

JANUARY 1983

Solur
I sent this as part of newsletter to
the people on your list to drop.

Dear PSNA Member:

Your name has been included on a list of members who have not paid their dues since 1981. It has been the policy of PSNA to drop any names from our membership if their dues are more than one year overdue. We appreciate your support of the Phytochemical Society of North America in the past and hope that you will take this final opportunity to renew your membership. Please fill out the form below

and mail to: Dr. John T. Romeo
Treasurer, PSNA
Dept. of Biology
University of South Florida
Tampa, Fla 33620
(813) 974-2336

Full Member \$ 8.00

Student Member \$ 4.00

Name _____

Address _____

Telephone (____) _____

Research Interests _____

JANUARY 1983

Dear Mr. [Name]

Your name has been included on a list of members who have not
yet paid their dues since 1981. It has been the policy of this society
for many years to suspend membership if dues are not paid for a year.
Therefore, we appreciate your support of the organization's efforts of
this past year and hope that you will take this time

opportunity to renew your membership for 1983. The dues below

enclosed for Mr. John T. [Name]
[Address]
[City of Miami]
[University of South Florida]
[Campus, FL 33620]
(813) 974-2222

\$ 3.00

Full Member

\$ 1.00

Student Member

Telephone () _____

Residence in _____

CALL FOR PAPERS

The 1983 23rd Annual Meeting of the Phytochemical Society of North America will be held July 5-8, 1983 on the campus of the University of Arizona, in Tucson, Arizona

The meeting will feature contributed papers and poster sessions on any topic of Phytochemistry. The contributed papers will be grouped in similar topics by the organizing committee and the abstracts published in the PSNA Newsletter.

In addition to contributed papers the annual meeting will have a symposium series on the topic of "Phytochemical Adaptations to Stress." The symposium speakers will include:

JONATHAN GERSHNEZON
Department of Botany, University of Texas, Austin, TX 78122
"Changes in Plant Secondary Metabolite Production under Stress"

TERENCE A. SMITH
Long Ashton Research Station, Long Ashton, Bristol, BS18 9AF,
England (Telephone No. STD 027-580 2181)
"Production of Polyamines in Relation to Inorganic Ions"

MORDECAI J. JAFFE
Department of Biology, Wake Forest University, Winston-Salem,
NC 27109
"Role of Ethylene in Mechanical Stress of Plants"

R. GARETH WYN JONES
Department of Biochemistry and Soil Science, University College
of North Wales, Bangor, Gwynedd LL57 2UW.
Telephone No. Bangor 551151, Ext. 411)
"Phytochemical Aspects of Osmotic Adaptions"

G.H.N. TOWERS
Department of Botany, The University of British Columbia,
Vancouver, B.C. Canada V6T 1W5 (Telephone No. 604-228-3338)
"Phytochemical Adaption to Stress in Tissue Cultures"

HENRY YOKOYAMA
Fruit and Chemical Vegetable Laboratory, USDA, 263 South Chester
Avenue, Pasadena, CA 91106.
"Factors Affecting Polyisoprene Biosynthesis"

MERYL N. CHRISTIANSEN
Plant Physiology Institute, Agricultural Research, North-
Western Region, Beltsville Agricultural Research Center
Beltsville, Maryland 20705
"Temperature Stress and Membrane Lipid Modification"

ALOIS BELL
USDA, Southern Region, National Cotton Pathology Research
Laboratory, P.O. Drawer JF, College Station, TX 77841
"Biochemical Mechanisms of Pest Resistance in Gossypium:
Manipulation by Interspecific Hybridization"

BARBARA TIMMERMAN
Department of Pharmaceutical Sciences, College of Pharmacy,
University of Arizona 85721 (602-626-1713)
"Chemicals from Desert Biomass"

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

23rd Annual Meeting
 University of Arizona
 Tucson, Arizona

PROGRAM OUTLINE

- Tuesday Afternoon: July 5, 1983
 Registration and Reception
- Wednesday Morning: July 6, 1983
 Welcoming Remarks
 Symposium Papers I, II and III
- Wednesday Afternoon:
 Contributed Papers
- Wednesday Evening:
 Poster Session
- Thursday Morning: July 7, 1983
 Suymposium Papers IV, V, & VI
- Thursday Afternoon:
 Contributed Papers
- Friday Morning: July 8, 1983
 Symposium Papers VII, VIII, IX
- Friday Afternoon:
 Contributed Papers
 Business Meeting
- Friday Evening:
 Annual Society Banquet and Award Presentation
 Banquet Presentation and Entertainment
- Saturday: July 9, 1983
 Special field trips for participants and families to
 Mt. Lemmon or Boyce-Thompson Arboretum.

PLEASE POST

Invitation for Travel Awards: The Phytochemical Society of North America will award four competitive travel awards towards expenses of attending the 1983 annual meeting to be held in Tucson, AZ. July 5-8. Two awards will be presented to graduate students and two awards will be presented to recent recipients of Ph.D.'s (within the last 5 years). Each award will be for \$250.00. The selection criteria for the awards will be based on the scientific merit of papers submitted for competition by April 1, 1983. The subject of the manuscript may relate to any topic of phytochemistry of interest to the author. Applications are not restricted to members of the Phytochemical Society of North America. Winners of the travel awards will be expected to present their manuscripts at the Annual PSNA meeting in Tucson.

The manuscript together with a curriculum vitae and this application form listed should be submitted to:

Dr. Barbara Timmermann
 Chairman, PSNA Travel Awards Committee
 University of Arizona
 Department of Pharmaceutical Sciences
 Tucson, AZ. 85721
 (602) 626-4737

Name _____

Address _____

Phone () _____
 area code

Catagory: Graduate Student
 Recent Ph.D. (date of degree _____)

Title of Manuscript: _____

Application Deadline: April 1, 1983

UPCOMING MEETINGS OF INTEREST TO PHYTOCHEMISTS

GUAYULE RUBBER SOCIETY

Fourth annual conference will be held at the University of California at Riverside, June 20 - 23, 1983.

All aspects of research and development related to guayule, Parthenium argentatum Gray, and relatives will be considered.

Guayule, a rubber--producing shrub from the Chihuahuan desert, is being considered as a potential rubber- and resin-producing crop for the arid and semiarid regions of the world.

The meeting will include invited and contributed papers, poster session, and field trips. Titles should be submitted by March 1, and a one-page summary by May 16, 1983.

For contributing papers or further information contact:

Conference Chairman, Guayule Rubber Society
Department of Botany and Plant Sciences
University of California
Riverside, CA 92521

PLANT BIOCHEMISTRY AND PHYSIOLOGY SYMPOSIUM

University of Missouri-Columbia

April 6, 7, and 8, 1983

The Interdisciplinary Program in Plant Biochemistry and Physiology of the University of Missouri-Columbia is hosting its annual symposium on selected topics in Plant Biochemistry-Physiology.

Topics selected for this year's symposium are:

- a) Plant Cell Wall Protein
- b) Biosynthesis, Translocation and Partitioning of Sucrose
- c) Temperature Stress
- d) Water and Salt Stress
- e) Cell Culture for Crop Improvement

The Symposium will be held at the University of Missouri-Columbia Campus at the Memorial Union. UMC is the main campus of the University with 13 college disciplines and 25,000 students. Columbia is located on Interstate 70 equidistant between St. Louis and Kansas City.

Invited Speakers

Paul Kramer	Murray Nabors
Steve Huber	Roy Chaleff
Joe Varner	Keith Pomeroy
Derek Lamport	Steve Lindow
Stephen Fry	Joe Polacco
Roger Wyse	Steve Pallardy
Pal Maliga	Milon George
Deret Bewley	Russell Malmberg
Joe Key	John Thorne
Tina Barsby	Bernedette Fondy

Poster and Minipapers:

Poster presentations in any area of Plant Biochemistry-Physiology are invited. Posters will be exhibited throughout the symposium. An abstract (1/2 page or 160mm x 160mm) of poster presentation must be received by March 15, 1983 to be included in the program. Poster space will be limited to 4' x 4'. Poster abstracts should be sent to Doug Randall, Biochemistry Department, 211 Chemistry Building, UMC, Columbia, MO 65211. Posters may be presented without prior submission of an abstract; however, remaining space will be on first-come, first-served basis.

AMERICAN SOCIETY OF PLANT PHYSIOLOGIST

1983 August 7-12, Colorado State University, Fort Collins, CO

1984 August 12-17, University of California, Davis, CA

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA
PSNA 1983, July 5-8, Tucson, AZ

Symposium Topic "Phytochemical Adaptions to Stress"

1984 Boston University, Boston, MA

Tentative Symposium Topic "Biochemistry of Plant/Insect Interactions"

1985, June 12-16, Asilomar Conference Grounds, Monterey, CA,

Tentative Symposium topic "Secondary Plant Metabolities in Foods"

Please send suggestions for future meeting sites, symposium speakers, and symposium topics to the PSNA society secretary (Address on inside cover).

PSNA WELCOMES THE FOLLOWING NEW MEMBERS:

Dr. Rick C. Heupel
USDA-ARS
Western Regional Research Center
800 Buchanan St.
Albany, CA 94710
Interests in Plant Physiology and
Biochemistry, Plant Growth Regulators

Dr. Hugh J. Hope
2560 Hochelaga
Ste-Foy, Quebec
GIV 253 CANADA
Biochemistry and Physiology
of survival in alfalfa and
winter wheat

Ms. Suzanne Weck
 Univ. of Arizona
 Dept. of Chemistry
 Tucson, AZ 85721
 Interests in Natural Products
 Chemistry

Dr. Robin Franklin Bernath
 Dept. of Chemistry
 Univ. of Arizona
 Tucson, AZ 85721
 Interests in Crucifer Chemistry
 Plant Animal Interactions,
 Juvenoids

Dr. Mohammed A. Al-Yahya
 Dept of Pharmacognosy
 College of Pharmacy
 King Sand University
 Riyadh, Saudi Arabia

Robert Buchsbaum
 Boston Univ.
 Marine Program
 Woods's Hole, MA 02543

Patrick Finney
 USDA-West Wheat Lab.
 Dept. Food Science
 Washington State Univ.
 Pullman, WA 99163

F. G. Fulcher
 Ottawa Res. Sta.
 Agriculture Canada
 Ottawa, Ontario
 K1A 0C6 CANADA

Positions Open: All announcements listed are equal opportunity positions:

Research & Development Positions Available

Minimum Requirements: Ph. D. in Biology, major course of study in either:
 Entomology, Nematology, Plant regulation.

Position: R & D work for a major agricultural chemical company - 3 billion in sales - Research work in new multi-million dollar complex - Located in New Jersey.

Salary Range: High 30's, low 40's - commensurate with experience

Send Resumes to: Laurada Byers, D.S., Inc., 2 Girard Plaza, Suite,
 Philadelphia, PA 19102, 215-732-6666.

Assistant Professor in Biochemistry (Plant and/or microbial) Research interests in the area of enzymology, regulation, enzyme kinetics or related topic. Applicant must have a Ph.D. with post graduate experience. Send C.V. To: Chairman, Dept. of Chemistry, Concordia University, Montreal, Quebec, Canada H3G1M8 (514) 879-2877

Analytical Chemist - Position will be a full time USDA civil service opening at the GS 11/12 level. The incumbent will be expected to conduct research related to the chemical and/or biochemical analysis of tobacco or tobacco smoke. Send C.V. and Standard Federal Form 171 to: Dr. T. C. Tso, Tobacco Laboratory, USDA, Bldg. 001, Rm. 115, Beltsville, MD 20705 (301) 344-3478.

INFORMATION ON GRANTS:

The McKnight Foundation has announced that it received 148 proposals for it's program of Individual Research Projects in Plant Biology which was initiated for the first time in December 1982. Ten grants were funded for a 3 year period at \$35,000 without overhead charges.

The successful applicants were:

Martha L. Crouch - Self-incompatibility in Flowering Plants: Direct Analysis of the S-gene and its Product(s).

Maureen R. Hanson - Mitochondrial Gene Expression and Pollen Development.

Rick G. Kelsey - Spotted Knapweed Phytotoxins and Their Ecological Significance.

Samuel S. Kent, Jr. - Photosynthetic Potential of RuBP Carboxylase/ Oxygenase: Kinetic, Mechanistic Analysis, and Mutant Selection by the Dual Label Method.

Daniel F. Klessig - Photoinduction and Coordinate Expression of Ribulose -1,5- Bisphosphate Carboxylase Genes in Grain Amaranth.

Chris J. Lamb - Molecular Biology of Plant Cell Surface Membranes.

Russell L. Malmberg - Developmental Gene Regulation in Tobacco -- Cell Culture Mutants.

Hugh D. Robertson - An Examination of Plant Viroid Disease and its Agents Using Biochemical, Electron Microscopic and Tissue Culture Methods.

Melvin S. Schindler - Legume-Rhizobium Symbiosis: Lectin Receptors and Their Dynamic Interactions With Cytoskeletal Proteins.

Michael R. Sussman - Control Mechanisms for the Plasma Membrane Proton Pump in Cells of Higher Plants.



ORDER FORM

A large, faint area at the bottom of the page containing a grid of lines and text, likely a form for ordering or administrative use.

TITLES ON DISPLAY*Special 40% Discount Offer on the*

RECENT ADVANCES IN PHYTOCHEMISTRY SERIES

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<input type="checkbox"/> 405725	Swain/Kleiman--THE RESOURCE POTENTIAL IN PHYTOCHEMISTRY, 1980 (Vol. 14)	\$32.50	\$19.50
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<input type="checkbox"/> 347105	Wallace/Mansell--BIOCHEMICAL INTERACTION BETWEEN PLANTS AND INSECTS, 1976 (Vol. 10)	\$39.50	\$23.70
<input type="checkbox"/> 347091	Runeckles--PHYTOCHEMISTRY IN DISEASE AND MEDICINE, 1975 (Vol. 9)	\$35.00	\$21.00

Volumes 1-4 also available**ORDER FORM**

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Plenum Publishing Corporation 233 Spring Street, New York, N.Y. 10013 Attn: K. McDonough

APRIL 1983

General Information

Located on the edge of the Sonoran desert, Tucson is nestled on a plateau among the Santa Catalina, Santa Rita, Rincon and Tucson mountain ranges. Tucson is a veritable sun city - 9 out of 10 days have clear blue skies and lots of sunshine. In the summer, however, Tucson is HOT. Daytime temperatures exceed 90°F (32°C) and cool to the 70's (low 20's) after sunset. Tucson has some of the most beautiful sunsets anywhere and they are especially vivid this year due to recent volcanic activity in Mexico. The relative humidity is low as the winter storms from the Pacific are over and the summer monsoons usually will not yet have started, but the heat can be very intense.

Appropriate clothing is light, both in color and weight of fabric, and hats are good protection against the sun. Sunburn can occur after a few minutes in the direct sun (although this varies with the time of day), so protection in the form of a sunscreen lotion, long sleeves and hats is necessary. Conference rooms, buses, and rooms in the dormitory and hotels are all quite comfortably air-conditioned. In the summer, Tucsonans are much more active out-of-doors in the mornings and evenings than in the heat of the mid-day sun.

Tucson is known as the Mexican food capital of the US, and there are many restaurants offering excellent food at reasonable prices and strolling Mariachi bands. Tucson is only 90 minutes from Nogales, Mexico but Canadians and overseas visitors traveling in Mexico are advised to have their passports on hand.

