R.O. Guerrero, P.J. Chavez, and J. Robledo, Medical Sciences Campus, University of Puerto Rico, San Juan-Puerto Rico.

Rare, endemic species from tropical forests are in danger of extinction, and as such, may be lost. This study examines fifteen species from El Yunque tropical rainforest in Puerto Rico. Two bioactivities were assayed: toxicity and antimicrobial. The toxicity studies used replicas of two concentrations on brine shrimp nauplii. The microbial studies examined two concentrations on six pathogenic organisms. The results indicated that some of these plants are active. As part of the potential for opportunities in biotechnology, it is suggested that germplasm repositories be created for future preservation of the chemical potential of these plants from tropical rainforest.

Funded by NIH-MBRS

INDUCTION, PURIFICATION AND CHARACTERIZATION OF A FLAVONOID 3-O-GLUCOSYLTRANSFERASE FROM RED CABBAGE (*BRASSICA OLERACEA* CV RED DANISH) SEEDLINGS AND PRODUCTION OF ITS POLYCLONAL ANTIBODIES IN RABBIT

Yue Jin Sun and Geza Hrazdina, Institute of Food Science, Cornell University, Geneva, N.Y. 14456.

Changes in the activity of a flavonoid 3-O-glucosyltransferase (E.C.2.4.1.91) upon illumination in red cabbage seedlings were investigated. The enzyme was purified 1450-fold by $(\text{NH}_4)_2\text{SO}_4$ fractionation, gel filtration, ion exchange chromatography on DEAE-Biogel and Q-Sepharose, chromatofocussing and preparative PAGE. The glucosyltransferase had an M_r of ca 59,000 and was composed of two subunits of M_r 29,500. The enzyme was characterized by its IEP, pH-optimum, Michaelis-Menten kinetics and substrate specificity. Specific antibodies against the glucosyltransferase were developed in a New Zealand white rabbit.

NEW MEMBERS

The following recently joined our society. We welcome you and invite your participation in society business and at our meetings:

Marco Frehner
University of California
Dept. of Biochemistry and Biophysics
Davis, CA 95616

James A. Kloek
Building 82
Research Laboratories
Lake Avenue
Rochester, NY 14650

Lilian Latchinian
Concordia University
Biology Department
1455 De Maisonneuve Blvd. W.,
Montreal, Quebec
CANADA H3G 1M8

Dr. Francisco A. Macias
Department of Chemistry
Louisiana State University
Baton Rouge, LA 70803

REQUEST FOR INFORMATION

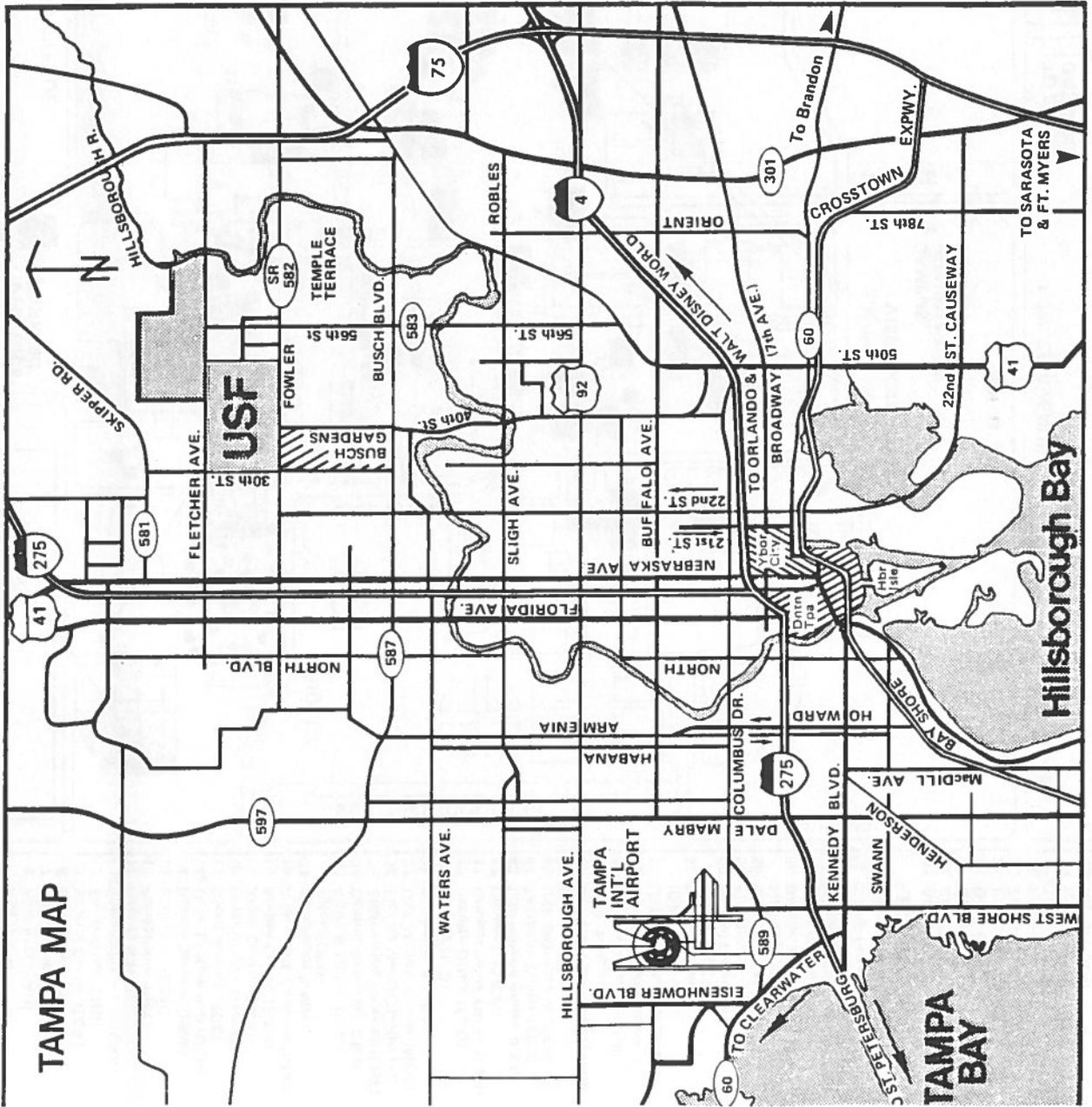
Mr. Jose Antonio Donayre G., Senior Executive Vice President Exain S.A., requests information on equipment for solid-liquid extracting phytochemicals. Main areas of concern are:

A) Natural colors such as extracting carminic acid from cochineal, bixin from annato seeds, curcumin from tumeric, gallic acid from tara, anthocyanins from grapes, etc.

B) Natural colloids and gums such as extracting locust bean gum from carob, natural sweeteners from stevia, rutin, etc.

Contact Mr. Donayre at EXAIN S.A., Av. Dos De Mayo 560, San Isidro, Lima 27, PERU

TAMPA MAP



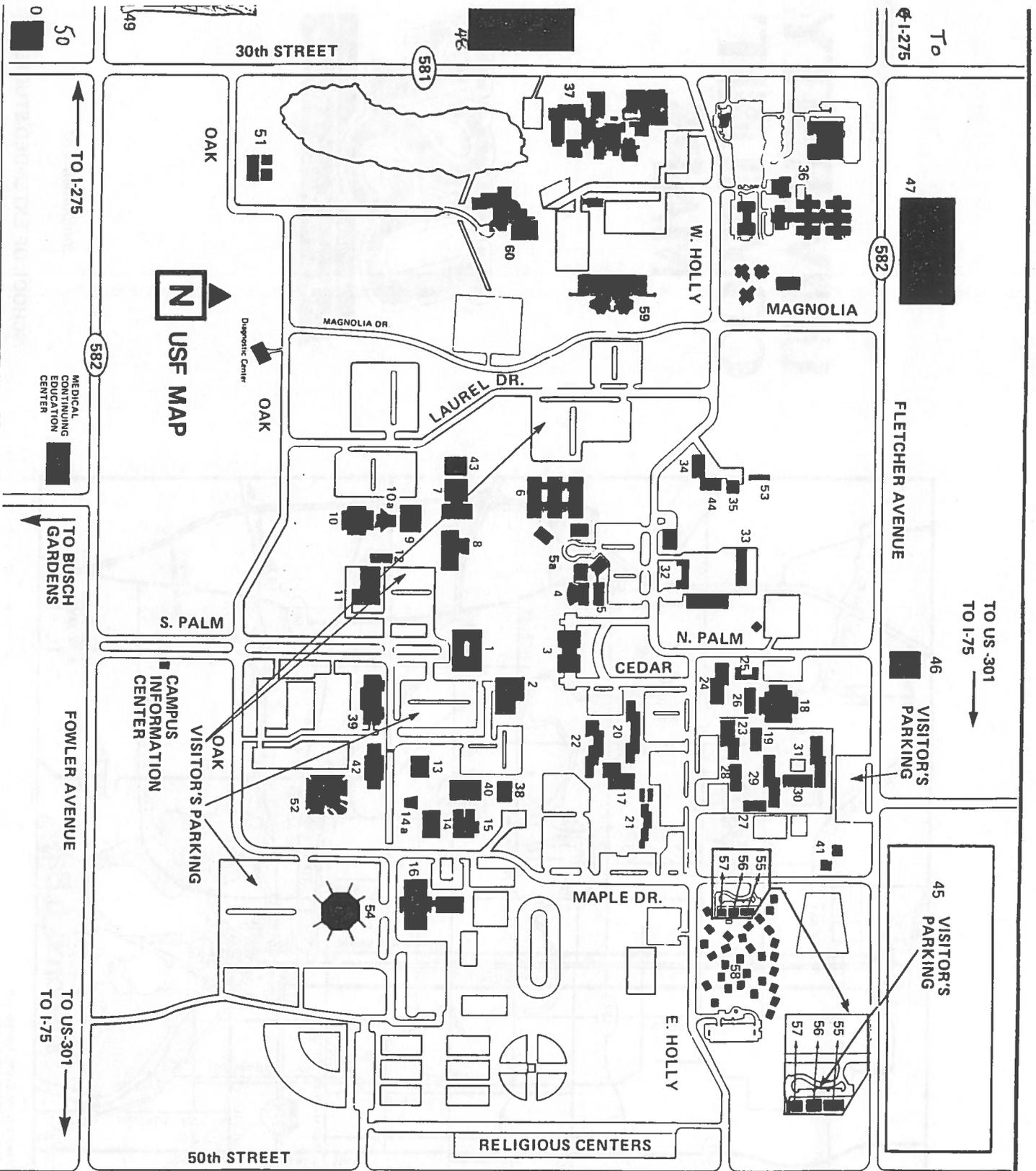
UNIVERSITY COMMUNITY MAPS



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- 10a Engineering Audt. (ENA)
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- 12 Planetarium (PHY)
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- 44 Textbook Center (TBC)
- 45 USF Golf Course (GCH)
- 46 Fontana Hall
- 47 University Community Hosp
- 48 V. A. Hospital
- 49 University Square Mall
- 50 University State Bank
- 51 USF Botanical Gardens (GAR)
- 52 Business Administration (BSNI)
- 53 Central Duplicating
- 54 Sun Dome
- 55 School of Extended Studies (EXS)
- 56 Division of Lifelong Learning (LLL)
- 57 Village Administration (VIA)
- 58 Student Residence Village
- 59 Cancer Institute
- 60 Shriners Hospital