There are many fine museums, galleries and attractions both on campus and around the city. Located on campus are the Flandrau Planetarium, the Center for Creative Photography, Arizona State Museum, Tucson Museum of Art and the world's largest astronomical facility, the Kitt Peak National Observatory. Off-campus are the Arizona-Sonora Desert Museum, Arizona Heritage Center, Pima Air Museum, Old Tucson, Reid Park Zoo, Colossal Cave

and the San Xavier Mission, to name a few. There are four large enclosed shopping malls in Tucson, each of which is pleasantly air-conditioned

U of A athletic facilities available to registrants include swimming pools, courts for tennis, racketball and handball, gyms and weight rooms. There is an outdoor exercise circuit around the campus. Tucson has several public golf courses and there are several riding stables around Tucson at which horses can be rented for rides through the desert.

Southern Arizona abounds in national monuments including Saguaro National Monument, Casa Grande Ruins National Monument (with a prehistoric observatory), Organ Pipe National Monument, Tumacacori National Monument and Chiricahua National Monument. Each monument preserves some unique feature unlikely to be seen elsewhere.

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Department of Biochemistry and Soil Science, University College
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Telephone No. Bangor 551151, Ext. 411)
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G.H.N. TOWERS

Department of Botany, The University of British Columbia,
Vancouver, B.C. Canada V6T 1W5 (Telephone No. 604-228-3338)
"Phytochemical Adaption to Stress in Tissue Cultures"

HENRY YOKOYAMA

Fruit and Chemical Vegetable Laboratory, USDA, 263 South Chester
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"Factors Affecting Polyisoprene Biosynthesis"

MERYL N. CHRISTIANSEN

Plant Physiology Institute, Agricultural Research, North-
Western Region, Beltsville Agricultural Research Center
Beltsville, Maryland 20705
"Temperature Stress and Membrane Lipid Modification"

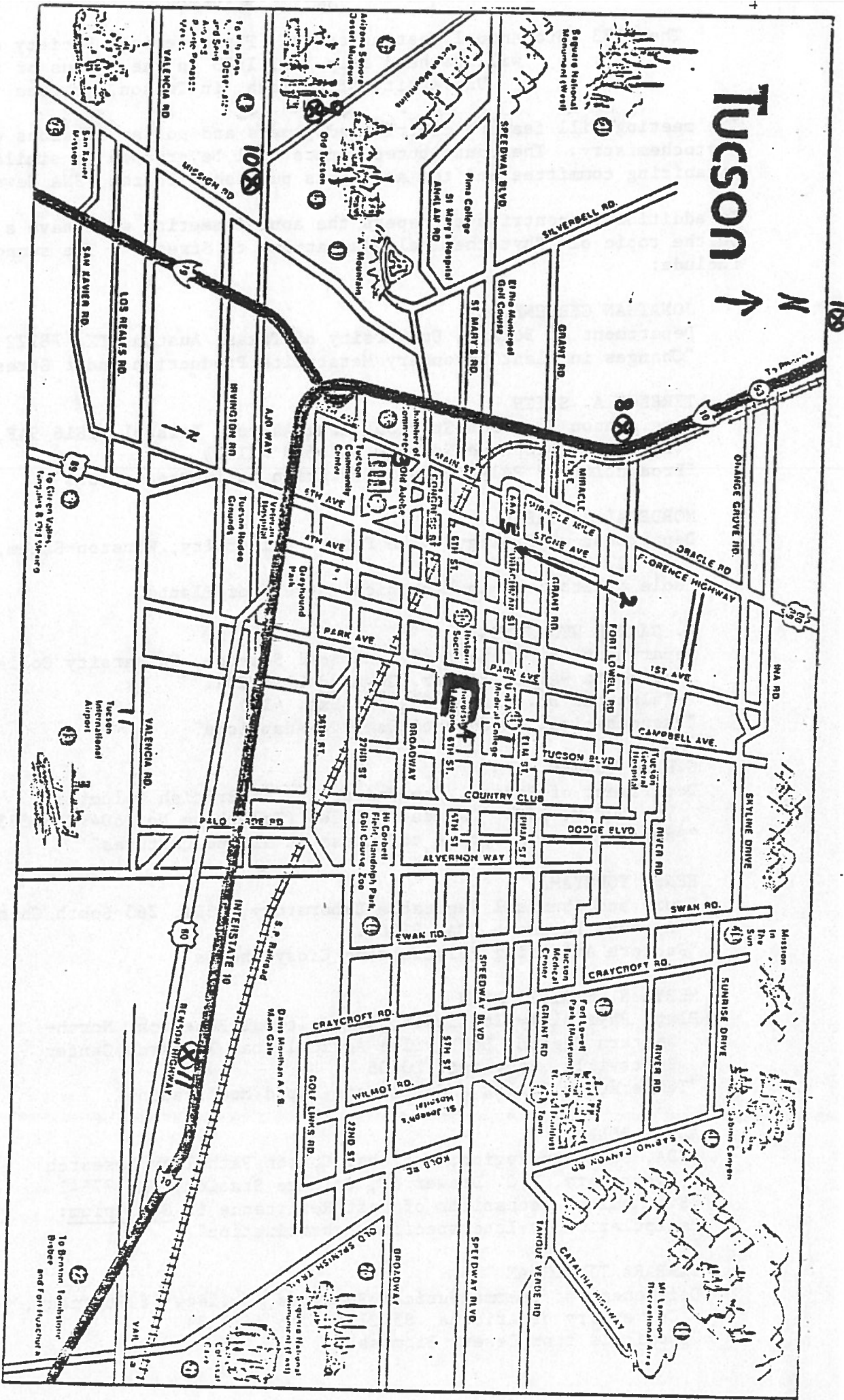
ALOIS BELL

USDA, Southern Region, National Cotton Pathology Research
Laboratory, P.O. Drawer JF, College Station, TX 77841
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BARBARA TIMMERMAN

Department of Pharmaceutical Sciences, College of Pharmacy,
University of Arizona 85721 (602-626-1713)
"Chemicals from Desert Biomass"

Tucson



1. Arizona Inn
2. Flamingo Hotel
3. Marriott Hotel
4. Plaza International Hotel
5. Sahara Motor Inn

6. A Bar A Campgrounds
7. KOA
8. Prince of Tucson
9. Gilbert Ray Campgrounds
10. Tucson Mountain RV Park
11. Crazy Horse Campgrounds

5-8 July 1983**

University of Arizona, Tucson, AZ 85721

ADVANCE REGISTRATION FORM

Please complete (print or type) a separate form for each meeting participant.

Return no later than 6 June 1983 to:

PSNA 1983 Symposium.

% University of Arizona

Division of Continuing Education, Rm 1201

1717 E. Speedway Blvd.

Tucson, AZ 85719

Name _____ Phone _____
(Area code) (Number)

Address _____

City _____ State/Province _____ Zip/Postal Code _____

Number		Amount
_____	Participant (member) \$40.	_____
_____	Participant (non-member) \$50.	_____
_____	Participant (student) \$15.	_____
_____	Participant (student presenting paper) <u>gratis</u>	_____
_____	Membership in PSNA (regular \$8.; student \$4.)	_____
_____	Spouse/children \$5. per family	_____
Names: _____		
_____	Late registration (after 6 June) \$55.	_____

SPECIAL EVENTS

- _____ Welcoming reception (5 July; 7 PM) cash bar
- _____ "An Evening at Old Tucson" Banquet (8 July; 7:30 PM) \$25. ..
- ** Field Trips: (Sat. 9 July; 8 AM)
- _____ Boyce Thompson Southwestern Arboretum \$15.
- _____ Mount Lemmon \$10
- _____ Spouse/family program

TOTAL registration _____
TOTAL from housing _____
TOTAL enclosed _____

Make cheques payable in US funds to the University of Arizona.

Refunds (minus \$5) made if written cancellation received by 6 June.

To charge to VISA _____ or Mastercard _____, please give acct. number _____
and expiration date _____.

Advance Registration Information

Persons planning to attend the PSNA 23rd Annual Symposium are encouraged to register in advance, using the form on pg. . Either payment in full (US currency) or authorization to charge to Mastercard/VISA must accompany your order. (Purchase orders cannot be honored.)

The deadline for advance registration is June 6, 1983. On-site registration is available as scheduled in the program outline. All registration materials, badges, program booklets, etc will be distributed at the on-site registration area.

Names/Addresses/Phone numbers of the Organizers:

Dr. Cornelius Steelink
Department of Chemistry
University of Arizona
Tucson, Arizona 85721
(602) 626-2780

Dr. Barbara N. Timmermann
Department of Pharmaceutical Sci
University of Arizona
Tucson, Arizona 85721
(602) 626-4737

Dr. R. Phillip Upchurch
College of Agriculture
University of Arizona
Tucson, Arizona 85721
(602) 626-0134

Dr. Robin F. Bernath
Department of Ecology & Evolutionary Biology
University of Arizona
Tucson, Arizona 85721
(602) 626-1835/626-5021

Suzanne Weck
Department of Chemistry
University of Arizona
Tucson, Arizona 85721
(602) 626-3705

Program Outline

All meetings will be held at the Modern Languages Auditorium, unless stated otherwise.

Tuesday afternoon

July 5, 1983

5:00 - 10:00 pm

Registration at the Plaza International Hotel

7:00 - 9:00 pm

Reception at the Plaza International Hotel

Wednesday morning

July 6, 1983

8:00 - 12:00 am

Registration

8:45 - 9:00 am

Welcoming Remarks

9:00 - 10:00 am

Plenary Paper I

10:00 - 11:00 am

Plenary Paper II

11:00 - 11:15 am

Coffee Break

11:15 - 12:15 pm

Plenary Paper III

12:15 - 2:00 pm

Lunch

Wednesday afternoon

2:00 - 3:15 pm

Contributed Papers

3:15 - 3:30 pm

Coffee Break

3:30 - 5:00 pm

Contributed Papers

7:00 - 8:30 pm

Poster Session

Thursday morning

July 7, 1983

9:00 - 10:00 am

Plenary Paper IV

10:00 - 11:00 am

Plenary Paper V

11:00 - 11:15 am

Coffee Break

11:15 - 12:15 pm

Plenary Paper VI

12:15 - 2:00 pm

Lunch

Thursday afternoon

2:00 - 3:15 pm

Contributed Papers

3:15 - 3:30 pm

Coffee Break

3:30 - 5:00 pm

Contributed Papers

7:00 - 8:30 pm

Poster Session

Friday morning

July 8, 1983

9:00 - 10:00 am

Plenary Paper VII

10:00 - 11:00 am

Plenary Paper VIII

11:00 - 11:15 am

Coffee Break

11:15 - 12:15 pm

Plenary Paper IX

12:15 - 2:00 pm

Lunch

Friday afternoon

2:00 - 3:15 pm

Contributed Papers

3:15 - 3:30 pm

Coffee Break

3:30 - 4:00 pm

Contributed Papers

4:00 - 5:00 pm

Business Meeting

7:30 pm

Annual Society Banquet & Awards Presentation at Old Tucson

Saturday - Field Trips

July 9, 1983

8:00am - 4:00pm

Boyce Thompson Southwestern Arboretum

8:00am - 4:00pm

Mount Lemmon

Shuttle services

A shuttle bus will carry registrants to and from the Modern Languages Auditorium and their dormitory or hotel. The exact schedule will be published in the final program to be obtained during registration.

The Stagecoach, the airport limousine shuttle, provides 24 hr service to the dormitory for \$4.25 per person and to certain hotels free of charge.

Transportation

Tucson is a 2 hr drive from Phoenix and a 90 minute drive from Mexico. The Tucson International Airport is served by Aero Mexico, American Airlines, Continental, Eastern, Frontier, Pacific Southwest Airlines, Republic, TWA and United. Car rentals are available at the airport and in the city. Rail service to Tucson is provided by AmTrack. Bus service to the city is provided by the Greyhound and Trailway companies. Within the city, bus service is provided by SunTran for which schedules will be available at the registration desk.

"An Evening at Old Tucson": Banquet and Entertainment in the Old West

The Annual Society Banquet and Awards Presentation will be held on Friday evening, 8 July at Old Tucson. This "Hollywood in the Desert" was built from the original 1860's city plans of Tucson for the 1939 epic motion picture "Arizona". It has been the setting for such movies and TV series as "The Gambler", "Dirty Dingus McGee", "Little House on the Prairie", "Father Murphy", "High Chaparral", and many others. Visitors walk the same streets as John Wayne, Kenny Rogers, Frank Sinatra, Robert Mitchum, James Garner, Dean Martin and other major stars.

The Saloon will open its bar and drinks are on the house for a social hour preceding the western-style buffet. After the address and presentation of awards, gunfights will be staged and registrants can strap on a hoister and challenge Old Tucson stuntmen to quick-draw matches. Foot-stomping country and western music will complete this memorable evening at Old Tucson.

Housing

For the convenience of registrants, a list of lodgings near the University is prepared. With the exception of dormitory housing, registrants must contact the hotel of their choice directly.

Dormitory housing: Coronado Hall provides housing for registrants who prefer to stay at the dormitory on campus. The whole residence is air-conditioned with ample parking. Each bathroom is shared by two suites (4 people or less). Pillow, daily fresh towels and soap are provided. There will be linen service twice a week, depending on duration of stay. Participants interested in dormitory housing, please check the housing registration form for room reservation.

Coronado Hall (602) 626-2526 or 626-0215 or 626-1232

\$14 single (\$84/week)

\$8.50 double per person (\$55/week)

Campgrounds

Public

Gilbert Ray Campground (Tucson Mountain Park, desert area)
for information call (602) 883-4200

Coronado National Forest (pine forest)
for information call Santa Catalina Ranger District
2500 N. Pantano Road
Tucson, Arizona 85715
(602) 296-6245

Saguaro National Monument (desert area)
Rincon Mountain Unit (headquarters) (602) 296-8576
Tucson Mountain Unit (602) 883-6366

Commercial

A Bar A Campgrounds

Interstate 10 at Tangerine road Exit, showers, private
dressing rooms, pull through spaces.

Address: P.O. Box 758, Rillito, Arizona 85246 (10 miles North of
Tucson) (602) 682-4332

Crazy Horse Campground

heated pool, pull through spaces. Interstate 10 and Craycroft
(602) 889-0157

Kampgrounds of America - KOA

9555 N. Casa Grande Highway (Interstate 10) 7 miles North of Tucson
(602) 744-2555

Housing - Continued

Prince of Tucson RV Park
3501 N. Freeway (Interstate 10)
(602) 887-3501

Tucson Mountain RV Park
2509 W. Ajo Way
Tucson, Arizona 85706

Lodging- Address/Phone No.	Rates*	Facilities	Location**	Airport shuttle 24 hr service
Arizona Inn 2200 E. Elm St. Tucson, AZ 85719 (602) 325-1541	Single 45.00 ^a Double 55.00 ^a Suites 80.00 ^a	private patio; porch or balcony, dining rm, tennis, croquet, pool, lounge, gift shop, library and read- ing rm	1	4.25/person
Flamingo Hotel 1300 N. Stone Tucson, AZ 85705 (602) 624-5571	Single 18.90 Double 24.00	Coffee shop, dining, lounge	2	4.25/person
Marriot Hotel 180 W. Broadway Tucson, AZ 85701 (602) 624-8711	Single 35.00 Double 45.00	Dining rm, coffee shop, lounge, pool, entertain- ment, game rm	3	4.25/person
Plaza International 1900 E. Speedway Tucson, AZ 85719 (602) 327-7341	Single 35.00 Double 35.00	restaurant, lounge, saunas, pool	4	Free to guests
Sahara Motor Inn 919 N. Stone Tucson, AZ 85705 (602) 622-3541	Single 22.00 Double 26.00	Coffee shop	5	4.25/person

* Tax not included.