- 45 VISITOR'S PARKING
 - 46 VISITOR'S PARKING
- RESIDENCE HALLS**
- 20 Alpha (RAL)
 - 21 Beta (RBE)
 - 22 Gamma (RGA)
 - 23 Delta (RDE)
 - 24 Epsilon (REP)
 - 25 Zeta (RZE)
 - 26 Eta (RET)
 - 27 Theta (RTH)
 - 28 Iota (RIO)
 - 29 Kappa (RKA)
 - 30 Lambda (RLA)
 - 31 Mu (RMU)

TO I-275
 TO US-301
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 TO I-75
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MEETINGS AND PROGRAMS OF INTEREST

GROUPE POLYPHENOLS INTERNATIONAL MEETING: Brock University, St. Catherines, Ontario, August 15-19, 1988. Symposium topics will include: An overview of plant phenolics, biodegradation and utilization of lignin, biological significance of flavonoids in foods, cereal polyphenols, phenolics in cultured tissue. For further information contact: Dr. T. Fulek, Horticultural Products Laboratory, Ontario Ministry of Agriculture and Food, Vineland Station, Ontario LOR 2E0, Canada.

AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS: Chase Park Plaza Hotel, St. Louis, MO, July 19-23, 1987.

FIFTH WILDLAND SHRUB SYMPOSIUM: Utah State University, June 30 to July 2, 1987. For further information contact: Michael B. Price, Eccles Conference Center, Room 103F, Logan, Utah 84322, (801) 750-1696.

FIRST INTERNATIONAL CONFERENCE ON THE CHEMISTRY AND BIOLOGY OF NATURALLY-OCCURRING ACETYLENES AND RELATED COMPOUNDS: University of Aarhus, Denmark, July 19-22, 1987. For further information contact: Dr. H. Breteler, ITAL, P.O. Box 48, 6700 AA, Wageningen, The Netherlands.

ANNUAL MEETING, AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS - Chase Park Plaza Hotel, St. Louis, Missouri, July 19-23, 1987. Symposium topics will include: Genetics and molecular genetics studies on cyanobacterium, signals and mechanisms in plant-microbe interactions, climate and vegetation responses to rising atmospheric CO₂, the shikimate pathway in plant cells, compartmentation, regulation and genetic manipulation. For further information, contact E. Gantt, Smithsonian Env. Res. Ctr., 12411 Perklawn Dr., Rockville, MD 20852.

8TH ANNUAL MEETING AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE - joint with **34TH ANNUAL CONGRESS OF THE INTER-AMERICAN SOCIETY FOR TROPICAL HORTICULTURE** - Orlando, FL, Nov. 6-12, 1987. For further information, contact Dr. D.J. Cantliffe, Vegetable Crops Dept., 1251 Fifield Hall, Univ. of Florida, Gainesville, FL 32611. (904) 392-1928.

MEETING OF THE LATIN AMERICAN SOCIETY FOR PHYTOCHEMISTRY - Montevideo, Uruguay, November 15-21, 1987. For further information, contact Dr. L.J. Corcuera, Departamento de Biología, Universidad de Chile, Casilla 653, Santiago, Chile.

INTERNATIONAL SOCIETY OF CHEMICAL ECOLOGY, 4TH ANNUAL MEETING - University of Hull, England, July 13-17, 1987. Symposium topics will include: The veracity of bioassays, chemical ecology of plant protection, applications of chemical ecology, biochemical mechanisms of defense compounds. For further information, contact Dr. D.A. Jones, Dept. of Plant Biology and Genetics, University of Hull, Hull, HU66 7RX, England.

JOINT MEETING OF THE CANADIAN SOCIETY OF PLANT PHYSIOLOGISTS AND THE CANADIAN SOCIETY OF PLANT MOLECULAR BIOLOGISTS AT QUEEN'S UNIVERSITY - June 9-12, 1987. The meeting will feature two Symposia, one on "Molecular and Physiological Aspects of Photosynthesis" and the second on "Current Topics in Plant Nitrogen Metabolism". Further information regarding accommodation, abstracts and registration can be obtained by writing to Professor K. Budd, Department of Biology, Queen's University, Kingston, Canada K7L 3N6.

POSITIONS AVAILABLE

POSTDOCTORAL RESEARCHER: A position is available after July 1, 1987 to investigate mechanisms of regulation of phospholipid synthesis. Candidates with experience in biochemistry and molecular biology techniques will be given preference. The starting salary is \$18,000 and reappointments for up to three years are possible. Applicants should send a curriculum vitae and three letters of reference by July 1, 1987 to: Dr. Thomas S. Moore, Jr., Department of Botany, Louisiana State University, Baton Rouge, LA 70803-1705. Louisiana State is an Equal Opportunity Employer.

PLANT PHYSIOLOGIST: Background in natural products chemistry. At Bioactive Constituents Research Unit, Northern Regional Research Center, Peoria, IL. We are interested in identifying a talented person for appointment as a Postdoctoral Research Associate (temporary, 1-2 years) to work closely with a group of chemists concerned with "Identification of Allelopathic Agents and Other Growth Regulators from Plants and Crop Residues". For your information, I would like to mention that the Northern Regional Research Center, ARS, is one of the largest research facilities of the U.S. Department of Agriculture. It is generally well equipped with state-of-the-art NMR and MS-MS instrumentation, adequate laboratory space, a greenhouse, processing and cold room space, a large technical library, and a small research plot facility. For further information contact: Richard G. Powell, Research Leader, Midwest Area Northern Regional Research Center, 1815 North University Street, Peoria, IL 61604.

POSTDOCTORAL RESEARCH ASSOCIATE POSITION: Plant graviperception. Research areas include, but are not limited to, study of the cytoskeleton and analysis of growth related to gravicurvature. A background in plant cell biology and physiology is desirable. The position is available August, 1987, with an earlier start date possible. Send curriculum vitae and the names of three references to: Fred Sack, Department of Botany, Ohio State University, 1735 Neil Ave., Columbus, OH 43210-1293. Telephone (614)292-0896 or 8952.

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

DEPARTMENT OF BOTANY • UNIVERSITY OF IOWA • IOWA CITY, IOWA 52242 • 319-335-1322

Jonathan Poulton
Treasurer

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Mailing Address: _____
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Telephone: _____

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Make check or money order payable to PHYTOCHEMICAL SOCIETY OF NORTH AMERICA and send with this application to the Treasurer at address above.

Phytochemical Society of North America
George J. Wagner, Secretary
Department of Agronomy
University of Kentucky
Lexington, KY 40546-0091



SEND TO:

Dr. John T. Romeo
Dept. of Biology
Univ. of South Florida
Tampa, FL 33620

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

Newsletter

**Volume 27
Number 2**

October 1987

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA NEWSLETTER

OCTOBER, 1987

VOLUME 27, NUMBER 2

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FROM YOUR SECRETARY

This issue of the newsletter is largely the work of others and has suffered the usual difficulties and delays associated with a new endeavor. George Wagner wrote items dealing with the 1987 meeting in Tampa and has been most generous in providing guidance concerning all aspects of the duties of the PSNA secretary. Jonathan Poulton provided information about the 1988 meeting in Iowa City, the list of new members and mailing labels. Charlotte Baer, Department of Agricultural Communications, University of Kentucky, kindly provided paste-ups of the last PSNA newsletter cover. With the aid of Ann Lano, Goucher College office of Public Relations, the cover design has been modified (only enough so that observant members can detect some change), necessary changes made, type set and covers printed. I am responsible for all errors and/or omissions which crept into the contents of this issue during editing and retyping. Thanks to the enormous patience and endurance of Jean McGregor, the contents finally got into the word processor in consistent format and with numbered pages.

I have investigated the feasibility of including photographs in the newsletter and have found that the cost of creating a plate from one or more black and white pictures would not add significantly to production costs. Therefore, if you have pictures from the Tampa meeting or of any other worthy phytochemical subject, please send them to me (they will be returned) along with information for caption(s).

In addition to the suggestion that photographs appear in the newsletter, the possibility of publishing mini-reviews or short research articles has been raised. Any of you wishing to try this somewhat unpredictable route to print, please contact me, and I will attempt to arrange to have your manuscripts refereed. I welcome suggestions and corrections and look forward to receiving pictures to be included in the next issue.

Helen M. Habermann

THE 1987 MEETING AT TAMPA

Amid xylophones, kettle drums and chimes in a music classroom as well suited for our meetings as for its intended purpose, we enjoyed discussions of the state-of-the-art in biotechnological manipulations of plants and heard how secondary compounds may play crucial roles in purposeful infection of plants by Rhizobia and Agrobacteria. Contributed papers, especially those of students, were mostly excellent. All students who applied received partial travel support. The student paper award committee had a very difficult time deciding on winners, and all present at the business meeting agreed it was truly difficult to select this year.