** Refer to map.

^a 16% gratuity and 7% Arizona Sales Tax not included.

Field Trips:

Registrants interested in further exploring southern Arizona have a choice of two special field trips on Saturday 9 July to either the Boyce Thompson Southwestern Arboretum or Mount Lemmon.

Boyce Thompson Southwestern Arboretum

More than 1,500 species of arid land plants from the US and around the world are housed here, as well as many birds and mammals in their natural habitats and a geological garden. The Arboretum is located about 95 miles north of Tucson on 1,076 acres of land. The visitor center includes a bookstore, a gift shop and two display greenhouses full of various species of cacti and succulents available for purchase. There are two miles of well-groomed trails along which plants are carefully labeled, and winding through an area rich in desert plants and wildlife. An air-conditioned coach will leave Tucson at 8 AM sharp and return by late afternoon. A box lunch will be provided.

Mount Lemmon

This mountain, 40 miles north of Tucson and 9,157 feet in elevation, is the highest peak in the Catalina mountain range. The winding Catalina Highway traverses no fewer than four climatic and vegetational zones from the cactus-rich upper bajada at the base of the mountains to the pine, fir and aspen forests at higher elevations. The geology, flora and fauna of this mountain are unique and incomparable. An air-conditioned coach led by a knowledgeable guide and leaving Tucson at 8 AM sharp will pass Bear Canyon and Rose Canyon on its way to the top of Mount Lemmon. Here there are trails, the ski-lift of a winter ski resort, and a spectacular view to be enjoyed. A box lunch will be provided. Hikers are advised to carry drinking water with them.

Report of the Treasurer

January, 1983

The Society maintained a strong membership and financial position in 1982. We now have 347 members (302 regular and 45 students). Of these 264 are U.S. members, 44 Canadian, 13 West German and 26 from various other foreign countries. Our net worth as an organization increased to \$26,924.33, a 24.3% increase over 1982.

Royalties on our Recent Advances in Phytochemistry Series provided the major share of society income (48%) in 1982. The bulk of the royalty income is earned during the first year after publication. Volume 15, for example, The Phytochemistry of Cell Recognition and Cell Surface Interactions sold 599 copies in 1981 and earned us \$2,133.37, almost half of our total royalties for this year. Some of our older volumes, however, still sell well after several years. Volume 10, Biochemical Interactions Between Plants and Insects, sold 126 copies in 1981 to earn us \$369.78. Interest on our savings and membership dues each provided about 26% of our 1982 income. All of our savings are now invested in a high interest paying Money Market Access Account. While our membership dues are unusually low by today's standards, I see no need to raise them at the present time. PSNA membership is definitely good value for the money!

The Annual Report shows no expenditures for the 1982 meeting in Ottawa. The actual cost to the society for this meeting was \$3,810.88 U.S. (4763.60 Canadian), (See accompanying report). An advance provided by the Treasury in 1981 paid the bulk of this, and the balance will come out of the 1983 budget. While this cost is slightly higher than those of meetings in recent years, it must be remembered that originally this was to be a joint meeting with the Phytochemical Society of Europe. When PSE withdrew, PSNA decided to proceed as planned and stand by its invitations to the invited European speakers.

I have the auditor's report and all bank statements on file, and anybody wanting to know more should contact me. I will be resigning as Treasurer this year after the Tucson meeting. I have been at this job since 1978 and that's enough. I've enjoyed getting to know many of you at meetings as well as by your pretty checks and everchanging zip codes. Anyone interested in taking over this task should contact Connie Nozzolillo, Chairperson of the nominating committee. I assure you it's plenty of work, but a lot of fun. I'll be happy to work with the new Treasurer to insure a smooth transition.

Respectfully submitted,



John T. Romeo, Treasurer
Department of Biology
University of South Florida
Tampa, FL 33620

FINANCIAL STATEMENT

1 January 1982 - 31 December 1982

Receipts

Membership	2,437.85
Royalties	4,532.32
Interest	2,438.20
Mailing List	30.00
Foreign Exchange Credit	0.83
	9,439.20

Disbursements

1981 Annual Meeting	814.15
1983 Advance Ann. Mtg.	1,500.00
Treasurer expenses - postage, printing	493.86
Secretary expenses - Newsletter, postage	600.00
Directories	723.32
Foreign Exchange Debit	9.12
Auditor	40.00
	4,180.45

Summary 1982

Receipts	9,439.20
Disbursements	4,180.45
	5,258.75

Assets 1 January 1982

Checking	578.61
Savings	21,086.97
	21,665.58

Assets 31 December 1982

Checking	1,899.16
Savings	25,025.17
	26,924.33

Phytochemical Society of North America

Annual Meeting 1982 - Ottawa

Income (Canadian Funds)

Registration	2,329.00
Banquet and excursion	1,290.00
NSERC grant	1,000.00
PSNA	4,763.60
Interest	<u>50.69</u>
Total	9,433.29

Expenditures

Speakers expenses - room, meals, travel, honoraria	7,193.37
Meeting expenses - printing, postage, clerical, telephone	939.79
Banquet and excursion	1,271.48
Bank charges	<u>28.65</u>
Total	9,433.29

Cost to PSNA in US funds - \$3,810.88

Phytochemical Society of North America welcomes the following new members:

Dr. Peter Irwin, USDA, ERRC, 600 E. Mermaid Lane, Philadelphia, PA 19118.
Interests in Plant Physiology, Growth and Development, Cell Walls, Biophysical
Plant Physiology.

Mr. Henry Khouri, Concordia University, Biological Science, 1455 Dr.,
Maisonnenc West, Montreal, PQ 436 LM8 Canada. Interests in Enzymes and
Regulation.

Mrs. Sharon J. Morton, Dept. of Botany, Miami University, Oxford, OH 45056.
Plant Phenolics - Interests in Biosynthetic and Ecological Aspects.

Dr. Richard R. Izac, P. O. Box 26583, Richmond, VA 23261. Interests in
Natural Products.

Dr. Thomas M. Zennic, Northern Reg. Res. Ctr. 1815 N. University St., Peoria,
IL 61604. Interest in Ethnobotany, Edible and Medicinal Wild Plants.

Dr. Harold E. Nordby, USDA, Box 1909, Winterchurch, FA 33880. Lipids,
cocmarins, flavonoids of citris and subtropical plants.

Report of Nominating Committee for PSNA Officers for 1983-1984.

President Elect: Dr. Clarence (Bud) Ryan
Institute of Biochemistry
Washington State University
Pullman, Washington

Secretary: Dr. James A. Saunders
USDA, Tobacco Laboratory
Beltsville, MD

Treasurer: Dr. Jonathon Poulton
Dept. of Botany
University of Iowa
Iowa City, Iowa

The membership is reminded that any member may nominate someone from the floor
at the annual business meeting. In addition written nominations may be sent
to the PSNA Secretary prior to the business meeting for inclusion on the
ballot.

Items of Interests to Phytochemists:

Aspects of Photosynthesis by G. Das, 1981. 213 pages, hard cover, U.S.
\$28.00. A comprehensive text monograph, directed by the author to teachers,
students, and research scholars who wish to grasp quickly an understanding of
photosynthesis. Book Reviews: *Biologia Plantarum* 24 (1982) 281;
Photosynthetics Vol. 17, No. 1, 1983.

Special Price of U.S. \$15.00 for society members. Price includes postage
(Surface Mail). Payment must accompany order. Please send your order and
remittance to publisher: MITRA DAS, 121/A bipin Behari Ganguly Street,
Calcutta 700 012, INDIA.

INDIAN SOCIETY OF TOBACCO SCIENCE (Regd)
Central Tobacco Research Institute)
RAJAHMUDRY-533 106, INDIA.

9th March, 1983

CIRCULAR NUMBER ONE

An INTERNATIONAL SYMPOSIUM ON TOBACCO will be held during JANUARY/FEBRUARY, 1984 at RAJAHMUDRY, Andhra Pradesh, India.

THE THEME of the Symposium will be INDIAN TOBACCO: PRESENT STATUS & FUTURE PROSPECTS.

The Theme includes

1. WORLD TOBACCO PRODUCTION-INDIA'S POSITION (Covering all disciplines involved in the production of tobacco)
2. POST HARVEST TECHNOLOGY ADOPTED IN DIFFERENT COUNTRIES (Covering Curing, Redrying, Threshing, Cigarette Manufacture, etc.)
3. MARKETING AND CURRENT PROBLEMS OF THE TRADE.

The duration of the Symposium will be 4 days. Papers for presentation at the Symposium should be sent to the SECRETARY, INDIAN SOCIETY OF TOBACCO SCIENCE, C/O CENTRAL TOBACCO RESEARCH INSTITUTE, RAJAHMUDRY-533 106, A.P., INDIA, so as to reach him before 31.10.1983. Papers should be neatly typed in double space on bond paper of 1/4 Demmy Size and should not generally exceed 10 typed pages including tables, figures, ec.

Other particulars regarding accommodations, actual dates of the Symposium, etc., will follow:

Persons interested in participating in the Symposium are requested to intimate the same to the Secretary.

K APPA RAO

Information on Grants:

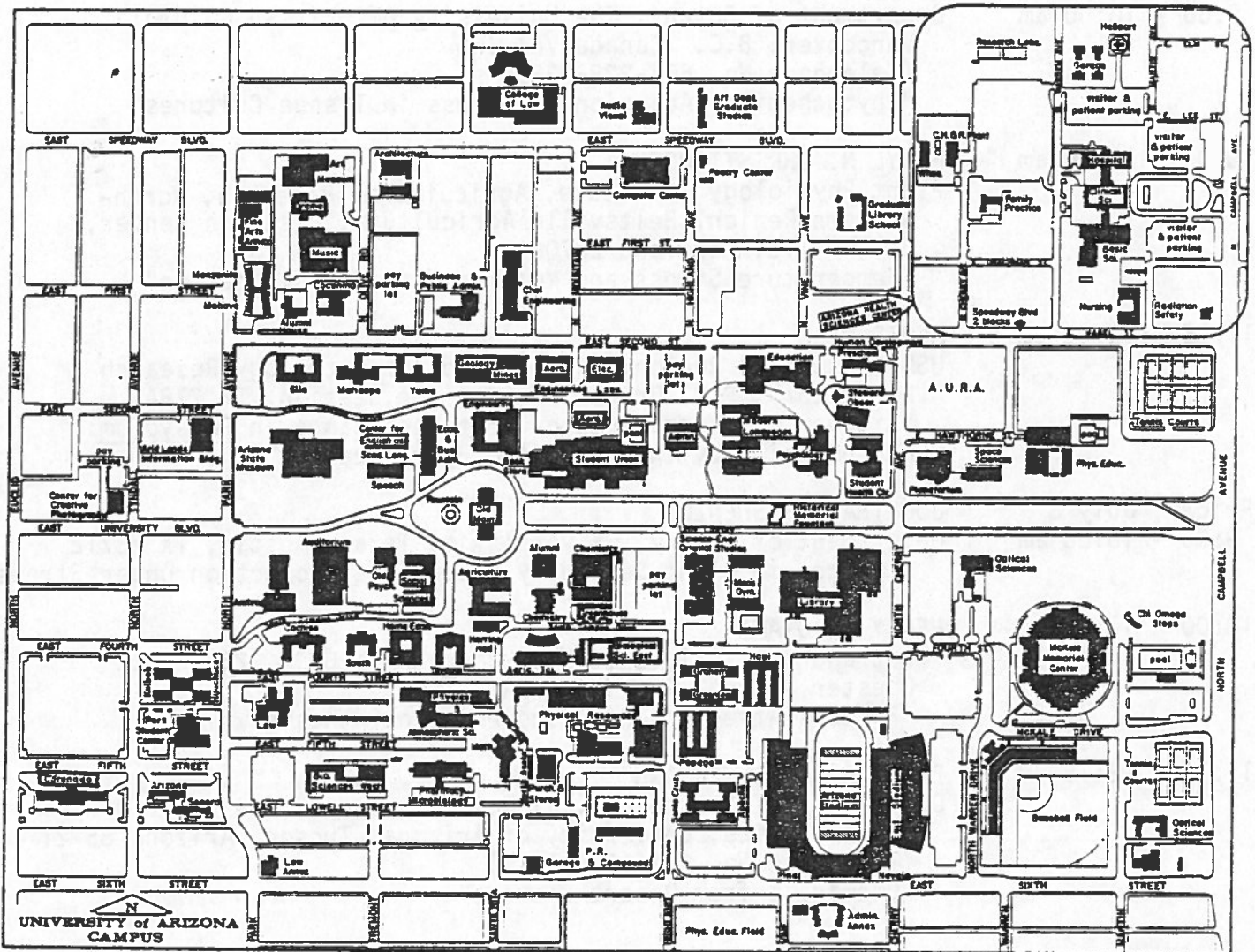
The USDA Competitive Grant Program will announce the results of their proposal evaluations in the stress section by April 30, 1983. The other areas will be announced by June 15, 1983.

July 5-8, 1983

JUNE 1983

Shuttle Services

An airport limousine shuttle "The Stagecoach" will provide 24 hours service from the airport to the University dormitory (Coronado Hall) for a fee of \$4.25. There will also be a shuttle to carry people from Coronado to the meeting rooms in the Modern Languages Auditorium. See enclosed map.



SYMPOSIUM LECTURES

5810407

- I Wednesday, July 6 9:00 - 10:00 am TERENCE A. SMITH
Long Ashton Research Station, Long Ashton, Bristol, BS18 9AF, England (Telephone No. STD 027-580 2181)
"Putrescine and Inorganic Ions"

- II 10:00 - 11:00 am R. GARETH WYN JONES
Department of Biochemistry and Soil Science, University College of North Wales, Bangor, Gwynedd LL57 2UW. (Telephone No. Bangor 551151, Ext. 411)
"Phytochemical Aspects of Osmotic Adaptions"

- III 11:15 - 12:15 pm MORDECAI J. JAFFE
Department of Biology, Wake Forest University, Winston-Salem, North Carolina 27109
"Role of Ethylene in Mechanical Stress of Plants"

- IV Thursday, July 7 9:00 - 10:00 am G.H.N. TOWERS
Department of Botany, The University of British Columbia, Vancouver, B.C. Canada V6T 1W5 (Telephone No. 604-228-3338)
"Phytochemical Adaption to Stress in Tissue Cultures"

- V 10:00 - 11:00 am MERYL N. CHRISTIANSEN
Plant Physiology Institute, Agricultural Research, North-Western Region, Beltsville Agricultural Research Center, Beltsville, Maryland 20705
"Temperature Stress and Membrane Lipid Modification"

- VI 11:15 - 12:15 pm ALOIS BELL
USDA, Southern Region, National Cotton Pathology Research Laboratory, P.O. Drawer JF, College Station, TX 77841
"Biochemical Mechanisms of Pest Resistance in Gossypium: Manipulation by Interspecific Hybridization"

- VII Friday, July 8 9:00 - 10:00 am JONATHAN GERSHENZON
Department of Botany, University of Texas, Austin, TX 78712
"Changes in Plant Secondary Metabolite Production under Stress"

- VIII 10:00 - 11:00 am HENRY YOKOYAMA
Fruit and Chemical Vegetable Laboratory, USDA, 263 South Chester Avenue, Pasadena, CA 91106
"Factors Affecting Polyisoprene Biosynthesis"

- IX 11:15 - 12:15 pm BARBARA N. TIMMERMANN
Department of Pharmaceutical Sciences and Office of Arid Lands Studies, University of Arizona, Tucson, Arizona 85721 (Telephone No. 602/ 626-1713)
"Chemicals from Desert Biomass"

All meetings will be held at the Modern Languages Auditorium, unless stated otherwise.