Attractions of the area which many enjoyed were a boardwalk through Lettuce Lake Park to observe alligators, osprey, ibis, herons, bald cypress, etc. the elegant banquet by Tampa Bay, Busch Gardens, the Salvador Dali and Science Industry Museums and St. Petersburg Beach on the Gulf, to name several.

The sun, tropical vegetation, excellent air-conditioning, hospitality and the high quality of symposia and contributed papers made for a most enjoyable and scientifically enriching experience. The symposium volume which should be available in late spring 1988 promises to be very useful and outstanding. The Society is indebted to Dick Mansell and John Romeo, at Tampa and to Tony Kosuge, Eric Conn and Dick Mansell (Symposium Committee) for this excellent meeting.

George J. Wagner

MINUTES OF THE 27TH ANNUAL BUSINESS MEETING

The 1987 Business Meeting was convened by President Neil Towers at 4:16 P.M., June 24, 1987. All members of the executive and many meeting participants were present. N. Towers thanked those present for attending the business meeting and especially students for coming to the Tampa meeting to present their results. Biotechnologists in attendance were thanked for coming to share their expertise. Tony Kosuge, who was principally responsible for organizing the symposium program but could not come to Tampa, Dick Mansell and others were thanked for organizing an outstanding meeting. The business meeting was turned over to J. Romeo, incoming President, who thanked Neil for his efforts over the past year.

Secretary G. Wagner offered to read the minutes of the 1986 Business Meeting or have them accepted as published in the September 1986 Newsletter. G. Hrazdina moved they be accepted, E. Conn seconded and the motion was approved. The secretary announced that members would be asked to donate missing components to the Archival collection. A list of needed items will be published in a coming newsletter.

Treasurer J. Poulton reported that the 1986 meeting at Maryland cost the treasury \$1,000. Donations for that meeting were from E.I. DuPont and USDA (\$1,000 each). Two travel awards were made last year at \$250 each and royalties were paid in 1986 as shown in the enclosed interim financial report. Bock Chan refunded to the Society an additional \$1,204.96 to close out finances of the Asilomar meeting which, while having the highest budget, was the least costly to the Society in recent history. The 1988 directory will be mailed about February, 1988. The membership was described as stable and efforts to begin a membership drive were announced. J. Saunders moved to accept the Treasurer's report; B. Zacharias seconded and the motion was carried.

The President thanked the Advisory Committee for their contributions over the past year and announced the 5-year appointment of D. Mansell to that committee to replace B. Timmermann.

J. Poulton reported on plans for the Iowa City meeting to be held June 26-30, 1988. The proposed title of the symposium is "Plant Nitrogen Metabolism - Primary and Secondary Aspects." Eleven invitations have been made and the six replies have all been positive. Dale Blevins, Peter Lea, D. Rhodes, D. Shauer, H. Flores, and M. Zenk have accepted invitations. Entertainment will probably include a trip on a Mississippi stern wheeler and spouse programs are planned. Jonathan promised low humidity and moderate temperatures; housing, meetings and meals in the same convention center building; inexpensive university dorms for those interested; and easy access to restaurants, etc. To obtain cheaper flights (fly to Cedar Rapids then to Iowa City), it was suggested that meetings be held Sunday through Thursday. A vote was taken of those present and there were no objectors.

The 1989 meeting may take place at the University of British Columbia with N. Towers and D. Runeckles as co-hosts. A tentative title is "Biologically Active Products of Mevalonic Acid."

For 1990 a tentative topic of "Modern Phytochemical Methods" is being discussed. The advisory and executive committees will explore possibilities for future joint meetings. G. Hrazdina indicated that the president of PSE had made mention of the possibility of a joint meeting in the future.

J. Saunders suggested using treasury funds to support and stimulate travel to a joint meeting with the PSE. He made a motion that the executive committee consider using funds for this purpose and S. Brown seconded. E. Conn suggested a maximum of 10 grants of \$500 each. Helen Stafford commented that for the last PSE-PSNA joint meeting at Gent, the PSNA went to Europe. Therefore, the next time PSE members should come to the United States. J. Romeo raised the possibility of a joint meeting with the newly-formed Latin American Phytochemical Society. G. Hrazdina suggested a meeting of the PSNA, PSE and the Latin American Society in the Caribbean. B. Zacharias commented that a total expenditure of \$3,000 to \$5,000 for travel was a small amount. The motion to seriously consider the proposal of travel grants was carried.

A report on the Student Travel Grant program was presented. For the first time, up to \$3,000 was allocated as incentive monies to support student participation. Twelve students were supported and all meeting participants benefited from the excellent talks given by students. The executive committee voted to continue the present program next year.

A committee consisting of H. Stafford, J. Saunders and K. Downum worked hard to decide that Mark Bernards from the Department of Chemistry, University of Guelph and Henry Khouri from the Biology Department, Concordia University would share the Best Student Paper Award. In addition to prizes of \$50 for each, these young scientists were presented with a certificate, and an invitation to be a guest of the society at the banquet at Iowa City. They are featured in this issue of the Newsletter with a biographical sketch. Both students received travel support as well.

D. Loomis, out-going Past-President, reported that 137 voting ballots were returned this year and that D. Seigler, H. Habermann and J. Poulton were elected by a majority to the offices of Vice President, Secretary, and Treasurer, respectively. The amendment to the constitution (see February 1987 Newsletter) was approved by a 120 for, 8 against majority. J. Saunders asked if the Secretary and Treasurer must serve 3 years. Someone in the audience pointed out that a volunteer officer always has the freedom to resign early.

Financial support for the Tampa meeting was acknowledged from: Dionex Co., E.I. DuPont de Nemours and Co., Monsanto Co., University of South Florida-College of Natural Sciences, University of South Florida-Division of Sponsored Research.

The membership drive was briefly described. A committee is being formed. The question of how a mailing list is to be assembled was identified as critical. Members were encouraged to bring in new members. B. Ellis suggested the development of a brochure which could be posted.

In the way of new business, D. Loomis announced that while D. Seigler and H. Habermann were not in attendance, they had relayed to him that they looked forward to working for the Society in their respective offices.

Joe Olechno remarked that the poster session was not well attended at the Tampa meeting. It was noted that this was recognized and that the advisory committee will discuss ways to expand and emphasize posters at future PSNA meetings.

Joe Olechno asked about the possibility of having talks 15, 20, or 25

minutes in length. V. Delucca noted that there wasn't sufficient time in the meeting program as is. N. Rosa recommended that a 15-minute talk would be better announced as being 12 minutes long with 3 minutes reserved for questions. It was suggested that a guide be prepared to provide information on how to present a paper. Other suggestions were: make clear that the absolute time limit is 15 minutes, people who ask questions should project their voices, many people do not use the microphone and pointer, an around-the-neck mike is better, the moderator should be in control. S. Brown noted that pages in the Newsletter should be numbered to facilitate citation.

The names of Student Travel Grant recipients were read and these individuals were applauded. The students and their institutions are:

Mr. Mark Bernards
Dept. of Chemistry & Biochemistry
University of Guelph
Guelph, Ontario, CANADA N1G 2W1

Mr. Don Champagne
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Mr. Peter Constabel
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Mr. Thomas L. Eberhardt
Department of Forest Products
Virginia Polytechnic Institute
210 Cheatham Hall
Blacksburg, VA 24061

Mr. Tom Glendening
Department of Botany
University of Iowa
Iowa City, IA 52242

Mr. John Glover
Dept. of Chemistry & Biochemistry
University of Guelph
Guelph, Ontario, CANADA N1G 2W1

Mr. Henry Khouri
8776 Le Corbusier
Quebec, H1R 2K7, CANADA

Ms. Lilian Latchinian
Department of Biology
Concordia University
1455 De Maisonneuve Blvd. W.
Montreal, Quebec, CANADA H3G 1M8

Mr. Kent McCue
Dept. of Biochemistry & Physics
University of California, Davis
Davis, CA 95616

Mr. Felix Parodi
Department of Chemistry
Louisiana State University
Baton Rouge, LA 70803

Mr. Ramon A. Razal
Department of Forest Products
Virginia Polytechnic Institute
210 Cheatham Hall
Blacksburg, VA 24061

Mr. Paul Spencer
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Neil Towers moved that the organizing committee be thanked for their fruitful work. E. Conn seconded and there was unanimous approval. J. Romeo introduced himself as President for 1987 and encouraged input from the membership via himself, members of the executive committee or the advisory committee.

D. Loomis asked that the whole program and meeting organizing committees especially T. Kosuge, E. Conn and D. Mansell be thanked for the meeting preparations. After a robust applause, a motion for adjournment was made and seconded.

Respectfully submitted,

George J. Wagner

SUMMARY OF EXECUTIVE COMMITTEE MEETINGS, TAMPA, FLORIDA, 1987

D. Mansell, chairman of the local organizing committee, reported that 12 students applied for travel awards and all received an amount equal to 30-50% of airfare costs. Donations were made to the PSNA for the Tampa meeting by Dionex, University of S. Florida, College of Natural Sciences, University of S. Florida, and Division of Sponsored Research. Also, costs for the museum tour were minimized because the Salvador Dali Museum generously provided free tickets.

J. Poulton reported that 12 speakers had been chosen and contacted for the symposium program of the Iowa City meeting next year. He reported on preparations for the Iowa City meeting to be held June 26-30, 1988. Speakers for the symposium tentatively entitled "Advances in Primary and Secondary Nitrogen Metabolism in Plants" have been selected and contacted. Meetings and lodging will be in the same complex. Rooms will be \$27 and \$35 for single and double, and dorm rooms on the UI campus will be available at \$12 and \$9 per person. Tours on the Mississippi (paddle wheeler) and of a prairie reserve are tentatively planned. The executive committee agreed that accepting donations from commercial corporations and allowing exhibits was an acceptable practice which should be continued at Iowa City. Considerable discussion was made of mechanisms for increasing advertising of meetings. This year, most associated societies were contacted, and a paid advertisement occurred in the January issue of Trends in Biotechnology. A flyer prepared by the organizing committee was broadly circulated in late fall. It was suggested that tentative information on the upcoming meeting be circulated earlier (early fall) to the membership and perhaps more broadly.