Tuesday afternoon

5:00 - 10:00 pm
7:00 - 9:00 pm

July 5, 1983

Registration at the Plaza International Hotel
Reception at the Plaza International Hotel

Wednesday morning

8:00 - 12:00 am
8:45 - 9:00 am
9:00 - 10:00 am
10:00 - 11:00 am
11:00 - 11:15 am
11:15 - 12:15 pm
12:15 - 2:00 pm

July 6, 1983; Moderator, Dr. C. Steelink

Registration
Welcoming Remarks
Plenary Paper I
Plenary Paper II
Coffee Break
Plenary Paper III
Lunch

Wednesday afternoon

2:00 - 3:15 pm
3:15 - 3:30 pm
3:30 - 5:00 pm
7:00 - 8:30 pm

Moderator, Dr. J.J. Hoffmann

Contributed Papers
Coffee Break
Contributed Papers
Poster Session

Thursday morning

9:00 - 10:00 am
10:00 - 11:00 am
11:00 - 11:15 am
11:15 - 12:15 pm
12:15 - 2:00 pm

July 7, 1983; Moderator, Dr. G. Cooper-Driver

Plenary Paper IV
Plenary Paper V
Coffee Break
Plenary Paper VI
Lunch

Thursday afternoon

2:00 - 3:15 pm
3:15 - 3:30 pm
3:30 - 5:00 pm
7:00 - 9:00 pm

Contributed Papers; Moderator, Dr. J. Romeo
Coffee Break
Contributed Papers; Moderator, Dr. R.G. Jensen
Contributed Papers; Moderator, Dr. B.N. Timmermann

Friday morning

9:00 - 10:00 am
10:00 - 11:00 am
11:00 - 11:15 am
11:15 - 12:15 pm
12:15 - 2:00 pm

July 8, 1983; Moderator, Dr. T.J. Mabry

Plenary Paper VII
Plenary Paper VIII
Coffee Break
Plenary Paper IX
Lunch

Friday afternoon

2:00 - 3:15 pm
3:15 - 3:30 pm
3:30 - 4:00 pm
4:00 - 5:00 pm
7:30 pm

Moderator, Dr. E. Rodriguez

Contributed Papers
Coffee Break
Contributed Papers
Business Meeting
Annual Society Banquet & Awards Presentation at Old Tucson

Saturday - Field Trips

8:00 am - 4:00 pm
8:00 am - 4:00 pm

July 9, 1983

Boyce Thompson Southwestern Arboretum
Mount Lemon

Wed., July 6, 2:00-2:15 PM

QUANTITATIVE AND QUALITATIVE VARIATION OF CACTUS ALKALOIDS IN TWO SPECIES OF MAMMILLARIA. M. J. Knox, W. D. Clark, S. O. Link and T. H. Nash III, Dept. of Botany and Microbiology, Arizona State University, Tempe, Arizona 85287.

A high performance liquid chromatographic (HPLC) method for determining and quantifying β -phenethylamines in cactus extracts was evaluated. Tissue extracts of Mammillaria microcarpa Engelm. and M. tetrancistra Engelm. were screened by ion-pairing reverse-phase HPLC. Four compounds were detected in all extracts, tyramine, N-methyltyramine, hordenine and 3,4 dimethoxy- β -phenethylamine. Quantitative HPLC data were statistically compared between species. Although no significant differences were observed between species, qualitative differences were present.

Wed., July 6, 2:15-2:30 PM

DEVELOPMENT OF UV-A ABSORBING NATURAL PRODUCTS DURING SEED GERMINATION OF TARGETES

R. Suetfeld, Bot. Inst. d. Westf. Wilh.-Universitaet, Schlossgarten 3, D-4400 Muenster, West Germany

Targetes species are characterized by a distinct pattern of (partly photosensitive) thiophene derivatives. Tracer experiments performed on adult plants supported the origin of thiophenes in certain long-chain polyacetylenes. The existence, however, of such compounds in Targetes could not be proven until now. In seedlings, thiophenes accumulate during the first days of growth. Therefore, this system seems to be suitable for a comprehensive search for thiophene precursors. The complete spectrum of UV-absorbing natural products within this developmental stage was obtained by HPLC analysis. From petrol ether extracts, a total of 16 compounds were classified into 6 groups according to their kinetic behaviour (appearance; turnover or accumulation tendency) during seed germination. Some of these compounds were clearly identified but none showed long-chain polyacetylene spectral data. Therefore, the question whether or not other compounds than those postulated formerly are the real precursors of thiophene should further be considered.

Wed., July 6, 2:30-2:45 PM

PHYTOCHEMICAL EVOLUTION OF TWO DESERT DOMINANTS: ENCELIA AND FLOURENSIA (ASTERACEAE).

Manuel Aregullin and Eloy Rodriguez
Phytochemical Laboratory
Department of Developmental and Cell Biology
University of California, Irvine
Irvine, California 92717

Relevant phytochemical information and its usefulness in the elucidation of the intrageneric and intergeneric phylogenetic relationships of two desert dominant genera, Encelia (Sonoran Desert) and Flourensia (Chihuahuan Desert), is presented. Its evolutionary implications in the ecological success of adapted species to semiarid environments is examined.

The defensive role of the benzofurans and benzopyrans commonly found in these genera is analyzed and the results obtained regarding their phototoxic activity and their ovidical and antijuvenile hormone properties on insects are presented. Based on the reactivity observed towards L-cysteine of various benzofurans and benzopyrans, a possible mode of action is proposed.

The structural patterns of the benzofurans and benzopyrans found in various species, as well as the presence of certain key compounds are used as circumstantial evidence to present a possible biogenetic pathway leading to the formation of these natural products.

Wed., July 6, 2:45-3:00 PM

LEAF OILS IN PARTHENIUM L.

J. Kumamoto, R. W. Scora, and W. A. Clerx
University of California, Dept. of Botany & Plant Sciences
Riverside, California 92521

The steam distilled leaf oils from five Parthenium species have been examined by gas chromatography and by gas chromatography-mass spectrometry.

The data from a polar-packed column (LAC-2R-446) were correlated with data from a 60 m bonded (equivalent to SE 54) capillary column. The identification of the major constituents were supported by their fragmentation patterns from a quadruple mass spectrometer.

In the subgenus Partheniachaeta the following five species were examined: P. argentatum, A. Gray, P. fruticosum, Rollins, P. incanum, H.B.K., P. schottii, Greenm., P. tomentosum, Rollins, and in the subgenus Argyrochaeta, P. confertum, var. lyratum, A. Gray.

The major constituents identified are α -pinene, β -pinene, β -myrcene, limonene, borneol, β -caryophyllene, and humulene.

Wed., July 6, 3:00-3:15 PM

PIGMENT ANALYSIS OF HONEYDEW MELON INFECTED WITH MACROPHOMINA PHASEOLINA Roger F. Albach and Benny D. Bruton, Subtropical Agricultural Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Weslaco, Texas 78596.

Mesocarp of honeydew melons (Cucumis melo) severely infected with Macrophomina phaseolina contained a deep red pigment. Aqueous extracts of infected tissue filtered through membrane filters yielded red filtrates which contained three colored components by size-exclusion chromatography: a black component >20,000 daltons, a red component of approx. 15,000 daltons, and a yellow component of slightly less than 15,000 daltons. The red pigment gave neither a color change with acid or mild base, nor was it retained by chromatography on a column of polyvinylpyrrolidone. Purer red-pigment extracts were obtained from liquid cultures of M. phaseolina grown in defined media containing glucose as the primary carbon source and either peptone or yeast extract as the nitrogen source. Interfering macromolecular constituents were further reduced when the fungus was grown in media where only simple molecules served as carbon and nitrogen sources. Essentially all the red pigment in the medium was retained during dialysis and concentration in collodian bags with 10,000 dalton average retention. Both conventional and polyacrylamide gel electrophoresis caused disassociation of the high molecular weight complex so that the chromophore bearing component migrated with the marker dye. Proteinaceous components associated with the chromophore component contain eighteen amino acids with aspartic acid, glutamic acid, serine, and glycine being present in greatest amounts.

Wed., July 6, 3:30-3:45 PM

CUTICULAR COMPONENTS OF GREEN TOBACCO AND INSECT RESISTANCE. O. T. Chortyk and R. F. Severson, Tobacco Safety Research Unit, USDA, ARS, P. O. Box 5677, Athens, GA 30613.

The leaves of most tobacco types produce a gummy exudate. We have analyzed the leaf surface components in these exudates for a large number of tobacco varieties and introductions. The constituents were identified to be diterpenes, hydrocarbons, fatty alcohols, wax esters, and sucrose esters. It was of interest to us to determine the levels of these cuticular components as a function of plant age, topping, and curing. More importantly, we have attempted to establish relationships between exudate compositions and levels and corresponding insect (budworm, hornworm, aphids) resistance. This initial report will indicate that for budworms there are at least two types of resistance: resistance due to ovipositional nonpreference and resistance due to larval antibiosis. The role of the diterpenoid compounds in insect resistance will be discussed.

Wed., July 6, 3:45-4:00 PM

PHYTOCHEMICAL INVESTIGATION OF VALEPOTRIATES IN PLECTRITIS (VALERIANACEAE)

Wolfram Foerster and Eloy Rodriguez

Phytochemical Laboratory, Developmental and Cell Biology University of California, Irvine

Valepotriates (iridoid derivatives) have been found to be the major constituents responsible for the sedative properties of plants of the family Valerianaceae. Reversed phase HPLC has been applied to the isolation and quantitative distribution of valepotriates in roots and aerial parts of species and subspecies of the North American genus Plectritis (Valerianaceae) and in Valeriana sitchensis ssp. scouleri (Valerianaceae). For the separation of small quantities of valepotriates in a crude plant extract, a 5 semipreparative Ultrasphere ODS column and methanol-water or acetonitrile-water mixtures were used. The following valepotriates were identified in small quantities: valtrate, isovaltrate, homovaltrate, acevaltrate, didrovaltrate and isovaleroxyhydroxy-didrovaltrate (IVHD-valtrate).

Investigation on the production of valepotriates in Plectritis tissue cultures have been conducted and the effects of valepotriates on insects, bacteria, fungi and nematodes will be discussed.

Wed., July 6, 4:00-4:15 PM

XANTHONES FROM CENTAURIUM PULCHELLUM (SW.) DRUCE

Ghulam Abbas Miana and Hassan M.G. Al-Hazimi Department of Chemistry, King Saud University, Riyadh, Saudi Arabia.

Plants belonging to the plant family Gentianaceae are a rich source of xanthenes. However, no xanthenes have been reported from the genus Centaurium of this family. We report herein, for the first time, the isolation and characterization of 3 xanthenes from Centaurium pulchellum (Sw.) Druce

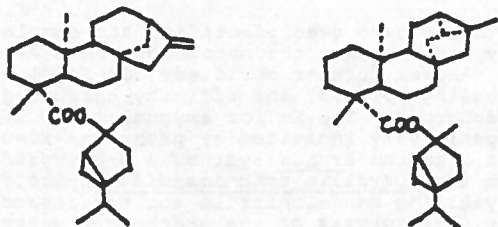
The methanolic extract of the dried plant was partitioned between water and benzene. Column chromatography (silica gel) of the benzene extract using benzene as eluant and increasing the polarity with benzene-chloroform mixtures gave many fractions. The following 3 xanthenes could be isolated in pure form: 1-Hydroxy-3,7,8-trimethoxy-xanthone (I), 1,8-Dihydroxy-3,7-dimethoxy-xanthone (II) and 1,8-Dihydroxy-3,5-dimethoxy-xanthone (III). Chemotaxonomically, it is interesting to note that Canscora decussata, a plant belonging to the same sub-tribe Erythraeinae as does the Centaurium pulchellum, has yielded tetra-oxygenated xanthenes of the type 1,3,5,6- and 1,3,7,8- only. 1,3,5,8-tetra-oxygenated xanthenes commonly occur in Gentiana and Swertia species of the sub-tribe Gentianeae.

Wed., July 6, 4:15-4:30 PM

CONSTITUENTS OF HELIANTHUS ANNUUS L. (COMPOSITAE): ISOLATION AND IDENTIFICATION OF THE TWO UNIQUE DITERPENOID-MONOTERPENOID ESTERS

Jan St. Pyrek University of Texas, Medical School at Houston, Houston, TX77025 P.O.Box 20708

Two esters of ent-kaur-16-en-19-oic and ent-trachyloban-19-oic acids with thujanol were isolated from ligule flowers of the common sunflower. Their structures were deduced from spectral data (MS, ¹H and ¹³C NMR) and were supported by the cleavage to parent compounds.

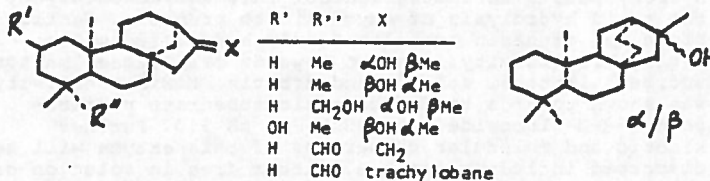


Wed., July 6, 4:30-4:45 PM

CONSTITUENTS OF HELIANTHUS ANNUUS L. (COMPOSITAE): ISOLATION AND IDENTIFICATION OF NEUTRAL DITERPENOID

Jan St. Pyrek University of Texas, Medical School at Houston, Houston, TX77025, P.O.Box 20708

Two diterpenoid aldehydes and six mono- and dialcohols were isolated from ligule flowers of the common sunflower. The structural assignment was based on spectral data (MS, ¹H and ¹³C NMR). The stereochemistry at C-16 was supported by the analysis of Eu(fod)₃ induced shifts in proton NMR.



Wed., July 6, 4:45-5:00 PM

K. Wilf Nicholls, Dept. of Botany, University of British Columbia, Vancouver, BC, Canada. FLAVONOID SYSTEMATICS OF SOME ANNUAL LUPINES OF SOUTHWESTERN USA.

The taxonomy of the 100 or so North American members of the genus Lupinus (Leguminosae) has always been problematic. Intraspecific morphological variability has obscured many specific boundaries and over 1000 synonyms appear in the literature. Several attempts to divide the genus into smaller groups have been made, but as yet, no widely accepted subgeneric classification exists. Earlier work by the author determined that flavonoids were qualitatively stable intraspecific characters. With this in mind, a flavonoid study of some annual lupine groups was undertaken to find out if morphological similarities were paralleled by chemical homogeneity.

The flavones found were apigenin, acacetin, luteolin, diosmetin and chrysoeriol; they occurred as C-glycosides and O-glycosides. In addition, some isoflavones (mostly genistein) and flavanones were present. Results so far indicate that the two Texan annuals Lupinus texensis and L. subcarinosus accumulated similar flavonoids and were distinct from all other species; they are also the only lupines with 2n=36 (2n=48 in all others). Many of the Platycarpus section formed another chemically distinct group by their accumulation of cytoside (8-C-glucosyl acacetin). Other lupines had more generalized flavonoid profiles and their interrelationships remain unclear.

Thurs., July 7, 2:00-2:15 PM

PURIFICATION AND PROPERTIES OF FOUR FLAVONOID-SPECIFIC O-METHYLTRANSFERASES FROM CHRYSOSPLENIUM AMERICANUM*

De Luca, V. and R.K. Ibrahim, Biol Dept & Chemistry Graduate Faculty Concordia University, Montreal, Quebec, Canada H3G 1M8.