The treasurer reported on the strong financial position of the Society. He expressed some concern about members who have not paid dues for this year. The possibility of expanding the membership (to say 600) was raised. Suggested initiatives for accomplishing this were a membership drive focused on a broadly distributed pamphlet and consideration of including mini-reviews in perhaps two newsletters per year. The executive committee and advisory committee will take the latter proposal under consideration and a committee was formed to move on preparation of a pamphlet. Discussion of secretarial matters centered on movement toward printing and upgrading of the Newsletter. The new secretary will be given additional funds to make this change. The secretary will ask the membership to donate missing RAT volumes and newsletters so the society archival collection can be advanced. A constitutional clarification advanced by H. Stafford was discussed. This amendment will be formulated and appear on the 1988 ballot. Eric Conn reported that the RAP volume from the Maryland meeting will be several months late. He predicted that the volume from the Tampa meeting should be available in late spring, 1988.

Eric will resign the editorship after the Iowa City Symposium Volume. At about the same time, the current contract with Plenum Press will require renegotiation. Eric agreed to help with this.

Dave Loomis reported the results of the 1987 election. Dave Seigler, Helen Habermann, and Jonathan Poulton were elected to the offices of Vice-President, Secretary and Treasurer, respectively. J. Saunders, D. Seigler and G. Wagner ran for Vice-President, H. Habermann and K. Downum for Secretary and J. Poulton for Treasurer. The Constitutional amendment on the

1987 ballot was approved by a margin of 120 for and 8 against. The return of ballots was 137 out of 400 mailed (34%) as compared to a 22% return last year.

Neil Towers offered again to host the 1989 meeting at the University of British Columbia. The hosts, location, and symposium topic for the 1989 meeting are still under consideration. The possibility of having joint meetings with PSE, the newly formed Latin American Phytochemical Society and others, will be explored in the coming year by J. Romeo.

It was agreed that the advisory committee formed in 1985 was extremely helpful to the executive committee and the society. Barbara Timmerman completed a one-year term this year and was replaced by Dick Mansell. The current committee, their appointment dates and terms are:

H. Stafford, chair	1985	3 years
S. Brown	1985	5 years
G. Hrazdina	1986	5 years
L. Creasy	1986	3 years
D. Mansell	1987	5 years

Several concerns and proposals were deferred to the advisory committee for their recommendations.

The subject of student participation in the society was discussed. There was unanimous agreement that the current policy for travel grants and student paper awards was a success and should be continued next year. Several proposals for increasing student participation were discussed. One which will perhaps be tried next year would include a gathering for students at the meeting (refreshments supplied) organized by students of the host institution. If this group wished to report on this activity and/or make recommendations on any society matters, they could do so in the following newsletter. Several mundane matters relating to the newsletter, elections, and nominations processes were discussed.

A recommendation was made that Helen Stafford be awarded the Life Membership Award for outstanding service to the society. The affirmative vote was unanimous. The subject of finding a way to stimulate and support the newly founded Latin American Phytochemical Society was discussed. J. Romeo will explore possibilities when he attends this society's first annual meeting in November.

This briefly summarizes issues which were, for the most part, discussed in detail in executive committee gatherings throughout the period of the Tampa meeting.

Respectfully submitted,

George J. Wagner

BIOGRAPHICAL SKETCHES: STUDENT BEST PAPER AWARD WINNERS, 1987 MEETING AT THE UNIVERSITY OF SOUTH FLORIDA

MARK ANTHONY BERNARDS received his B.Sc. (Agr) in Horticulture from the Ontario Agricultural College, University of Guelph in 1985. While the emphasis of the program was horticulture, his studies were directed toward areas of plant cell tissue culture and plant biochemistry. His research interests include studies on the molecular basis of cell-cell interactions (specifically host-pathogen interactions) and plant cell cultures as tools for biochemical studies. Mark's Ph.D. research project involves a study of the molecular basis for the Ve gene governed resistance to the vascular wilt pathogen Verticillium albo-atrum. As an integral part of this study, an in vitro co-cultivation system between cultured tomato cells and V. albo-atrum is being developed.

HENRY E. KHOURI is a Canadian of Lebanese origin. After receiving his B.S. degree in Biochemistry from Concordia University, Montreal in 1979, he worked for 2 years with Dr. S. Solomon in the Biochemistry Department, McGill University, Montreal on the separation and identification of peptide hormones from bovine pituitary glands. He then started his graduate work in plant biochemistry with Dr. Ragai K. Ibrahim at Concordia University. He is working on the productivity, biosynthesis and enzymology of phenolic compounds, in particular, anthraquinones and flavonoids. Henry received an M.S. degree in 1983 and has since extended his research and will receive his Ph.D. in the fall of 1987. His work has appeared in some 15 publications in international journals including 2 review articles. After graduation Henry hopes to apply his knowledge to plant biotechnology.

A NOTICE FROM OUR TREASURER

A small but worrisome number of PSNA members have not yet paid their dues. Those who may have forgotten to mail their checks for \$15 (\$8 for student members) are urged to do so immediately.

An application for membership can be found inside the back cover of this newsletter. Those with new colleagues or students interested in phytochemistry are urged to pass on these application forms. A valuable benefit of membership is the 40% discount provided by Plenum Press for volumes of the Recent Advances in Phytochemistry series (see the advertisement and order form included in this issue of the PSNA newsletter). Vol. 21: "Phytochemical Effects of Environmental Compounds" is now available.

Please send dues and applications for membership to Dr. Jonathan E. Poulton, Department of Botany, University of Iowa, Iowa City, IA 52242.

28th Annual Meeting of the Phytochemical Society of North America, 1988

The Annual Meeting of the PSNA will be held on June 26-30, 1988 on the campus of the University of Iowa at Iowa City. The meeting organizers are Dr. Jonathan E. Poulton (Univ. of Iowa) and Dr. John Romeo (Univ. of South Florida). As in previous years, the meeting will consist of contributed paper sessions as well as a symposium. The 1988 symposium, entitled "Plant Nitrogen Metabolism," will focus on recent developments in primary and secondary nitrogen phytochemistry. Contributed papers are encouraged on any subject of plant chemistry either as oral or poster presentations.

The meeting will begin with a reception on the evening of Saturday, June 25th and will be followed by five morning sessions (26th, 27th, 28th, 29th and 30th) and three afternoon sessions (26th, 27th, and 29th) of Symposium and Contributed papers. The poster session will be held on Monday night.

The following have accepted our invitation to participate in the 1988 Symposium. If known, titles of their presentations are listed below. Otherwise, the general areas covered by their papers are indicated in parentheses.

Dale G. Blevins, University of Missouri. (An Overview of Plant Nitrogen Metabolism from an Agronomic standpoint).

J.S. Pate, University of Western Australia. "Synthesis, Transport and Utilization of Products of Symbiotic Nitrogen Fixation."

Andris Keinhofs, Washington State University. "Genetics and Molecular Biology of Higher Plant Nitrate Reductases."

Peter J. Lea, University of Lancaster, UK. "The use of mutants lacking glutamine synthetase and glutamate synthase to study their role in plant nitrogen assimilation."

David Rhodes, Purdue University. "Assimilation of Ammonia by Glutamate Dehydrogenase?"

Dale L. Shaner, American Cyanamid, Princeton. "Sites of Action of Herbicides in Amino Acid Metabolism: Primary and Secondary Physiological Effects."

Shang Fa Yang, UC Davis. "Metabolism of 1-Aminocyclopropane-1-carboxylic Acid in Relation to Ethylene Biosynthesis."

Thomas W. Okita, Washington State University. "Structure and Expression of Wheat and Rice Seed Protein Genes."

Linda Fellows, Kew Gardens, UK. (Non-protein Amino Acids and Polyhydroxyalkaloids).

Hector Flores, Louisiana State University. "Primary and Secondary Metabolism of Polyamines in Plants."

Meinhart H. Zenk, University of Munich, West Germany. "Biosynthesis of Alkaloids using Plant Cell Cultures."

An additional speaker is being sought who would address the topic of nitrogen fixation.

Several excursions and social events are being planned. For those interested, we intend to run a field trip to a native prairie on Sunday night. Thereafter, graduate students from the University of Iowa Botany Department will host a get-together for graduate students and post-docs at one of Iowa City's many night spots. On Tuesday afternoon (June 28th), several excursions are being considered, including a voyage on the Mississippi River on a stern-wheeler. The banquet will be held on Wednesday evening (June 29th). An entertainment program for spouses and children is also being planned.

The meeting will be held at the newly renovated Iowa Memorial Union. Excellent accommodation is available at the hotel (Iowa House) located in part of this fully air-conditioned building. Alternatively, dormitory accommodation will be available at extremely reasonable rates. Accommodation rates at these and other local hotels will be provided in the January Newsletter. All meals may be purchased within the Union building itself or at restaurants in the town center (5 minutes walk from the Union).

Funds have been identified which will allow partial travel assistance for graduate students presenting oral papers at the 1988 meeting. Additionally, an award of \$100 will be presented for the most outstanding paper submitted by a graduate student or junior faculty member. Further details will be provided in the January Newsletter.

If you would like further information about this meeting, please contact:

Dr. Jonathan E. Poulton
Department of Botany
University of Iowa
Iowa City, IA 52242
(319) 335-1322

or

Dr. John T. Romeo
Department of Biology
University of South Florida
Tampa, FL 33620
(813) 974-2336

PLANS FOR 1989 AND 1990 PSNA MEETINGS

The symposium topic of the 1989 PSNA meeting in Vancouver, British Columbia, will be "Biologically Active Products of Mevalonic Acid." Neal Towers will be assisted in organizing the meeting by Bruce Bohm, Department of Botany, University of British Columbia.

In 1990 PSNA will meet in Quebec City with the International Society of Chemical Ecology. Nikolaus Fischer, Department of Chemistry, Louisiana State University, will organize a symposium on "Modern Phytochemical Methods." PSNA and ISCE will have separate symposia, but contributed papers from both societies will be grouped together by topic. Jeremy McNeil has agreed to handle local arrangements for both societies in Quebec.

NEW PSNA MEMBERS AND THEIR RESEARCH INTERESTS

The following recently joined our Society. We welcome you and invite your participation in Society business and at our meetings.

Marco Frehner
Dept. of Biochem. & Biophys.
University of California
Davis, CA 95616

Secondary metabolism
Cyanogenesis

James A. Kloek
Building 82, Research Labs.
Eastman Kodak Co.
Lake Avenue
Rochester, NY 14650

Chemical crop protection
Herbicides, fungicides

Mark A. Bernards
Dept. Chem. & Biochem.
Univ. of Guelph
Guelph, Ontario
Canada, N1G 2W1

Phytopathology
Molecular Biology

John R. Glover
RR 1, Waterford
Ontario
Canada, NOE 1Y0

Enzymology of secondary
metabolism

Peter Brodelius
Inst. of Biotechnology
ETH-Hoenggerberg
CH-8093 Zurich
Switzerland

Phytochemical production by
plant cell cultures

David Kuhn
Biochemistry Department
Purdue University
W. Lafayette, IN 47907

Plant-Pathogen Interactions

N. Kent Peters
Biotechnology Center
Ohio State University
Columbus, OH 43210-1002

Phenylpropanoids
Molecular Biology

Dominique Provost-Buisson
Department of Biology
FIU-Tamiami Campus
Miami, FL 33199

Plant-animal & plant-insect
interactions

MEETINGS AND PROGRAMS OF INTEREST

AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE - joint with **CONGRESS OF THE INTER-AMERICAN SOCIETY FOR TROPICAL HORTICULTURE**: Orlando, FL, November 6-12, 1987. For further information, contact Dr. D.J. Cantliffe, Vegetable Crops Dept., 1251 Fifield Hall, University of Florida, Gainesville, FL 32611. (904) 392-1928.

LATIN AMERICAN SOCIETY FOR PHYTOCHEMISTRY: Montevideo, Uruguay, November 15-21, 1987. For further information, contact Dr. L.J. Corcuera, Departamento de Biología, Universidad de Chile, Casilla 653, Santiago, Chile.

PHYTOCHEMICAL SOCIETY OF EUROPE. Symposium on "Amines in Plants": University College, London, December 21-22, 1987. For further information, contact Prof. G.R. Stewart, Department of Botany, University College, Gower Street, London WC1 7HX, England.

Joint Meeting of **THE PHYTOCHEMICAL SOCIETY OF EUROPE, THE MEMBRANE GROUP OF THE BIOCHEMICAL SOCIETY** and **THE PLANT METABOLISM GROUP OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY** on "Plant membranes - Structure, Assembly and Function": University College, Cardiff, Wales, April 11-12, 1988. Topics will include: characterization of membrane structure; biosynthesis of membrane components and assembly; modification of membrane structure; molecular function of membrane components; physiological aspects of membranes. For further information, contact Prof. J.L. Harwood, Department of Biochemistry, University College, P.O. Box 78, Cardiff CF1 1XL, Wales, United Kingdom. P.S.N.A. secretary has forms for preliminary conference registration (due by October 31st).

GROUPE POLYPHENOLS INTERNATIONAL MEETING: The International Polyphenols Group will hold its next biennial conference at Brock University, St. Catherines, Ontario, August 16-19, 1988. Topics of the symposium with the names of the invited speakers are as follows: Overview of plant phenolics (J.B. Harborne, Reading, U.K. and M. Jay, Villeurbanne, France); Biodegradation and utilization of lignin (A.M. Boudet, Toulouse, France and N. Lewis, Blacksburg, U.S.A.); Significance of flavonoids in foods (M. Metche, Nancy, France and M. Stavric, Ottawa, Canada); Cereal polyphenols (F.W. Collins and R.G. Fulcher both of Ottawa, Canada); Phenolics in phytopathology (M. Legrand, Strasbourg, France and U. Matern, Freiburg, FRG) and Enzymatic synthesis and production of flavonoids (H. Grisebach, Freiburg, FRG and L. Varin, Montreal, Canada). Preregistration figures (214 as of August 15, 1987) indicate that the conference will be well attended. Contributed papers and posters on these and other polyphenol related topics are still being accepted. For further information contact: Dr. T. Fuleki, HRIO, Vineland Station, Ontario, Canada, LOR 2E0.

POSITION WANTED

European **PLANT BIOCHEMIST/PHYSIOLOGIST** seeks assistant professor position or equivalent. Experience: Secondary natural products; Phytochemistry; Metabolism; Biosynthesis; Enzymology; Biotechnology; Phenylpropanoids; Flavonoids; Acetylenic Compounds. All chromatographic techniques - HPLC expert. Thirteen years of teaching experience (plant biochemistry/ physiology); 15 publications. German Dr. rer. nat. habil., 40, willing to immigrate USA or Canada. Inquire PSNA secretary.

POSITIONS AVAILABLE

UNIVERSITY OF BRITISH COLUMBIA. Applications will be accepted for the following four positions until December 1, 1987. These positions will collectively form a team to study basic and applied problems of competition and vegetation management in the forests of British Columbia. Applications for the first three positions should be addressed to Professor D.P. Lavender, Head, Department of Forest Science, The University of British Columbia, Vancouver, B.C., Canada, V6T 1W5, and should include a curriculum vitae and three letters of recommendation. The applicants for the position of Plant Biochemist should address their applications to Professor A.D.M. Glass, Head, Department of Botany, U.B.C. The University of British Columbia offers equal opportunity for employment to qualified female and male applicants. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian Citizens and permanent residents.

CONIFEROUS SEEDLING PHYSIOLOGIST. Desired background: Ph.D. in botany or forestry. Demonstrated research competence in stress physiology - ecology, or growth regulation. Post-doctoral research experience preferred. Would be expected to develop a research and graduate program in physiological problems of seedling production and crop establishment. Appointment at the assistant or associate level, depending on experience. Position is a permanent tenure-track appointment.

ECOPHYSIOLOGIST. Desired background: Ph.D. in botany or forestry. Demonstrated research competence in physiological ecology or production ecology, oriented to the evaluation of competition. Post-doctoral research experience preferred. Would be expected to develop a graduate and research program to quantify elements of competition between crop and non-crop vegetation. Appointment at assistant or associate professor level, depending on experience. Position is a permanent tenure-track appointment.

RESEARCH ASSOCIATE. Desired background: M.Sc., or Ph.D. in botany or forestry, and eligibility for Registered Professional Forester in British Columbia. Some experience in forestry research preferred. Would be expected to conduct province-wide vegetation management field research, and serve as a back-up for both the ecophysiologicalist and seedling physiologist. Appointment is non-tenure track and is renewable annually.

PLANT BIOCHEMIST. Desired background: Ph.D. in biochemistry. Demonstrated research competence in the biochemistry of plant growth regulation. Post-doctoral research experience preferred. Would be expected to develop a research and graduate program to investigate biochemical mechanisms of plant growth regulation in the context of forest vegetation management. Joint appointment in the departments of Botany and Forest Science at the assistant or associate professor level depending upon experience. Position is a permanent tenure-track appointment.



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1988 MEMBERSHIP DIRECTORY: REQUEST FOR INFORMATION

A new membership directory will be published in February, 1988. We will continue to list the research area interests of our members and to provide a geographical directory. If you wish to be included in such a listing (or if you wish to alter your current listing), please fill out this page and return it to: J.E. Poulton, Department of Botany, University of Iowa, Iowa City, IA 52242. The deadline for inclusion in the 1988 Directory is December 31. Please return this form if you have recently changed your address.

<u>COMPOUNDS</u>	<u>RESEARCH AREA</u>
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Cyanogenic Glycosides _____	Cell wall Chemistry _____
Glucosinolates _____	Chemotaxonomy _____
Polyacetylenes _____	Chemical Ecology _____
Phenolics _____	Chemical Reactions _____
Flavonoids _____	Enzymology _____
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NAME: _____	Recognition-Cell Surface _____
CURRENT ADDRESS: _____	Interactions _____
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_____	Others (please specify) _____

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1917



Phytochemical Society of North America
Helen M. Habermann, Secretary
Department of Biological Sciences
Goucher College
Baltimore, MD 21204



FIRST CLASS

SEND TO:

Dr. John T. Romeo
Dept. of Biology
Univ. of South Florida
Tampa, FL 33620

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

Newsletter

**Volume 27
Number 2**

October 1987

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The Phytochemical Society of North America is a non-profit scientific organization whose membership (currently about 400) is open to anyone with an interest in phytochemistry, the role of plant substances, and in related fields. Annual membership dues are \$15.00 for regular members and \$8.00 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada and Mexico. A newsletter is circulated to members several times a year to keep them informed of upcoming meetings and developments within the Society.

If you would like additional information about the PSNA or if you have material to be included in the newsletter, please contact the Society Secretary. Annual dues and changes in addresses should be sent to the Society Treasurer.

Wordperfect IBM-

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA NEWSLETTER

OCTOBER, 1987

VOLUME 27, NUMBER 2

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FROM YOUR SECRETARY

This issue of the newsletter is largely the work of others and has suffered the usual difficulties and delays associated with a new endeavor. George Wagner wrote items dealing with the 1987 meeting in Tampa and has been most generous in providing guidance concerning all aspects of the duties of the PSNA secretary. Jonathan Poulton provided information about the 1988 meeting in Iowa City, the list of new members and mailing labels. Charlotte Baer, Department of Agricultural Communications, University of Kentucky, kindly provided paste-ups of the last PSNA newsletter cover. With the aid of Ann Lano, Goucher College office of Public Relations, the cover design has been modified (only enough so that observant members can detect some change), necessary changes made, type set and covers printed. I am responsible for all errors and/or omissions which crept into the contents of this issue during editing and retyping. Thanks to the enormous patience and endurance of Jean McGregor, the contents finally got into the word processor in consistent format and with numbered pages.