Four novel flavonol O-methyltransferases (OMTs) were partially purified from C. americanum shoots by ammonium sulphate precipitation, followed by chromatography on DEAE-cellulose and chromatofocusing on polybuffer ion exchanger. They exhibited strict position specificity for the 3-, 7-, 4'- and 6-positions of quercetin (but not quercetagetin); 3-methylquercetin; 3,7-dimethylquercetin and 3,7-dimethylquercetagetin, respectively. Phenylpropanoids, flavones, dihydroflavonols or their glucosides were not accepted as substrates.

The 3-, 4'- and 6-OMTs had apparent pI values of 4.8, 5.4 and 5.8, respectively. They had similar molecular weights and their pH optima varied between 7.8 and 8.9. Except for the 7-OMT, the three other enzymes had low K_m values for their substrates (0.3 - 10 μM). Inhibition by the second reaction product, SAH (K_i 16 - 25 μM) was several fold lower than the K_m for SAM. Unlike the 3- and 4'-enzymes both the 6- and 7-OMTs showed absolute requirement for Mg ions, whose activation was saturable and could be inhibited by EDTA.

* Supported by NSERC grant and University funds.

Thurs., July 7, 2:15-2:30 PM

STUDIES ON INCORPORATION OF PRECURSORS DURING BIOSYNTHESIS OF MYCOTOXINS BY *ALTERNARIA ALTERNATA*. E. E. Scinson and R. A. Moreau Eastern Regional Research Center, USDA, ARS, 600 E. Mermaid Lane, Philadelphia, PA 19118

Alternaria alternata, a mold important in fruit and vegetable spoilage, is an abundant producer of the polyketide mycotoxins alternariol (AOH), alternariol monomethyl ether (AME), and alternariol I (ATX-I). Cell-free homogenates were prepared from 7-day cultures which were grown in modified Czapek-Dox media with shaking. When labelled malonyl Coenzyme A was supplied as a substrate, about 1% of the label was incorporated into compounds which cochromatographed with known mycotoxins (AOH, AME, ATX-I) on thin layer plates and 13.3% was incorporated into lipids. When labelled acetyl Coenzyme A was tested, most of the incorporated label (2%) was present in an unknown green fluorescent material in the polyketide region, and very little was incorporated into lipid. The patterns of incorporation into mycotoxins were not affected by the presence of NADPH. Further studies are underway to separate and purify the fatty acid and polyketide synthetase systems in this species.

Thurs., July 7, 2:30-2:45 PM

FLAVONOID 3-O-GLUCOSYLATION IN MAIZE POLLEN R.L. Larson, J.B. Bussard, U.S. Dept. of Agriculture, Dept. of Agron. and Biochem., Univ. Mo.-Columbia, Mo. 65211 Glucosylation of flavonol and anthocyanin type compounds found in the plant kingdom is of obvious importance since this lends stability to these compounds as well as increases their solubility. The reaction has been placed at or near the end of the biosynthetic sequence by virtue of the substrates glucosylated. The enzyme, UDPglucose:flavonoid glucosyltransferase, has been studied extensively in maize (*Zea mays* L.) as to tissue distribution and the biochemical-genetics involved in the system. However, little is known about the basic kinetic properties of the enzyme as well as what inhibitors influence the activity of the transferase. In previous publications we reported a partial purification of the transferase from maize pollen and its requirements. Preliminary evidence now suggests that Ca^{2+} can serve as a substrate activator in the system and that substrate concentration may serve as a control on the rate of the reaction. Apparent K_m values for quercetin and UDPglucose are 12.96 μ M and 0.99 mM respectively. These values as well as other properties of the maize transferase will be discussed in relation to literature information available on glucosyltransferases from other plant sources.

Thurs., July 7, 2:45-3:00 PM

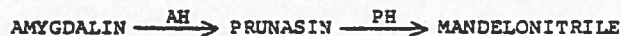
PURIFICATION AND CHARACTERIZATION OF A β -GLUCOSIDASE FROM BREWER'S BOTTOM YEAST. Jonathan E. Poulton, Dept. of Botany, University of Iowa, Iowa City, Iowa 52242.

Since our metabolic studies on cyanogenesis require large quantities of the cyanogenic glycoside prunasin, our attention was drawn to the observation by Fischer (Chem. Ber. 28, (1895) 1508) that brewer's bottom yeast produce this monosaccharide from amygdalin. A β -glucosidase has been purified over 150-fold from brewer's bottom yeast by DEAE-cellulose, Con A-Sepharose and hydroxyapatite chromatographies. This enzyme catalyzes the rapid hydrolysis of amygdalin to prunasin. Gentiobiose and prunasin are also slowly hydrolyzed while negligible activity is shown towards cellobiose, maltose, sucrose, lactose, salicin and arbutin. Maximum activity was shown towards the chromogenic substrate p-nitrophenyl- β -D-glucoside ($K_m=6.25$ mM) at pH 5.0. Further kinetic and molecular properties of this enzyme will be discussed including its use, either free in solution or immobilized on DEAE-cellulose columns, to obtain gram quantities of prunasin from amygdalin at low cost.

Thurs., July 7, 3:00-3:15 PM

THE ACTION OF β -GLUCOSIDASES ON AMYGDALIN AND RELATED CYANOGENS. Gary W. Kuroki, P. A. Lizotte and J. E. Poulton, Department of Botany, University of Iowa, Iowa City, IA 52242

Mature *Prunus serotina* seeds accumulate high concentrations of the cyanogenic disaccharide amygdalin. In this species, amygdalin is hydrolyzed in a stepwise manner by two distinct β -glucosidase activities, namely amygdalin hydrolase (AH) and prunasin hydrolase (PH) respectively:



These activities have been identified and completely resolved by ion-exchange chromatography on DEAE-cellulose. AH was further purified (210-fold) by chromatofocusing ($pI=6.3$) and affinity chromatography on Con-A Sepharose. The K_m for amygdalin was 2.38 mM. AH was competitively inhibited by prunasin ($K_i=0.57$ mM). By contrast with the *Prunus* system, a β -glucosidase preparation from *Davallia trichomanoides* hydrolyzes amygdalin yielding mandelonitrile and the disaccharide gentiobiose. Hydrolysis of the endogenous substrate vicianin appears to occur via a similar mechanism.

Thurs., July 7, 3:30-3:45 PM

APPLICATION OF EPIFLUORESCENCE MICROSCOPY TO A MYCOTOXIN BIOSYNTHESIS. H. K. Morita, Agriculture Canada, Chemistry & Biology Research Institute, Ottawa, Ontario K1A 0C6 Canada.

The production of the phenolic mycotoxin, zearalenone, within the hyphae of *Fusarium graminearum* was observed by epifluorescence microscopy. Hyphae containing the mycotoxin exhibited bright blue fluorescence whereas those with little or no mycotoxin showed very weak fluorescence. Chromatographic analyses of the extracts of the highly fluorescent tissues demonstrated that the major fluorescent component was the mycotoxin. Its identity was confirmed by high pressure liquid chromatography of the extract. The chromatograms also revealed chemical differences between the hyphae. The results with *F. graminearum* were confirmed with other *Fusaria*. Some photomicrographs are presented to illustrate the findings.

Thurs., July 7, 3:45-4:00 PM

TISSUE DISTRIBUTIONS OF KAEMPFEROL GLYCOSIDES AND ENZYMES OF FLAVONOL BIOSYNTHESIS IN A SOYBEAN VARIETY WITH LOW RATES OF PHOTOSYNTHESIS. Eric G. Cosio and Jerry W. McClure, Department of Botany, Miami University, Oxford, Ohio 45056.

Although kaempferol mono- and di-glycosides are common in soybean cultivars, crosses which accumulate kaempferol-3-gentiobioside in their leaves have low photosynthetic rates and yields. Kaempferol is a potent inhibitor of photosynthesis in vitro. Mesophyll cells isolated from mature soybean leaves fixed CO_2 at ca. 30 μ mol/h mg chl and contained 99% of the whole leaf protein. These cells had all of the NADP Triose P dehydrogenase, 35% of the catalase and glycolate oxidase, but none of the phenylalanine ammonia-lyase (PAL) or 4-coumaroyl:CoA ligase (CAL), activity of the whole leaf. Neither Kaempferol nor any of its glycosides could be detected in the isolated mesophyll cells. Cells from immature leaves contained ca 70% of the activity for shikimate dehydrogenase (SDH), 35% of the chalcone-flavanone isomerase (CFI), 24% of the CAL, no PAL, and no detectable flavonoids. We conclude that most of the soybean flavonoid metabolism occurs in tissues other than the mesophyll and that kaempferol-3-gentiobioside in whole leaves does not directly interfere with photosynthetic reactions.

Thurs., July 7, 4:00-4:15 PM

CYANOGENESIS IN THE GENUS *EUCALYPTUS*. Eric E. Conn and Michael E. Conn, Department of Biochemistry & Biophysics, University of California, Davis, CA 95616

Qualitative examination of 332 species of *Eucalyptus* growing in arboreta and botanic gardens in Australia has shown that 15 species are cyanogenic. The Feigl-Anger test was employed and young, new annual growth, if present, was tested.

This survey, which included 82% of the known species in the genus, has shown that cyanogenesis is restricted to one of seven sub-genera, *Symphomyrtus*. Within the subgenus, all cyanogenic species occur in three (*Adnataria*, *Bisectaria* and *Maidenaria*) of the 11 Sections comprising *Symphomyrtus*. The incidence of cyanogenesis among the members of these three sections is approximately 8%.

The cyanogenic compound(s) in the cyanogenic *Eucalyptus* species are being purified and characterized.

Thurs., July 7, 4:15-4:30 PM

THE CHEMICAL RESISTANCE OF TOMATO (*LYCOPERSICON*) SPECIES TO THE COLORADO POTATO BEETLE AND TOBACCO HORNWORM. Cecile Morales and Gillian Cooper-Driver. Dept. Biol. Sci., Boston University, 2, Cummington Street, Boston, Massachusetts 02215.

Feeding experiments were conducted using three wild species of tomato plants: *Lycopersicon hirsutum*, *L. peruvianum* and *L. pimpinellifolium*, in order to test their resistance to larval feeding by the Colorado Potato Beetle, *Leptinocarsa decemlineata*, and the tobacco hornworm, *Manduca sexta*.

The environmental conditions under which the plants were grown affected the concentration of the glycoalkaloid, tomatine, in the leaves and also the amount of feeding and growth of the insects. Two month old plants contained less tomatine than three month old plants, the levels increasing with age. Plants grown under a 12 hour photoperiod had more alkaloid than plants grown with 16 hours of daylight. Raising the temperature from 17°C to 25°C had a less significant but never-the-less negative effect.

L. pimpinellifolium had the highest concentration of tomatine and was the most resistant to the Colorado beetle while *L. hirsutum* was the least consumed by tobacco hornworm. Low levels of tomatine were not inhibitory, or had a stimulatory effect, while higher levels were negatively correlated with feeding and growth.

Thurs., July 7, 4:30-4:45 PM

QUANTITATIVE DISTRIBUTION OF NARINGIN IN ORGANS OF GRAPEFRUIT (*Citrus paradisi*, Macf. cv Duncan). P. Jourdan and R. L. Mansell, Biology Department, University of South Florida, Tampa FL 33620

The distribution of naringin in seed, seedlings, young plants, flushing and mature leaves, flower and fruit of grapefruit was determined by radioimmunoassay. We found the highest concentration of naringin in the pistil (ovary=193nmol/gfw, 11%fw; stigma=70nmol/gfw, 4%fw) and in very young fruits (170 nmol/gfw, 10%fw). Young, flushing leaves also had high levels of naringin (37-64 nmol/gfw). 90% of the total naringin of the seeds was in the seed coats and the concentration in the testa was high in both fertilized and unfertilized seeds. After germination, the naringin levels are highest in the expanding primary leaves and plumules, indicating that light is not required for naringin production. The roots of 3 week old seedlings are virtually devoid of naringin. As the seedling grows, the pattern that emerges is that young, expanding leaves have high naringin concentrations which decrease during leaf maturation. Similarly, the total amount of naringin per leaf is high in young ones and decreases in older ones. The levels of naringin also increase parallel to the development of the flower although the concentration decreases during the process of development. It appears that naringin synthesis occurs primarily during the early developmental stages of leaves, flowers and fruits and that upon maturation, naringin decreases both in concentration and absolute amounts.

Thurs., July 7, 4:45-5:00 PM

COMPARISON OF DIFFERENT TRACERS AND ANTIBODY COMBINATIONS FOR THE RADIOIMMUNOASSAY OF NARINGIN. P. Jourdan and R. L. Mansell, Biology Department, University of South Florida, Tampa, FL 33620. We have prepared two different antisera and three tracers for the RIA of the citrus bitter flavonone-7-neohesperidoside, naringin. The antisera were produced against hapten of naringin that had been modified at the B-ring by a diazo-linkage, on in the heterocycle, by a carboxy-methyl oxime substitution. The tracers were prepared by a) directed iodination of naringin, b) direct sodium borotritide reduction of naringin, and c) reduction of an oxime-levulinate derivative. The diazo-linked antiserum could only bind the iodinated tracer while the oxime-linked antiserum could bind all three tracers. The immunoassays developed with these antibodies and tracers showed large differences in sensitivity and specificity. The sensitivity in assays using the two antisera and one tracer showed that the antibody affinity for the tracer is the most significant factor in the limits of antigen detection. The assay specificity for naringin and related compounds in RIAs using one antiserum and three tracers showed that the tracer structure is the critical factor in delineating specificity. Our experiments demonstrate that it is possible to develop highly specific and sensitive immunoassays for flavonoid glycosides and, furthermore, that the assay parameters can be modified to give flexibility in the type of analyses where these assays can be employed.

Thurs., July 7, 7:00-7:15 PM

CINNAMIC ACID HYDROXYLASE ENZYMES OF *SORGHUM BICOLOR*, *MELILOTUS ALBA* AND *NICOTIANA TABACUM*

Joseph D. Olechno¹, James A. Saunders¹, and Eric E. Conn².

¹Tobacco Laboratory, PGGI, Beltsville Agriculture Research Center, USDA, Beltsville, MD 20705.

²Dept. of Biochemistry and Biophysics, University of California, Davis, CA 95616.

Cinnamic acid may be hydroxylated to either ortho- or para-coumaric acid, important intermediates in the production of a variety of secondary metabolites including the flavonoids and coumarins. These key branchpoint enzymes have been reported from relatively few higher plants and some of the reported data is conflicting. We have developed a technique for the rapid, accurate and sensitive determinations of the enzymatically derived coumaric acids. This procedure utilizes a high pressure liquid chromatograph equipped with both UV and radioisotope detectors. Using this technique we have examined tobacco, sorghum and sweet clover for these enzymes. Sorghum, in agreement with the literature, had significant levels of para-hydroxylase activity, while sweet clover, in contrast showed no significant levels of ortho-hydroxylase activity and small amounts of para-hydroxylase activity. Extracts from tobacco leaf tissue show neither para- or ortho-hydroxylase activity, however, there was significant conversion of the ¹⁴C cinnamic acid to other secondary metabolites. Experiments using recrystallization techniques clearly explain erroneous reports noted in the literature of ortho-hydroxylase activity in sweet clover.

Thurs., July 7, 7:15-7:30 PM

EXTERNAL FACTORS AFFECTING GERMINATION OF *NICOTIANA TABACUM*.

Nestor Rosa, Research Station, Agriculture Canada, Delhi, Ontario. N4B 2W9.