I have investigated the feasibility of including photographs in the newsletter and have found that the cost of creating a plate from one or more black and white pictures would not add significantly to production costs. Therefore, if you have pictures from the Tampa meeting or of any other worthy phytochemical subject, please send them to me (they will be returned) along with information for caption(s).

In addition to the suggestion that photographs appear in the newsletter, the possibility of publishing mini-reviews or short research articles has been raised. Any of you wishing to try this somewhat unpredictable route to print, please contact me, and I will attempt to arrange to have your manuscripts refereed. I welcome suggestions and corrections and look forward to receiving pictures to be included in the next issue.

Helen M. Habermann

THE 1987 MEETING AT TAMPA

Amid xylophones, kettle drums and chimes in a music classroom as well suited for our meetings as for its intended purpose, we enjoyed discussions of the state-of-the-art in biotechnological manipulations of plants and heard how secondary compounds may play crucial roles in purposeful infection of plants by Rhizobia and Agrobacteria. Contributed papers, especially those of students, were mostly excellent. All students who applied received partial travel support. The student paper award committee had a very difficult time deciding on winners, and all present at the business meeting agreed it was truly difficult to select this year.

Attractions of the area which many enjoyed were a boardwalk through Lettuce Lake Park to observe alligators, osprey, ibis, herons, bald cypress, etc. the elegant banquet by Tampa Bay, Busch Gardens, the Salvador Dali and Science Industry Museums and St. Petersburg Beach on the Gulf, to name several.

The sun, tropical vegetation, excellent air-conditioning, hospitality and the high quality of symposia and contributed papers made for a most enjoyable and scientifically enriching experience. The symposium volume which should be available in late spring 1988 promises to be very useful and outstanding. The Society is indebted to Dick Mansell and John Romeo, at Tampa and to Tony Kosuge, Eric Conn and Dick Mansell (Symposium Committee) for this excellent meeting.

George J. Wagner

MINUTES OF THE 27TH ANNUAL BUSINESS MEETING

The 1987 Business Meeting was convened by President Neil Towers at 4:16 P.M., June 24, 1987. All members of the executive and many meeting participants were present. N. Towers thanked those present for attending the business meeting and especially students for coming to the Tampa meeting to present their results. Biotechnologists in attendance were thanked for coming to share their expertise. Tony Kosuge, who was principally responsible for organizing the symposium program but could not come to Tampa, Dick Mansell and others were thanked for organizing an outstanding meeting. The business meeting was turned over to J. Romeo, incoming President, who thanked Neil for his efforts over the past year.

Secretary G. Wagner offered to read the minutes of the 1986 Business Meeting or have them accepted as published in the September 1986 Newsletter. G. Hrazdina moved they be accepted, E. Conn seconded and the motion was approved. The secretary announced that members would be asked to donate missing components to the Archival collection. A list of needed items will be published in a coming newsletter.

Treasurer J. Poulton reported that the 1986 meeting at Maryland cost the treasury \$1,000. Donations for that meeting were from E.I. DuPont and USDA (\$1,000 each). Two travel awards were made last year at \$250 each and royalties were paid in 1986 as shown in the enclosed interim financial report. Bock Chan refunded to the Society an additional \$1,204.96 to close out finances of the Asilomar meeting which, while having the highest budget, was the least costly to the Society in recent history. The 1988 directory will be mailed about February, 1988. The membership was described as stable and efforts to begin a membership drive were announced. J. Saunders moved to accept the Treasurer's report; B. Zacharias seconded and the motion was carried.

The President thanked the Advisory Committee for their contributions over the past year and announced the 5-year appointment of D. Mansell to that committee to replace B. Timmermann.

J. Poulton reported on plans for the Iowa City meeting to be held June 26-30, 1988. The proposed title of the symposium is "Plant Nitrogen Metabolism - Primary and Secondary Aspects." Eleven invitations have been made and the six replies have all been positive. Dale Blevins, Peter Lea, D. Rhodes, D. Shauer, H. Flores, and M. Zenk have accepted invitations. Entertainment will probably include a trip on a Mississippi stern wheeler and spouse programs are planned. Jonathan promised low humidity and moderate temperatures; housing, meetings and meals in the same convention center building; inexpensive university dorms for those interested; and easy access to restaurants, etc. To obtain cheaper flights (fly to Cedar Rapids then to Iowa City), it was suggested that meetings be held Sunday through Thursday. A vote was taken of those present and there were no objectors.

The 1989 meeting may take place at the University of British Columbia with N. Towers and D. Runeckles as co-hosts. A tentative title is "Biologically Active Products of Mevalonic Acid."

For 1990 a tentative topic of "Modern Phytochemical Methods" is being discussed. The advisory and executive committees will explore possibilities for future joint meetings. G. Hrazdina indicated that the president of PSE had made mention of the possibility of a joint meeting in the future.

J. Saunders suggested using treasury funds to support and stimulate travel to a joint meeting with the PSE. He made a motion that the executive committee consider using funds for this purpose and S. Brown seconded. E. Conn suggested a maximum of 10 grants of \$500 each. Helen Stafford commented that for the last PSE-PSNA joint meeting at Gent, the PSNA went to Europe. Therefore, the next time PSE members should come to the United States. J. Romeo raised the possibility of a joint meeting with the newly-formed Latin American Phytochemical Society. G. Hrazdina suggested a meeting of the PSNA, PSE and the Latin American Society in the Caribbean. B. Zacharias commented that a total expenditure of \$3,000 to \$5,000 for travel was a small amount. The motion to seriously consider the proposal of travel grants was carried.

A report on the Student Travel Grant program was presented. For the first time, up to \$3,000 was allocated as incentive monies to support student participation. Twelve students were supported and all meeting participants benefited from the excellent talks given by students. The executive committee voted to continue the present program next year.

A committee consisting of H. Stafford, J. Saunders and K. Downum worked hard to decide that Mark Bernards from the Department of Chemistry, University of Guelph and Henry Khouri from the Biology Department, Concordia University would share the Best Student Paper Award. In addition to prizes of \$50 for each, these young scientists were presented with a certificate, and an invitation to be a guest of the society at the banquet at Iowa City. They are featured in this issue of the Newsletter with a biographical sketch. Both students received travel support as well.

D. Loomis, out-going Past-President, reported that 137 voting ballots were returned this year and that D. Seigler, H. Habermann and J. Poulton were elected by a majority to the offices of Vice President, Secretary, and Treasurer, respectively. The amendment to the constitution (see February 1987 Newsletter) was approved by a 120 for, 8 against majority. J. Saunders asked if the Secretary and Treasurer must serve 3 years. Someone in the audience pointed out that a volunteer officer always has the freedom to resign early.

Financial support for the Tampa meeting was acknowledged from: Dionex Co., E.I. DuPont de Nemours and Co., Monsanto Co., University of South Florida-College of Natural Sciences, University of South Florida-Division of Sponsored Research.

The membership drive was briefly described. A committee is being formed. The question of how a mailing list is to be assembled was identified as critical. Members were encouraged to bring in new members. B. Ellis suggested the development of a brochure which could be posted.

In the way of new business, D. Loomis announced that while D. Seigler and H. Habermann were not in attendance, they had relayed to him that they looked forward to working for the Society in their respective offices.

Joe Olechno remarked that the poster session was not well attended at the Tampa meeting. It was noted that this was recognized and that the advisory committee will discuss ways to expand and emphasize posters at future PSNA meetings.

Joe Olechno asked about the possibility of having talks 15, 20, or 25

minutes in length. V. Delucca noted that there wasn't sufficient time in the meeting program as is. N. Rosa recommended that a 15-minute talk would be better announced as being 12 minutes long with 3 minutes reserved for questions. It was suggested that a guide be prepared to provide information on how to present a paper. Other suggestions were: make clear that the absolute time limit is 15 minutes, people who ask questions should project their voices, many people do not use the microphone and pointer, an around-the-neck mike is better, the moderator should be in control. S. Brown noted that pages in the Newsletter should be numbered to facilitate citation.

The names of Student Travel Grant recipients were read and these individuals were applauded. The students and their institutions are:

Mr. Mark Bernards
Dept. of Chemistry & Biochemistry
University of Guelph
Guelph, Ontario, CANADA N1G 2W1

Mr. Henry Khouri
8776 Le Corbusier
Quebec, H1R 2K7, CANADA

Mr. Don Champagne
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Ms. Lilian Latchinian
Department of Biology
Concordia University
1455 De Maisonneuve Blvd. W.
Montreal, Quebec, CANADA H3G 1M8

Mr. Peter Constabel
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Mr. Kent McCue
Dept. of Biochemistry & Physics
University of California, Davis
Davis, CA 95616

Mr. Thomas L. Eberhardt
Department of Forest Products
Virginia Polytechnic Institute
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Blacksburg, VA 24061

Mr. Felix Parodi
Department of Chemistry
Louisiana State University
Baton Rouge, LA 70803

Mr. Tom Glendening
Department of Botany
University of Iowa
Iowa City, IA 52242

Mr. Ramon A. Razal
Department of Forest Products
Virginia Polytechnic Institute
210 Cheatham Hall
Blacksburg, VA 24061

Mr. John Glover
Dept. of Chemistry & Biochemistry
University of Guelph
Guelph, Ontario, CANADA N1G 2W1

Mr. Paul Spencer
Department of Botany
University of British Columbia
Vancouver, B.C., CANADA V6T 2B1

Neil Towers moved that the organizing committee be thanked for their fruitful work. E. Conn seconded and there was unanimous approval. J. Romeo introduced himself as President for 1987 and encouraged input from the membership via himself, members of the executive committee or the advisory committee.

D. Loomis asked that the whole program and meeting organizing committees especially T. Kosuge, E. Conn and D. Mansell be thanked for the meeting preparations. After a robust applause, a motion for adjournment was made and seconded.

Respectfully submitted,

George J. Wagner

SUMMARY OF EXECUTIVE COMMITTEE MEETINGS, TAMPA, FLORIDA, 1987

D. Mansell, chairman of the local organizing committee, reported that 12 students applied for travel awards and all received an amount equal to 30-50% of airfare costs. Donations were made to the PSNA for the Tampa meeting by Dionex, University of S. Florida, College of Natural Sciences, University of S. Florida, and Division of Sponsored Research. Also, costs for the museum tour were minimized because the Salvador Dali Museum generously provided free tickets.

J. Poulton reported that 12 speakers had been chosen and contacted for the symposium program of the Iowa City meeting next year. He reported on preparations for the Iowa City meeting to be held June 26-30, 1988. Speakers for the symposium tentatively entitled "Advances in Primary and Secondary Nitrogen Metabolism in Plants" have been selected and contacted. Meetings and lodging will be in the same complex. Rooms will be \$27 and \$35 for single and double, and dorm rooms on the UI campus will be available at \$12 and \$9 per person. Tours on the Mississippi (paddle wheeler) and of a prairie reserve are tentatively planned. The executive committee agreed that accepting donations from commercial corporations and allowing exhibits was an acceptable practice which should be continued at Iowa City. Considerable discussion was made of mechanisms for increasing advertising of meetings. This year, most associated societies were contacted, and a paid advertisement occurred in the January issue of Trends in Biotechnology. A flyer prepared by the organizing committee was broadly circulated in late fall. It was suggested that tentative information on the upcoming meeting be circulated earlier (early fall) to the membership and perhaps more broadly.

The treasurer reported on the strong financial position of the Society. He expressed some concern about members who have not paid dues for this year. The possibility of expanding the membership (to say 600) was raised. Suggested initiatives for accomplishing this were a membership drive focused on a broadly distributed pamphlet and consideration of including mini-reviews in perhaps two newsletters per year. The executive committee and advisory committee will take the latter proposal under consideration and a committee was formed to move on preparation of a pamphlet. Discussion of secretarial matters centered on movement toward printing and upgrading of the Newsletter. The new secretary will be given additional funds to make this change. The secretary will ask the membership to donate missing RAT volumes and newsletters so the society archival collection can be advanced. A constitutional clarification advanced by H. Stafford was discussed. This amendment will be formulated and appear on the 1988 ballot. Eric Conn reported that the RAP volume from the Maryland meeting will be several months late. He predicted that the volume from the Tampa meeting should be available in late spring, 1988.

Eric will resign the editorship after the Iowa City Symposium Volume. At about the same time, the current contract with Plenum Press will require renegotiation. Eric agreed to help with this.

Dave Loomis reported the results of the 1987 election. Dave Seigler, Helen Habermann, and Jonathan Poulton were elected to the offices of Vice-President, Secretary and Treasurer, respectively. J. Saunders, D. Seigler and G. Wagner ran for Vice-President, H. Habermann and K. Downum for Secretary and J. Poulton for Treasurer. The Constitutional amendment on the

1987 ballot was approved by a margin of 120 for and 8 against. The return of ballots was 137 out of 400 mailed (34%) as compared to a 22% return last year.

Neil Towers offered again to host the 1989 meeting at the University of British Columbia. The hosts, location, and symposium topic for the 1989 meeting are still under consideration. The possibility of having joint meetings with PSE, the newly formed Latin American Phytochemical Society and others, will be explored in the coming year by J. Romeo.

It was agreed that the advisory committee formed in 1985 was extremely helpful to the executive committee and the society. Barbara Timmerman completed a one-year term this year and was replaced by Dick Mansell. The current committee, their appointment dates and terms are:

H. Stafford, chair	1985	3 years
S. Brown	1985	5 years
G. Hrazdina	1986	5 years
L. Creasy	1986	3 years
D. Mansell	1987	5 years

Several concerns and proposals were deferred to the advisory committee for their recommendations.

The subject of student participation in the society was discussed. There was unanimous agreement that the current policy for travel grants and student paper awards was a success and should be continued next year. Several proposals for increasing student participation were discussed. One which will perhaps be tried next year would include a gathering for students at the meeting (refreshments supplied) organized by students of the host institution. If this group wished to report on this activity and/or make recommendations on any society matters, they could do so in the following newsletter. Several mundane matters relating to the newsletter, elections, and nominations processes were discussed.

A recommendation was made that Helen Stafford be awarded the Life Membership Award for outstanding service to the society. The affirmative vote was unanimous. The subject of finding a way to stimulate and support the newly founded Latin American Phytochemical Society was discussed. J. Romeo will explore possibilities when he attends this society's first annual meeting in November.

This briefly summarizes issues which were, for the most part, discussed in detail in executive committee gatherings throughout the period of the Tampa meeting.

Respectfully submitted,

George J. Wagner

BIOGRAPHICAL SKETCHES: STUDENT BEST PAPER AWARD WINNERS, 1987 MEETING AT THE UNIVERSITY OF SOUTH FLORIDA

MARK ANTHONY BERNARDS received his B.Sc. (Agr) in Horticulture from the Ontario Agricultural College, University of Guelph in 1985. While the emphasis of the program was horticulture, his studies were directed toward areas of plant cell tissue culture and plant biochemistry. His research interests include studies on the molecular basis of cell-cell interactions (specifically host-pathogen interactions) and plant cell cultures as tools for biochemical studies. Mark's Ph.D. research project involves a study of the molecular basis for the Ve gene governed resistance to the vascular wilt pathogen Verticillium albo-atrum. As an integral part of this study, an in vitro co-cultivation system between cultured tomato cells and V. albo-atrum is being developed.

HENRY E. KHOURI is a Canadian of Lebanese origin. After receiving his B.S. degree in Biochemistry from Concordia University, Montreal in 1979, he worked for 2 years with Dr. S. Solomon in the Biochemistry Department, McGill University, Montreal on the separation and identification of peptide hormones from bovine pituitary glands. He then started his graduate work in plant biochemistry with Dr. Ragai K. Ibrahim at Concordia University. He is working on the productivity, biosynthesis and enzymology of phenolic compounds, in particular, anthraquinones and flavonoids. Henry received an M.S. degree in 1983 and has since extended his research and will receive his Ph.D. in the fall of 1987. His work has appeared in some 15 publications in international journals including 2 review articles. After graduation Henry hopes to apply his knowledge to plant biotechnology.

A NOTICE FROM OUR TREASURER

A small but worrisome number of PSNA members have not yet paid their dues. Those who may have forgotten to mail their checks for \$15 (\$8 for student members) are urged to do so immediately.

An application for membership can be found inside the back cover of this newsletter. Those with new colleagues or students interested in phytochemistry are urged to pass on these application forms. A valuable benefit of membership is the 40% discount provided by Plenum Press for volumes of the Recent Advances in Phytochemistry series (see the advertisement and order form included in this issue of the PSNA newsletter). Vol. 21: "Phytochemical Effects of Environmental Compounds" is now available.

Please send dues and applications for membership to Dr. Jonathan E. Poulton, Department of Botany, University of Iowa, Iowa City, IA 52242.

28th Annual Meeting of the Phytochemical Society of North America, 1988

* The Annual Meeting of the PSNA will be held on June 26-30, 1988 on the campus of the University of Iowa at Iowa City. The meeting organizers are Dr. Jonathan E. Poulton (Univ. of Iowa) and Dr. John Romeo (Univ. of South Florida). As in previous years, the meeting will consist of contributed paper sessions as well as a symposium. The 1988 symposium, entitled "Plant Nitrogen Metabolism," will focus on recent developments in primary and secondary nitrogen phytochemistry. Contributed papers are encouraged on any subject of plant chemistry either as oral or poster presentations.

The meeting will begin with a reception on the evening of Saturday, June 25th and will be followed by five morning sessions (26th, 27th, 28th, 29th and 30th) and three afternoon sessions (26th, 27th, and 29th) of Symposium and Contributed papers. The poster session will be held on Monday night.

The following have accepted our invitation to participate in the 1988 Symposium. If known, titles of their presentations are listed below. Otherwise, the general areas covered by their papers are indicated in parentheses.

Dale G. Blevins, University of Missouri. (An Overview of Plant Nitrogen Metabolism from an Agronomic standpoint).

J.S. Pate, University of Western Australia. "Synthesis, Transport and Utilization of Products of Symbiotic Nitrogen Fixation."

Andris Keinhofs, Washington State University. "Genetics and Molecular Biology of Higher Plant Nitrate Reductases."

Peter J. Lea, University of Lancaster, UK. "The use of mutants lacking glutamine synthetase and glutamate synthase to study their role in plant nitrogen assimilation."

David Rhodes, Purdue University. "Assimilation of Ammonia by Glutamate Dehydrogenase?"

Dale L. Shaner, American Cyanamid, Princeton. "Sites of Action of Herbicides in Amino Acid Metabolism: Primary and Secondary Physiological Effects."

Shang Fa Yang, UC Davis. "Metabolism of 1-Aminocyclopropane-1-carboxylic Acid in Relation to Ethylene Biosynthesis."

Thomas W. Okita, Washington State University. "Structure and Expression of Wheat and Rice Seed Protein Genes."

Linda Fellows, Kew Gardens, UK. (Non-protein Amino Acids and Polyhydroxyalkaloids).

Hector Flores, Louisiana State University. "Primary and Secondary Metabolism of Polyamines in Plants."

Meinhart H. Zenk, University of Munich, West Germany. "Biosynthesis of Alkaloids using Plant Cell Cultures."

An additional speaker is being sought who would address the topic of nitrogen fixation.

Several excursions and social events are being planned. For those interested, we intend to run a field trip to a native prairie on Sunday night. Thereafter, graduate students from the University of Iowa Botany Department will host a get-together for graduate students and post-docs at one of Iowa City's many night spots. On Tuesday afternoon (June 28th), several excursions are being considered, including a voyage on the Mississippi River on a stern-wheeler. The banquet will be held on Wednesday evening (June 29th). An entertainment program for spouses and children is also being planned.