Seed of *Nicotiana tabacum* is normally pregerminated in water for a number of days prior to seeding in an unheated greenhouse. Radicle protrusion can be observed within three to five days, at which stage of development the seed is mixed with water and sprayed onto the greenhouse beds. Each year a significant number of producers find that seed will not germinate when soaked in water. This study examines the various conditions that may exist during pre-germination and the effect of these upon successful germination of the tobacco seed. These include the effects of prolonged soaking, intermittent drying, exposure to heat, and the effect of salts.

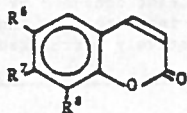
Thurs., July 7, 7:30-7:45 PM

FURTHER STUDIES ON PUBERULIN BIOSYNTHESIS IN *AGATHOSMA PUBERULA*. Stewart A. Brown and H. Joan Thompson, Chemistry Dept., Trent University, Peterborough, Ont. K9J 7B8, and D.E.A. Rivett, Chemistry Dept., Rhodes University, 6140 Grahamstown, South Africa.

Further feedings of ^{14}C substrates to the South African species, *A. puberula*, have confirmed the role of scopoletin ($\text{R}^6 = \text{OMe}$, $\text{R}^7 = \text{OH}$, $\text{R}^8 = \text{H}$) as a precursor of puberulin ($\text{R}^6 = \text{R}^8 = \text{OMe}$, $\text{R}^7 = \text{OCH}_2\text{-CH}=\text{CMe}_2$), a prenyl ether of isofraxidin. However, the earlier indication that scopoletin originates via caffeic (3',4'-dihydroxycinnamic) acid has not been confirmed. Instead, clear evidence has now been obtained suggesting a biosynthetic route:

4'-hydroxycinnamic acid \rightarrow umbelliferone ($\text{R}^6 = \text{R}^8 = \text{H}$, $\text{R}^7 = \text{OH}$)
 \rightarrow aesculetin ($\text{R}^6 = \text{R}^7 = \text{OH}$, $\text{R}^8 = \text{H}$) \rightarrow scopoletin \rightarrow puberulin

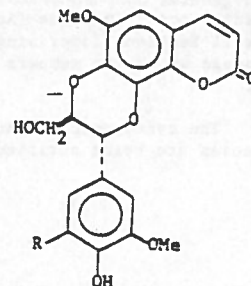
Puberulin thus appears to be on the mainstream of 7-oxygenated coumarin formation. Repeated negative evidence for the participation of ferulic acid in this pathway indicates a different route to scopoletin in *Agathosma* from that established in different laboratories for *Nicotiana*.



Fri., July 8, 2:00-2:15 PM

HOW MAPLES (*Acer* spp.) COMPARTMENTALIZE WOUNDS. J. W. Rowe, S. G. Ralph, USDA, Forest Service, Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705; and F. S. Santamour, Jr., U.S. National Arboretum, USDA, ARS, Washington, D.C.

The ability to compartmentalize wounds in maple trees is a heritable trait. The region surrounding wounds contains highly elevated levels of the two coumarinolignans shown below ($\text{R} = \text{H}$ or MeO) that are apparently formed by oxidative condensation between fraxetin and either coniferyl or sinapyl alcohol. The ability to compartmentalize trunk and root wounds was proportional to the amount of the coumarinolignans produced. Biological testing against fungi, termites and other microorganisms was largely negative. However, microscopic examination showed that the highly insoluble coumarinolignans were effectively plugging the voids in the wood.



Fri., July 8, 2:15-2:30 PM

CHANGES IN LIPIDS WITH COLD-HARDENING OF CITRUS. H. E. Nordby, U. S. Citrus and Subtropical Products Laboratory, P. O. Box 1909, Winter Haven, Florida 33883, and G. Yelenosky, U. S. Horticultural Research Station, 2120 Camden Road, Orlando, Florida 32803.

Subjecting citrus to 40/60° for four weeks (cold-hardening) decreases potential damage from freezes. The role of lipids in this hardening process is being studied by comparing lipid profiles of tissues from control and cold-hardened potted citrus plants. Hardy rootstock had higher levels of lipid and fatty acid unsaturation in leaves and greater lipid increases upon hardening, than less hardy rootstocks. Hybrids cultivated for cold-hardiness showed increases in unsaturation upon being hardened greater than their parents. The increases occurred primarily in linoleic rich triacylglycerols (TGs). Increases in TG and linoleic with cold-hardening were not as great in bark, roots, flavedo and juice as in leaves. When environmental chambers were lowered 10°/week lipid increased in leaves after 60/40° for one week. When potted citrus were defoliated and placed in 60/40° or 90/70° for six weeks, new leaves in the 60/40° chambers contained 72% more fatty acids than those in 90/70°. Ninety-seven percent of this increase was in non-TG lipid. TGs in citrus leaves decreased less than other lipids when subjected to freezing-thawing regimes.

Fri., July 8, 2:30-2:45 PM

INDUCED SYNTHESIS AND CHANNELLING OF PHENYLPROPANOIDS IN PARSLEY CELL SUSPENSION CULTURES. U. MATERN Biol. Institute II, University of Freiburg, FRG.

Dark grown cell suspension cultures of parsley, *Petroselinum hortense*, respond to treatment with elicitor preparations from either *Phytophthora megasperma* f.sp. *glycinea* (Pmg elicitor) or *Alternaria carthami* Chowdhury (Ac elicitor) by accumulation of fungitoxic linear furanocoumarins and a pyronocoumarin. Composition of the products differs greatly with the elicitor used. Ac elicitor appears not to be toxic to the parsley cells, in contrast to Pmg elicitor. In cells treated with Ac elicitor, the vacuolar phosphate concentration increases rapidly at the expense of the cytoplasmic phosphate concentration. We propose that the temporarily low cytoplasmic phosphate concentration affects the pattern of the plant's secondary metabolites. The parsley cultures have been reported previously to produce flavonoids upon UV light irradiation. The flavonoids accumulate exclusively in the vacuoles. On the other hand, the coumarins produced upon elicitor treatment are excreted into the medium. We suggest that the degree of acylation is responsible for the channelling of pigments and coumarins.

Fri., July 8, 2:45-3:00 PM

THE ROLE OF LOW MOLECULAR WEIGHT METABOLITES AND PROTEINS IN THE RESISTANCE OF PLANTS TO ZINC TOXICITY.

N. Smirnoff and G.R. Stewart, Department of Botany, Birkbeck College, Malet Street, London WC1E 7HX.

Many plant species have populations which occur on metalliferous soils and are tolerant to high external metal concentrations. The possible role of amino acids, organic acids, metal binding proteins and enzymes in the tolerance of plants to high zinc concentrations will be considered. The response of zinc intolerant and tolerant populations of *Deschampsia caespitosa* (Gramineae) and *Thlaspi alpestre* (Cruciferae) to zinc has been examined. Changes in the concentrations of amino acids, organic acids and enzyme activities occur in plants treated with zinc. These changes will be considered in relation to recent models of zinc tolerance based on the sequestration of zinc in vacuoles.

Fri., July 8, 3:00-3:15 PM

POLYAMINE SYNTHESIS INDUCED BY OSMOTIC STRESS

H.E. Flores* and A.W. Galston, Biol. Dept., Yale University, New Haven, CT. 06511.

Putrescine (Put) and spermidine titer rises in cereal cells and protoplasts upon exposure to various osmotica (sorbitol, mannitol, sucrose, betaine, and proline) (Science 217:1259). Put rise shows a 1-2 hour lag, and is preceded by a 3-fold increase in activity of arginine decarboxylase (ADC). Ornithine decarboxylase (ODC), the alternative putrescine synthesizing enzyme in higher plants, is not affected by osmotic treatment. The stress response is prevented completely by cycloheximide and ADC inhibitors (difluoromethylarginine, D-arginine, L-canavanine), partially by transcription inhibitors, and remains unaltered by ODC inhibitors (difluoromethylornithine, methylornithine). Amino acid pools change rapidly upon osmotic stress; notably, glutamic and aspartic acids decrease, while their amides rise. ADC inhibitors prevent the stress-induced polyamine rise, and cause accumulation of free arginine, but have no effect on the rest of the amino acid pool. Similar changes in Put and ADC can be induced by allowing cereal seedlings to wilt. The availability of Put precursors (arginine, ornithine) is rate limiting to this stress response. Our findings are compared with other biochemical markers for water stress (proline, abscisic acid).

*Present address: ARCO Plant Cell Research Institute, 6560 Trinity Court, Dublin, CA. 94568.

Fri, July 8, 3:30-3:45 PM

PHYSIOLOGICAL EFFECTS OF UV-B STRESS ON AQUILEGIA CAERULEA AND A. CANADENSIS. R. A. Larson, W. J. Garrison and R. W. Carlson. Institute for Environmental Studies, University of Illinois, Champaign-Urbana.

Response to UV-B stress was measured in an alpine (Aquilegia caerulea) and a non-alpine species (A. canadensis) as a function of growth, dry weight, transpiration, photosynthesis and content of selected chemical constituents. It was found that exposure to UV-B light significantly reduced the height and dry weight of above ground parts of plants of both species, with the difference being more pronounced in the non-alpine species. Water use efficiency was significantly less in the UV-B treated plants of both species, but no significant differences were found in photosynthesis. Concentrations of enzymes and secondary compounds of possible relevance to UV-B resistance will be discussed.

Fri., July 8, 3:45-4:00 PM

WISDOM, CHARLES S., LBES, UCLA, 900 Veteran Avenue, Los Angeles, CA. 90024 and ELOY RODRIGUEZ, Phytochemical Lab., Dept. of Ecology and Evo. Biology, UCI, Irvine, CA 92714.

SEASONAL AGE-SPECIFIC MEASUREMENTS OF SESQUITERPENE LACTONES AND CHROMENES OF ENCELIA FARINOSA (ASTERACEAE).

Age-specific concentrations of farinosin, a sesquiterpene lactone, and encecalin and euparin (both chromenes) were measured in two semidesert populations of Encelia farinosa in California over a three month period by HPLC. All three natural products differed significantly in concentration. The average concentration of encecalin was 10 times that of euparin and eight times that of farinosin. Farinosin concentrations did not differ between the two populations, but both euparin and encecalin were in higher amounts in the UC Riverside population than in the Home Gardens population. Seasonal changes in natural products differed at the 0.05 level for all populations and compounds except euparin in the UC Riverside population. Percent nitrogen content of dried leaves was similar in both populations, but differed between collection dates. Water content did not vary significantly with leaf age on one collection date. The significance of these results is discussed in the light of the herbivore history.

Wed., July 6, 7:00-8:30 PM

PHOTOCONTROL OF ANTHOCYANIN SYNTHESIS IN POINSETTIA AND APPLE. II. COMPARISON OF THE EFFECTS BLUE AND RED LIGHTS IN CONJUNCTION WITH VARYING TEMPERATURES ON REGULATION OF PHENYLALANINE AMMONIA-LYASE AND CINNAMIC ACID HYDROXYLASE. P.G. KADKADE, GTE Laboratories Inc., Waltham, MA 02254

The objective of this study was to evaluate the effects of narrowband lights in conjunction with varying temperatures on phenylalanine ammonia-lyase (PAL), cinnamic acid hydroxylase (CAH), phenylalanine ammonia-lyase inactivating system (PAL-IS) activity and anthocyanin formation. Low temperature (10°C) and narrowband lights (red and/or blue) stimulated the accumulation of PAL, CAH and anthocyanin, and reduced the level of PAL-IS. Without light, the level of PAL and CAH remained low and anthocyanin synthesis did not take place, while the level of PAL-IS increased substantially in the disks of poinsettia and apple. The results indicate that PAL-IS regulate the activity of PAL and the accumulation of PAL, CAH, PAL-IS and anthocyanin is dependent upon the exposure of poinsettia and apples to specific temperature and light quality.

Wed., July 6, 7:00-8:30 PM

STEROL PRODUCTION BY SOYBEAN CALLUS CULTURES. I EFFECT OF SOME GROWTH REGULATING FACTORS

P.G. KADKADE, GTE Laboratories Inc., Waltham, MA 02154
Relationships between callus origin and the sterol contents as well as conditions of sterol formation in soybean callus cultures were investigated. Sterol contents of callus tissues were profoundly affected by growth regulators. IAA, IBA and NAA supported maximum growth of callus, while 2,4-D consistently yielded maximum sterols, especially stigmasterol. With respect to kinetin, the optimum concentration for callus growth and sterol formation was 5 mg/l, with higher concentration inhibiting sterol biosynthesis. A combination of 2,4-D with kinetin stimulated both callus growth and sterol production. Results also indicated that the composition and contents of sterol were strongly dependent on conditions of the callus initiation and growth as well as the plant part from which they were derived.

Wed., July 6, 7:00-8:30 PM

EFFECT OF LIGHT AND GROWTH STIMULANTS ON ANTHOCYANIN FORMATION IN CERTAIN ORNAMENTAL AND FRUIT CROPS

P.G. KADKADE, GTE Laboratories Inc., Waltham, MA 02254
The objective of this study was to evaluate the role of light quality in conjunction with certain precursors and growth stimulants on anthocyanin formation in selective ornamental and fruit crops. Shikimic acid and cinnamic acid treatment of poinsettia modified leaf and apple fruit skin disks either in the light or in the dark had no effect on anthocyanin formation during the lag phase. This was also true for ethephon and/or serine either alone or in combination with sucrose. However, when precursors and/or growth stimulants were applied at the rapid synthesis phase, anthocyanin production was markedly increased as compared to red or blue-light mediated anthocyanin synthesis alone. The promotion of anthocyanin synthesis in apple and poinsettia disks by flavanoid precursors in the presence of red light was further enhanced by EDTA but not by ethephon. This effect was counteracted by subsequent applications of calcium chloride and/or cholesterol. These studies indicate that phytochrome may be involved in regulation of the passage of certain precursors and growth stimulants through a membrane to the site of anthocyanin biosynthesis.

Wed., July 6, 7:00-8:30 PM

PRUNASIN BIOSYNTHESIS BY CELL-FREE EXTRACTS FROM BLACK CHERRY (*PRUNUS SEROTINA* Ehrh.) FRUITS AND LEAVES. Jonathan E. Poulton and Sun-In Shin, Dept. of Botany, University of Iowa, Iowa City, Iowa 52242.

Immature fruits and leaves of black cherry produce the cyanogenic glycoside (R)-prunasin. Cell-free extracts catalyzed the stereospecific glucosylation of (R,S)-mandelonitrile to (R)-prunasin at rates of up to 2 μmoles/h/mg protein. UDPG (Km=0.32 mM) acted as glucose donor. The optimum concentration of mandelonitrile was 20 mM. Highest activity was exhibited at pH 7-8 in Tris-phosphate buffer, and no additional cofactors were required. 8-Mercaptoethanol (14.5 mM), provided in the homogenization medium, to prevent browning of homogenates, did not stimulate the rate of prunasin production. In addition to mandelonitrile (100%), activity was shown towards benzyl alcohol (15%), mandelamide (21%), mandelic acid (8%) and benzoic acid (153%), but not towards prunasin. Mandelonitrile glucosyltransferase activity was most stable when stored at -20°C in the presence of 10% glycerol.

Wed., July 6, 7:00-8:30 PM

BISULFITE INHIBITION OF STEROL METABOLISM. Claus Grunwald, Illinois Natural History Survey and University of Illinois, Champaign, IL 61820.