The meeting will be held at the newly renovated Iowa Memorial Union. Excellent accommodation is available at the hotel (Iowa House) located in part of this fully air-conditioned building. Alternatively, dormitory accommodation will be available at extremely reasonable rates. Accommodation rates at these and other local hotels will be provided in the January Newsletter. All meals may be purchased within the Union building itself or at restaurants in the town center (5 minutes walk from the Union).

Funds have been identified which will allow partial travel assistance for graduate students presenting oral papers at the 1988 meeting. Additionally, an award of \$100 will be presented for the most outstanding paper submitted by a graduate student or junior faculty member. Further details will be provided in the January Newsletter.

If you would like further information about this meeting, please contact:

Dr. Jonathan E. Poulton
Department of Botany
University of Iowa
Iowa City, IA 52242
(319) 335-1322

or

Dr. John T. Romeo
Department of Biology
University of South Florida
Tampa, FL 33620
(813) 974-2336

PLANS FOR 1989 AND 1990 PSNA MEETINGS

The symposium topic of the 1989 PSNA meeting in Vancouver, British Columbia, will be "Biologically Active Products of Mevalonic Acid." Neal Towers will be assisted in organizing the meeting by Bruce Bohm, Department of Botany, University of British Columbia.

In 1990 PSNA will meet in Quebec City with the International Society of Chemical Ecology. Nikolaus Fischer, Department of Chemistry, Louisiana State University, will organize a symposium on "Modern Phytochemical Methods." PSNA and ISCE will have separate symposia, but contributed papers from both societies will be grouped together by topic. Jeremy McNeil has agreed to handle local arrangements for both societies in Quebec.

NEW PSNA MEMBERS AND THEIR RESEARCH INTERESTS

The following recently joined our Society. We welcome you and invite your participation in Society business and at our meetings.

Marco Frehner
Dept. of Biochem. & Biophys.
University of California
Davis, CA 95616

Secondary metabolism
Cyanogenesis

James A. Kloek
Building 82, Research Labs.
Eastman Kodak Co.
Lake Avenue
Rochester, NY 14650

Chemical crop protection
Herbicides, fungicides

Mark A. Bernards
Dept. Chem. & Biochem.
Univ. of Guelph
Guelph, Ontario
Canada, N1G 2W1

Phytopathology
Molecular Biology

John R. Glover
RR 1, Waterford
Ontario
Canada, NOE 1Y0

Enzymology of secondary
metabolism

Peter Brodelius
Inst. of Biotechnology
ETH-Hoenggerberg
CH-8093 Zurich
Switzerland

Phytochemical production by
plant cell cultures

David Kuhn
Biochemistry Department
Purdue University
W. Lafayette, IN 47907

Plant-Pathogen Interactions

N. Kent Peters
Biotechnology Center
Ohio State University
Columbus, OH 43210-1002

Phenylpropanoids
Molecular Biology

Dominique Provost-Buisson
Department of Biology
FIU-Tamiami Campus
Miami, FL 33199

Plant-animal & plant-insect
interactions

MEETINGS AND PROGRAMS OF INTEREST

AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE - joint with **CONGRESS OF THE INTER-AMERICAN SOCIETY FOR TROPICAL HORTICULTURE**: Orlando, FL, November 6-12, 1987. For further information, contact Dr. D.J. Cantliffe, Vegetable Crops Dept., 1251 Fifield Hall, University of Florida, Gainesville, FL 32611. (904) 392-1928.

LATIN AMERICAN SOCIETY FOR PHYTOCHEMISTRY: Montevideo, Uruguay, November 15-21, 1987. For further information, contact Dr. L.J. Corcuera, Departamento de Biologia, Universidad de Chile, Casilla 653, Santiago, Chile.

PHYTOCHEMICAL SOCIETY OF EUROPE. Symposium on "Amines in Plants": University College, London, December 21-22, 1987. For further information, contact Prof. G.R. Stewart, Department of Botany, University College, Gower Street, London WC1 7HX, England.

Joint Meeting of **THE PHYTOCHEMICAL SOCIETY OF EUROPE, THE MEMBRANE GROUP OF THE BIOCHEMICAL SOCIETY** and **THE PLANT METABOLISM GROUP OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY** on "Plant membranes - Structure, Assembly and Function": University College, Cardiff, Wales, April 11-12, 1988. Topics will include: characterization of membrane structure; biosynthesis of membrane components and assembly; modification of membrane structure; molecular function of membrane components; physiological aspects of membranes. For further information, contact Prof. J.L. Harwood, Department of Biochemistry, University College, P.O. Box 78, Cardiff CF1 1XL, Wales, United Kingdom. P.S.N.A. secretary has forms for preliminary conference registration (due by October 31st).

GROUPE POLYPHENOLS INTERNATIONAL MEETING: The International Polyphenols Group will hold its next biennial conference at Brock University, St. Catherines, Ontario, August 16-19, 1988. Topics of the symposium with the names of the invited speakers are as follows: Overview of plant phenolics (J.B. Harborne, Reading, U.K. and M. Jay, Villeurbanne, France); Biodegradation and utilization of lignin (A.M. Boudet, Toulouse, France and N. Lewis, Blacksburg, U.S.A.); Significance of flavonoids in foods (M. Metche, Nancy, France and M. Stavric, Ottawa, Canada); Cereal polyphenols (F.W. Collins and R.G. Fulcher both of Ottawa, Canada); Phenolics in phytopathology (M. Legrand, Strasbourg, France and U. Matern, Freiburg, FRG) and Enzymatic synthesis and production of flavonoids (H. Grisebach, Freiburg, FRG and L. Varin, Montreal, Canada). Preregistration figures (214 as of August 15, 1987) indicate that the conference will be well attended. Contributed papers and posters on these and other polyphenol related topics are still being accepted. For further information contact: Dr. T. Fuleki, HRIO, Vineland Station, Ontario, Canada, LOR 2E0.

POSITION WANTED

European **PLANT BIOCHEMIST/PHYSIOLOGIST** seeks assistant professor position or equivalent. Experience: Secondary natural products; Phytochemistry; Metabolism; Biosynthesis; Enzymology; Biotechnology; Phenylpropanoids; Flavonoids; Acetylenic Compounds. All chromatographic techniques - HPLC expert. Thirteen years of teaching experience (plant biochemistry/ physiology); 15 publications. German Dr. rer. nat. habil., 40, willing to immigrate USA or Canada. Inquire PSNA secretary.

POSITIONS AVAILABLE

UNIVERSITY OF BRITISH COLUMBIA. Applications will be accepted for the following four positions until December 1, 1987. These positions will collectively form a team to study basic and applied problems of competition and vegetation management in the forests of British Columbia. Applications for the first three positions should be addressed to Professor D.P. Lavender, Head, Department of Forest Science, The University of British Columbia, Vancouver, B.C., Canada, V6T 1W5, and should include a curriculum vitae and three letters of recommendation. The applicants for the position of Plant Biochemist should address their applications to Professor A.D.M. Glass, Head, Department of Botany, U.B.C. The University of British Columbia offers equal opportunity for employment to qualified female and male applicants. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian Citizens and permanent residents.

CONIFEROUS SEEDLING PHYSIOLOGIST. Desired background: Ph.D. in botany or forestry. Demonstrated research competence in stress physiology - ecology, or growth regulation. Post-doctoral research experience preferred. Would be expected to develop a research and graduate program in physiological problems of seedling production and crop establishment. Appointment at the assistant or associate level, depending on experience. Position is a permanent tenure-track appointment.

ECOPHYSIOLOGIST. Desired background: Ph.D. in botany or forestry. Demonstrated research competence in physiological ecology or production ecology, oriented to the evaluation of competition. Post-doctoral research experience preferred. Would be expected to develop a graduate and research program to quantify elements of competition between crop and non-crop vegetation. Appointment at assistant or associate professor level, depending on experience. Position is a permanent tenure-track appointment.

RESEARCH ASSOCIATE. Desired background: M.Sc., or Ph.D. in botany or forestry, and eligibility for Registered Professional Forester in British Columbia. Some experience in forestry research preferred. Would be expected to conduct province-wide vegetation management field research, and serve as a back-up for both the ecophysiologicalist and seedling physiologist. Appointment is non-tenure track and is renewable annually.

PLANT BIOCHEMIST. Desired background: Ph.D. in biochemistry. Demonstrated research competence in the biochemistry of plant growth regulation. Post-doctoral research experience preferred. Would be expected to develop a research and graduate program to investigate biochemical mechanisms of plant growth regulation in the context of forest vegetation management. Joint appointment in the departments of Botany and Forest Science at the assistant or associate professor level depending upon experience. Position is a permanent tenure-track appointment.



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1988 MEMBERSHIP DIRECTORY: REQUEST FOR INFORMATION

A new membership directory will be published in February, 1988. We will continue to list the research area interests of our members and to provide a geographical directory. If you wish to be included in such a listing (or if you wish to alter your current listing), please fill out this page and return it to: J.E. Poulton, Department of Botany, University of Iowa, Iowa City, IA 52242. The deadline for inclusion in the 1988 Directory is December 31. Please return this form if you have recently changed your address.

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PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

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Jonathan Poulton
Treasurer

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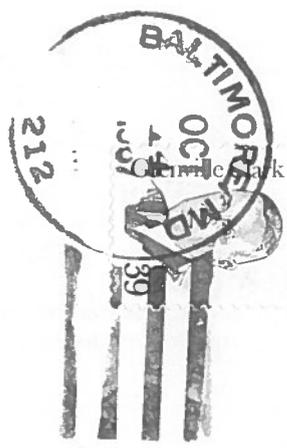
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Phytochemical Society of North America
Helen M. Habermann, Secretary
Department of Biological Sciences
Goucher College
Baltimore, MD 21204

SEND TO:

Dr. Jonathan E. Poultor
Dept. of Botany
Univ. of Iowa
Iowa City, IA 52242



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