The pollutant SO₂ affects a number of biological processes including the physiological behavior of membranes. The precise sequence of events is unclear but in an aqueous medium SO₂ forms sulfurous acid which dissociates into HSO₃⁻ and SO₃²⁻. The ratio of HSO₃⁻ to SO₃²⁻ that is established depends on pH of the medium. At pH 6.8 about 70% will be HSO₃⁻ and 30% SO₃²⁻. Sterols are important membrane lipids and the incorporation of 2-¹⁴C-mevalonic acid (MVA), a steroid precursor, was followed using sodium bisulfite (5 mM at pH 6.8) to mimic SO₂ exposure. Bisulfite inhibited the incorporation of MVA into 4-desmethyl sterols by 50%. Pulse-labelling experiments showed that bisulfite inhibited the biosynthesis of 4,4-desmethyl, 4α-methyl, and 4β-desmethyl sterols, however, the inhibition of 4α-methyl sterols seemed to be less sensitive. Bisulfite also inhibited the biosynthesis of steryl esters and glycosides.

Wed., July 6, 7:00-8:30 PM

THE EFFECT OF WATER DEFICIT STRESS ON LEVELS OF CYCLIC IMINO ACIDS IN LEAVES OF *CALLIANDRA* SPECIES. Anthony B. Bleecker and John T. Romeo, Dept. of Biology, Univ. of South Florida, Tampa, FL 33612.

Species of *Calliandra*, a woody neotropical genus in the Mimosoideae known to accumulate a variety of cyclic imino acids, were subjected to short-term water deficit stress. Leaf levels of proline, pipercolic acid and hydroxylated derivatives of the latter were monitored. Chamber grown plants were stressed for between five and twelve days by flushing the roots with solutions of polyethylene glycol. Leaf water potentials were measured by the pressure chamber method. Imino acids were quantified using an automated amino acid analyzer equipped with a fluorometric detection system. Results indicate that levels of both proline and pipercolic acid increased several fold during stress treatment, while derivatives of pipercolic acid showed no significant changes in levels. The rate of stress induced accumulation of proline (2-3 mg/g dry wt/day) was about 10X higher than the rate for pipercolic acid. Evidence will be presented that proline and pipercolic acid show a common water potential threshold for accumulation in these species.

Wed., July 6, 7:00-8:30 PM

KINETIC STUDY OF A FLAVONOL-RING B O-GLUCOSYLTRANSFERASE*

H. Khouri and R.K. Ibrahim, Biol Dept & Chemistry Graduate Faculty, Concordia University, Montreal, Québec, Canada H3G 1M8.

Chrysoptilium americanum synthesizes a number of partially O-methylated flavonols, of which 5,5'-dihydroxy-3,6,7,2',4'-penta-methoxyflavone-5'-O-glucoside is an end product of the biosynthetic pathway (Z Naturforsch 36C:730,1981). The aglycone of the latter was utilized to study the kinetics of a glucosyltransferase (GT) which transferred the glucosyl moiety from UDPG to the 5'-hydroxyl group of that compound (Plant Physiol 72: in press).

Substrate interaction kinetics for the flavonol and UDPG gave converging lines which were consistent with an ordered bireactant binding mechanism. They also showed uncompetitive substrate inhibition. Replots gave K_m values of 225 μ M and 15 μ M for UDPG and the flavonol substrate, respectively. Product inhibition studies showed competitive inhibition between UDPG and UDP (K_i 5 μ M) and noncompetitive inhibition between the flavonol and its glucoside (K_i 3 mM). This is the first study of kinetics of a flavonol GT. The enzyme exhibits an ordered bi bi mechanism, with UDPG being the first substrate to bind and UDP as the final product released.

* Supported by NSERC grant and University funds.

Wed., July 6, 7:00-8:30 PM

STEM, LEAF, AND ROOT HYDROCARBONS IN PARTHENIUM SPECIES

Scora, R. W., Clerx, W. A., and Kumamoto, J.
University of California, Dept. of Botany & Plant Sciences,
Riverside, California 92521

Normal alkanes extracted with petroleum ether (30-60°) from ground oven-dried tissues were analyzed by gas chromatography using an SE-30 column. The range of alkanes extended from C17 to C38. Nonacosane and hentriacontane were the major components, with nonacosane usually the largest. This pattern appears in the leaves, stems, and roots of *P. argentatum* A. Gray, *P. incanum* H.B.K., and *P. hysterophorus* A. Gray, as well as in *P. hysterophorus* flowers. The yield of alkanes was about 4.45 mg/g dry weight of leaf tissue. Stems, roots, and flowers yielded less. These petroleum ether extracts of ground tissue contain less C31 and more C32-C36 components than epicuticular waxes extracted by dipping fresh leaves into ethyl ether as reported by other researchers.

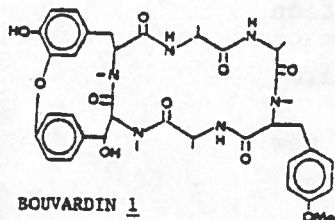
Wed., July 6, 7:00-8:30 PM

FAST ATOM BOMBARDMENT MASS SPECTROMETRY OF BOUVARDIN

Debra L. Slowikowski and Karl H. Schram

College of Pharmacy, Dept. of Pharmaceutical Sciences, University of Arizona, Tucson, Arizona 85721

Bouvardia ternifolia, once used by ancient Mexican Indians as a general curative, is still utilized in Mexico today for a variety of maladies. One constituent from the methanol extract of stems, leaves, and flowers of this plant is Bouvardin(1), a bicyclic peptide. Bouvardin, which consists of three alanines and three modified tyrosines, has been found to possess potent antitumor activity in the B1, PS, and KB test systems. Biochemical studies have indicated that the cytotoxicity of Bouvardin is related to protein synthesis inhibition, but the exact mechanism is yet unknown. Fast Atom Bombardment Mass Spectrometry, a successful tool in peptide analysis, has recently been applied to Bouvardin with interesting results.



The unusual 14-membered ring in the structure of Bouvardin appears to direct mass spectral fragmentation and may play a role in directing the molecule to the site of activity.

Wed., July 6, 7:00-8:30 PM

CHEMICAL CONSTITUENTS OF *PREMNA LATIFOLIA* var. *CUNEATA*.

Ch.Bheemasankara Rao, G.V.Subba Raju, P.Gopala Krishna and P. Aruna Devi

Department of Chemistry, Andhra University, Waltair, India 530003.

Mohan V. Chari.

Division of Gastroenterology, Department of Internal Medicine, University of Texas Medical School, Houston, TX, 77025.

The structure elucidation of a new flavone bioside -acacetin-7-O-[(α -L-rhamnopyranosyl-(1 \rightarrow 2)- α -L-arabinopyranoside)] (Premnoside), isolated from the leaves of *Premna latifolia* is presented. Other known compounds to be isolated from this source are the lignan sesamin and the phenylalanine derivative aurantiamide and its acetate. The diterpenoids taxodione, nellionol, dehydronellionol, anhydronellionol and the iridoid geniposidic acid were present in the root bark. The stem bark yielded geniposidic acid and 7-deoxyloganic acid whereas the wood contained the C-glycoside vicenin-2, 1-triacontanol and geniposidic acid.

Wed., July 6, 7:00-8:30 PM

Stafford, Helen A. and Hope H. Lester. Biol. Dept. Reed College, Portland, OR 97202

NON-ENZYMIC AND ENZYMIC CONVERSION OF (+)-DIHYDROQUERCETIN TO FLAVAN-3-OLS AND THEIR OLIGOMERS (PROANTHOCYANIDINS)

Non-enzymic and enzymic data indicate that the stereochemistry at positions 2 and 3 of (+)-dihydroquercetin are maintained in the products (+)-catechin and its oligomers. Two reductases acting in sequence in the presence of NADPH at pH 7.4 are involved in the conversion of (+)-dihydroquercetin to a 3,4-diol and (+)-catechin. The latter was detected via paper chromatography and HPLC analysis in a double step along with the 3,4-trans diol. Enzyme extracts were made from cell suspension cultures derived from needles of Douglas fir. These data support the asymmetric intermediate synthesis postulated by Roux et al., and argue against the symmetrical flav-3-en-3-ol intermediate favored by Haslam. Speculations will be presented concerning the enzymic synthesis of oligomeric procyanidins and of (-)-epicatechin and its oligomers.

Please note new phone numbers!

Names/Addresses/Phone Numbers of the Organizers

Dr. Cornelius Steelink
Department of Chemistry
University of Arizona
Tucson, Arizona 85721
(602) 621-2780

Dr. Barbara N. Timmermann
Dept. of Pharmaceutical Sciences
University of Arizona
Tucson, Arizona 85721
(602) 626-1713 or 621-7928

Dr. R. Phillip Upchurch
College of Agriculture
University of Arizona
Tucson, Arizona 85721
(602) 621-7190

Suzanne Weck
Department of Chemistry
University of Arizona
Tucson, Arizona 85721
(602) 621-6330

Dr. Robin F. Bernath
Dept. of Ecology & Evolutionary Biology
University of Arizona
Tucson, Arizona 85721
(602) 621-1835

Coronado Hall, desk: (602) 626-2262

Positions Open:

Postdoctoral Research Associate - Plant Biochemist/Physiologist.

Available immediately for research on regeneration of whole plants from cultured tissues. To join a project on increasing genetic diversity through the application of somatic cell genetics. Research in progress involves development of alternative methods of transferring genetic information through chromosome mediated transformation. The position described involves research on the physiology and biochemistry of regeneration from undifferentiated plants cells. New approaches are required to study the hormone balance and transport of auxin and cytokinin in cultured cells. These investigations should provide new technology for plant cell differentiation as well as an improved understanding of how hormones interact in the control of plant development. Interested persons who have completed their Ph.D. should send a Curriculum Vitae and three letters of reference to: Roger Lawson, Chief, Florist and Nursery Crops Laboratory, Bldg. 004, Rm. 101, Beltsville Agricultural Research Center, Beltsville, MD 20705, phone (301) 344-3096, as soon as possible. The position will be on a cooperative agreement established through the Dept. of Botany, University of Maryland but the research will be done at the USDA, Beltsville, MD. The position may develop as a permanent federal position after the postdoctoral.

Upcoming Meetings of Interests:

The 24th Annual Meeting of the PSNA will be held July 9-13, 1984 at Boston University in Boston, MA. The meeting will feature contributed papers & a poster session on any topic of phytochemistry as well as a symposium series on "Biochemical Interactions of Plants with other Organisms." For further information contact: Dr. Gillian Cooper-Driver, Boston University, Biological Science Center, 2 Cummington Street, Boston, MA 02215 (617) 353-2432.

Sept 1983

Minutes from the 1983 Annual Business Meeting of the PSNA

The meeting was called to order by President G. Hrazdina at 4:05 p.m. on July 8, 1983 on the University of Arizona campus in Tucson, AZ. All members of the current Executive Committee were present in addition to approximately 30 members at large. This representation was declared a quorum.

The minutes of the 1982 Annual Meeting which were published in the Sept 1982 PSNA newsletter were read by Secretary J. Saunders. Motion was made by Hrazdina and seconded by J. McClure that the minutes be approved. The motion was passed.

C. Steelink gave a report on the 1983 Tucson meeting. The current registration for the meeting was about 92. In addition the Local Arrangements Committee had competitively selected 3 travel awards to be given to 2 graduate students and 1 recent Ph.D. Steelink suggested that the award be continued in future meetings. Hrazdina reported that the Executive Committee had agreed to continue the awards for another year.

Saunders motioned that the Society thank all the Organizing Committee including C. Steelink, B. Timmermann, S. Weck, R. Barnath, P. Upchurch, and other behind the scene associates for a well run meeting. The motion was seconded and passed by applause.

G. Cooper-Driver gave a report on the progress of the 1983 annual meeting entitled "Biochemical Interactions between Plant and Other Organisms" to be held July 9-13, 1984 at Boston University, in Mass. Ten speakers had accepted invitations as listed below.

24th Annual Symposium of the Phytochemical Society of North America

July 9th - 13th, 1984 Boston University, Boston, M.A.

Topic - The Biochemical Interactions of Plants with Other Organisms

Speakers:

J. Rhoades, University of Washington	Plant Communications
Elroy Rice University of Oklahoma	Allelopathy
I. Misaghi University of Arizona	Fungal Metabolites
A. Ayers Harvard University	Plant Cell-Fungal Recognition Systems
L. Creasy Cornell University	Pathogens and Host Plants
J. Bryant University of Alaska	Chemical Theories on Plan/Animal Interactions
M. Blum University of Georgia	Insect Physiology

- M. Berenbaum Toxicity of Furanocoumarins to Insects
University of Iowa
- T. Waiss Plant/Insect Interactions
USDA, Albany, Calif.
- P. Barbos Plant/Insect Interactions
University of Maryland

E. Conn gave a brief report on the Asilomar meeting to be held in June 1985 in California. The organizing committee has not been fully established at this time but Conn assures that progress will be forthcoming shortly. A tentative title of Aromatic Compounds, Structure and Function is being considered.

J. Romeo gave a treasurers report (listed on Page 4). The Society thanked Romeo for the excellent job that he did as treasurer during his five year tour of duty.

Saunders gave a report on the activities of the Federation of Scientific Agricultural Societies. He attended a meeting in Washington in which the FSAS voted to appeal for congressional support for funds in animal sciences. As non-dues paying societies we will continue to attend the meetings as long as we are invited.

Saunders also gave a Life Membership report in which Dr. T. C. Tso and Dr. Leonard Jurd both from the USDA were elected as life members in the PSNA. They join a small group of distinguished scientists which have made outstanding scientific achievements and contributions to the field of Phytochemistry and to PSNA.

E. Loewus reported that Volume 17 of the Recent Advances in Phytochemistry is out and available at the cost of \$25.50 to members of PSNA.

Hrazdina reported that the Executive Committee had met during the winter and decided to have 10 areas as permanent topics for contributed papers. The ten subjects were 1) Isolation and Identification of Compounds 2) Chemotaxonomy 3) Chemical Ecology 4) Enzymology 5) Biosynthesis and Metabolism 6) Chemical Reactions 7) Molecular biology 8) Localization 9) A Symposium Related Topic 10) Other. He also discussed the possibilities of joint meetings with ASP, ASPP, CSPP, Japanese Phytochemical Society, International Tissue Culture Congress. Hrazdina reported that the Editor-in-Chief would stay through the current contract of 1983, however would step down after a five year rotation. Hrazdina reported several topics for future Symposium meetings for general discussion including: Phytochemical Aspects of Tissue Culture, Phytochemistry of Foods, The Effects of Pollution on Phytochemistry, Industrial Applications of Phytochemistry, Genetic Control of Phytochemistry, and Chemotaxonomy. The floor was then open to discussion on topics of future meetings.

S. Brown noted that the Society was getting away from the area of plant chemistry, esp. plant enzymology. There was some discussion about the direction of the society in covering all areas of phytochemistry.

D. Mansell suggested a topic of Immunological techniques for Phytochemistry. E. Rodriguez suggested Immunological Responses of Animals to

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

Interim Financial Report

1 January 1983 - 30 June 1983

Receipts

Membership Dues	\$ 2,057.00
Royalties	3,059.42
Interest	<u>1,046.92</u>
	\$ 6,163.34

Expenditures

1982 Annual Meeting	\$ 810.88
Secretary expenses (Newsletter)	600.00
Treasurer expenses	76.00
PSNA Flyers	122.60
Auditor	50.00
Foreign exchange debit	0.82
Executive Comm. Meeting (Feb. 1983)	<u>1,171.11</u>
	\$2,831.41

Summary

Receipts	\$ 6,163.34
Expenditures	<u>2,831.41</u>
Net Gain	\$ 3,331.93

Assets - 1 January 1983

Checking	\$ 1,899.26
Savings	<u>25,025.17</u>
	\$26,924.33

Assets - 30 June 1983

Checking	4,684.17
Savings	<u>25,572.09</u>
	\$30,256.26

Members

Total 358	USA	264
	Canada	49
	W. Germany	15
	Other Foreign	30

Respectfully Submitted,

J. Romeo
Treasurer, PSNA

PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

Annual Meeting Report
 January 1957 - 30 June 1957

Category	Amount	Description	Amount	Description
Income	10,000.00	1957 Annual Meeting	10,000.00	1957 Annual Meeting
Expenses	8,500.00	Travel expenses	8,500.00	Travel expenses
Reserve	1,500.00	Reserve	1,500.00	Reserve
Total	10,000.00	Total	10,000.00	Total

Category	Amount	Description	Amount	Description
Income	10,000.00	1957 Annual Meeting	10,000.00	1957 Annual Meeting
Expenses	8,500.00	Travel expenses	8,500.00	Travel expenses
Reserve	1,500.00	Reserve	1,500.00	Reserve
Total	10,000.00	Total	10,000.00	Total

Summary of the 1957 Annual Meeting:
 The meeting was held in [Location] from [Date] to [Date].
 A total of [Number] participants attended.
 The program included [Topics].
 The financial report shows a balance of [Amount].

Plant Phytochemicals. J. McClure suggested New Techniques in Phytochemistry. E. Conn suggested Plant Biochemistry as a topic. N. Towers suggested Photobiology as a topic. B. Timmermann suggested Biotechnology. E. Rodriguez suggested Phytochemical interactions with Plants and Animals. Saunders suggested that any members with additional topics should send them to him and he would present the suggestions at the next meeting of the Executive Committee. R. Larson suggested a location at Columbia, MO with a topic of Phytochemicals, Analysis, etc.

There was a discussion of increasing the memberships in the Society and the pros and cons of getting bigger.

Elections were held: B. Ryan and D. Mansell were nominated for President Elect, J. Poulton and R. Croteau for Treasurer and J. Saunders for Secretary. Mansell was selected as President Elect, Poulton as Treasurer and Saunders as Secretary. R. Ibrahim took over the meeting as the new President and the meeting was adjourned at 5:25 p.m.

Respectively Submitted July 8, 1983

James A. Saunders, Secretary, PSNA

Life Membership Awards:

The Executive Committee of the PSNA have voted to extend Life Membership to Dr. T. C. Tso from the USDA at Beltsville, MD and to Dr. Leonard Jurd also from the USDA in Albany CA. The Life Membership Award and certificate recognized the outstanding scientific achievements and contributions made by these individuals to the field of Phytochemistry and to the Phytochemical Society of North America. Both Dr. Tso and Dr. Jurd were unable to attend the Tucson Meeting for the presentation of the awards because of previous commitments however they both wanted to thank the Society for their award:

Dr. Jurd:

I was delighted to receive your letter indicating that the Executive Committee of the Phytochemical Society of North America has elected me as a Life Member. This honor gives me a great deal of pleasure, particularly as it was totally unexpected.

Dr. Tso:

In accepting this award, I am most gratified to the members of the Phytochemical Society of North America, and to the Executive Committee for electing me as a Life Member in the PSNA.

This is indeed a special honor as this award is bestowed to me by my peers. I have always treasured the sincere friendship and stimulating exchanges among members of PSNA. If I have any contribution at all in the field of phytochemistry and PSNA, it is a growth from such friendship and exchanges.

Beginning the later part of this year, the Lord willing, I will leave my current USDA position to take a challenging new orbit, working on international development and education in agriculture and life science. I will need the help from many of you to serve as members of various technical panels, and I also hope to have more time for an active participation in PSNA.

Please accept my heart felt thanks to all of you and my best wishes for continue success.

PSNA Travel Awards

PSNA is proud to announce the winners of the travel awards which were given to the best papers submitted for competition at the Tucson meetings. To be eligible for the award the individuals had to either be students or recent recipients of their Ph.D. The following individuals received the awards:

Student Awards:

Manual Aregullin from the University of California at Irvine. Title "Phytochemical Evolution of Two Desert Dominants: Encelia and Flourensia (Asteraceae)."

Vincenzo De Luca from Concordia University, Montreal. Title "Purification and Properties of four flavonoid-specific o-methyl-transferases from Chrysosphenium Americanum."

Dec 1983

24th Annual Meeting of the Phytochemical Society
of North America.

"The Biochemical Interactions of Plants with Other Organisms"

July 9 - 13, 1984

will be held at Boston University and will be organized by the Departments of Biology and Chemistry. Boston University is situated near the center of downtown Boston within easy access of public transportation, shops, theatres, etc.

The meeting will begin with a reception on the evening of Monday, July 9 in the Faculty Club at Boston University and will be followed by four morning sessions (10th, 11th, 12th, and 13th) and two afternoon sessions (10th and 11th) of Symposium and Contributed Papers.

The Symposium speakers are as follows:

- Arthur Ayes, Harvard University, Cambridge, MA. "Plant detection of pathogens."
Pedro Barbosa, University of Maryland MD. and James A. Saunders, USDA, Beltsville, MD. "Plant allelochemicals: lineages between herbivores and their natural enemies."
May Berenbaum, University of Illinois, IL. "Allelochemical synergism and antagonism in insect/plant interactions."
Murray Blum, University of Georgia, GA. "Evolutionary strategies evolved by insect herbivores to process plant allelochemicals."
John Bryant, University of Alaska, AL. "Adaptation to resource availability as a determinant of chemical defense strategies in woody plants."
Lee Greasy, New York State College of Agriculture and Life Sciences at Cornell University, NY. "Biochemical responses of plants to fungal attack."
I. J. Misaghi, University of Arizona, AZ. "Biochemical aspects of plant-microbe and microbe-microbe interactions in soil."
David Rhoades, University of Washington, WA. "Pheromonal communication between plants."
Elroy Rice, University of Oklahoma, OK. "An overview of allelopathy."
Anthony Waiss, Plant Protection Phytochemistry Research Unit, USDA, Berkeley, CA. "Modification of host plant resistance to insects with plant bioregulators."

Contributed papers are encouraged on any subject of plant chemistry either as oral or poster presentations.

The main poster session will be on the evening of Tuesday, July 10th.

On the afternoon of Wednesday July, 11th two field trips are planned 1) a boat trip round the islands in Boston Harbor, 2) a chartered bus trip around the main points of historic interest in Boston and then a visit to Lexington and Concord.

The banquet dinner will be on the evening of Thursday, July 12th and will be held at a local seafood restaurant in Boston harbor.

Student type accommodations can be provided in Warren Towers, on the main Boston University campus, at a conference rate of:

\$23.00 per night double occupancy with linen.
\$18.00 per night single occupancy with linen.
\$19.00 per night double occupancy without linen.
\$14.00 per night single occupancy without linen.

Meals may be bought separately at a cost of:

Breakfast \$3.00
Lunch \$4.50
Evening meal \$5.75

There are a large number of reasonably priced hotels and motels in the area and a list will be distributed with the second circular.

Four \$250.00 scholarships will be granted for outstanding papers submitted before April 1 by graduate students or junior faculty members. Application forms and further details may be obtained from the Meeting Organizers. Awards will be announced by April 15, 1984.

Members of the Organizing Committee are:

Dr. Gillian Cooper-Driver, Dept. Biological Sciences
Dr. Tony Swain, Department Biological Sciences
Dr. R. Karl Dieter, Department of Chemistry
Dr. Robert Buchsbaum, Department of Biological Sciences
Thomas Steinharter, Department of Biological Sciences
Boston University
Boston, Massachusetts 02215.

If you would like further information about this meeting contact:

Dr. Gillian Cooper-Driver
Department Biological Sciences
2 Cummington Street
Boston University
Boston, MA 02215.
Telephone 617-353-2453

ADVANCE REGISTRATION FORM

1984 Annual Meeting: PHYTOCHEMICAL SOCIETY OF NORTH AMERICA

July 9th - 13th 1984
Boston University, Boston, MA 02215

Please complete a separate form for each meeting participant. Return no later than May 1, 1984 to:

Dr. Gillian Cooper-Driver
Dept. Biological Sciences
2 Cummington Street
Boston University
Boston, MA 02215

NAME _____ TELEPHONE _____
(Please Print) Area Code Number

Dept./Street _____

Institution Company _____

City _____ State _____ Zip _____

Number		Amount
_____	Participant (member) - \$40.00	_____
_____	Participant (nonmember) - \$50.00	_____
_____	Participant graduate/undergraduate student - \$25.00	_____
_____	Participant student member presenting paper	No Charge
_____	Full membership in PSNA - \$8.00	_____
_____	Student membership in PSNA - \$4.00	_____
_____	Spouse/Children	No Charge

NAMES: _____

_____ Late Registration - \$55.00 _____

SPECIAL EVENTS:

_____ Monday Welcoming Reception (July 9, 1984, 7:00 - 10:00 pm) Cash Bar

_____ Wednesday, July 11
(Boat Trip Boston Harbor and Island) \$20.00 _____

_____ (Bus Trip in Historic Boston) \$20.00 _____

_____ Banquet Thursday, July 12 Seafood Harbor Restaurant \$25.00 _____

Make checks payable in U.S. dollars to: PSNA Registration

ABSTRACT FORM

24th Annual Meeting of the Phytochemical Society of North America
Boston University, Boston, MA, USA, July 9 - 13, 1984

Members and nonmembers are invited to present a paper(s) at this meeting in the contributed paper session or Poster Session on any topic of phytochemical interest.

1. Abstracts should fit into the block space given below. Leave the top portion of the box blank.
2. The form below or a facsimile should be used. Since they will be reproduced directly, they should be well prepared and any structure should be neatly drawn.
3. a) The title should be CAPITALIZED.
b) Locations for authors should follow names if multiple authors are at different locations. Underscore the author who will present the paper.
c) For uniformity, elite type is preferred. Use single spacing and fill the block to its maximum.
4. Abstracts should be submitted by May 1, 1984, NOTE EARLY DUE DATE. Abstracts will be published in the PSNA Newsletter.
5. Mail the original and one copy to: 1984 PSNA Symposium, c/o Dr. Gillian Cooper-Driver, Department of Biological Sciences, 2 Cummington Street, Boston University, Boston, MA 02215 (617) 353-2453.
6. Presentation format: Oral (15 min.) _____ Poster _____
Projection _____ requirements: 2"x2" Overhead _____
Chalkboard _____.

Contributed papers may be presented either orally or as posters and can be on any topic of phytochemical interest, please check a category:

- | | |
|-------|--|
| _____ | 1) Papers relating to the Symposium. |
| _____ | 2) Isolation and identification of compounds |
| _____ | 3) Chemotaxonomy |
| _____ | 4) Chemical ecology |
| _____ | 5) Enzymology |
| _____ | 6) Biosynthesis and metabolism |
| _____ | 7) Localization |
| _____ | 8) Molecular Biology |
| _____ | 9) Other |

Housing Registration Form

1984 Annual Meeting: Phytochemical Society of North America

July 9 - 13, 1984

NAME _____

ADDRESS _____

TELEPHONE () _____

Dormitory Housing in Warrent Towers on Campus of Boston University

<u>Number of Rooms</u>		<u>Total Price</u>
_____	Single Room (\$14.00/night without linens) \$18.00 with linens	\$ _____
_____	Double Room (\$19.00/night without linens) \$23.00 with linens	\$ _____

Makes checks payable to: PSNA Registration

Registration Deadline: May 1, 1984

Mail to: Dr. Gillian Cooper-Driver
Dept. Biological Sciences
2 Cummington Street
Boston University
Boston, MA 02215
(617) 353-2453

PLEASE POST

Invitation for Travel Awards: The Phytochemical Society of North America will award four competitive travel awards towards expenses of attending the 1984 annual meeting to be held in Boston, MA July 9 - 13. Two awards will be presented to graduate students and two awards will be presented to recent recipients of Ph.D.'s (within the last 5 years). Each award will be for \$250.00. The selection criteria for the awards will be based on the scientific merit of papers submitted for competition by April 1, 1984. The subject of the manuscript may relate to any topic of phytochemistry of interest to the author. Applications are not restricted to members of the Phytochemical Society of North America. Winners of the travel awards will be expected to present their manuscripts at the Annual PSNA meeting in Boston.

The manuscript together with a curriculum vitae and this application form listed should be submitted to:

Dr. Gillian Cooper-Driver
Dept. of Biological Sciences
2 Cummington Street
Boston University
Boston, MA 02215
(617) 353-2453

Name _____

Address _____

Phone () _____

Category: Graduate Student

Recent Ph.D. (date of degree) _____

Title of Manuscript: _____

Application Deadline: April 1, 1984

PSNA welcomes the following new members:

Ms. Patricia D. Younger
Universit e LAVAL
Fac. de Foresterie et de
Geodesie, Cite Univ.
Quebec, CANADA G1K 7P4

Dr. Henry W. Kircher
Dept. of Nutrition & Food Sci.
University of Arizona
Tucson, AZ 85721

Dr. Norman F. Weeden
Dept. of Horticultural Sciences
N.Y. State Agr. Exp. Station
Cornell University
Geneva, N. Y. 14456

Dr. H. M. Niemeyer
Departamiento de Quimica
Fac. Ciencias Basicas y Farm
Universidad de Chile
Cassilla 653, Santiago CHILE

Debra L. Slowikowski
University of Arizona
College of Pharmacy
Department of Pharm. Sci.
Tucson, AZ 85721

Ahmed Ahmed
The University of Texas at Austin
The Department of Botany
Austin, TX 78712

Dr. F. Dicosmo
University of British Columbia
Department of Botany
Vancouver, B.C. VGT 2B1

Michael A. Goetz
March and Co.
P.O. Box 2000
Rahway, NJ 07065

Junji Kumamoto
University of California
Dept. of Botany & Plant Science
Riverside, CA 92521

K. Wilf Nicholls
University of British Columbia
Department of Botany
Vancouver, B.C. V6T 1W5

Dr. Felix Keller
Department of General Botany
Swiss Fed. Inst. Tech.
Sonneggstr. 5
CH8092 Zurich, Switzerland

Dr. Lynn Kosak-Channing
PGGI, Tobacco Lab.
BARC-W, Bldg. 001, Rm 114
Beltsville, MD 20705

Dr. Jan St. Pyrek
MS Lab., International Medicine
Medical School at Houston
University of Texas, P.O. Box 20708
Houston, TX 77025

Ms. Karen M. McDougal
Biology Department
Univ. of North Carolina
Chapel Hill, NC 27514

Mr. Vincenzo DeLuca
Concordia Univ.-Biology Dept.
1455 de Maisonneuve Blvd. W.
Montreal, Quebec
CANADA H36 1M8

Dr. Donald P. Cheney
Biology Department
Northeastern University
Boston, MA 02115

Hector Flores
ARCO Plant Cell Research Inst.
6560 Trinity Court
Dublin, CA 94568

Joseph Hoffman
Bioresource Research Fac.
250 E. Valencia Rd.
Tucson, AZ 85706

Quanita Ladyman
Shell Development Co.
P. O. Box 4248
Modesto, CA 95352

Dennis Barron
Concordia University
Chemistry Department
Montreal, Quebec
Canada h3G 1MB

MEETINGS OF INTEREST:

September 10 - 12, 1984 - Biotech 84 - Second World Conference on Commerical Applications and Implications of Biotechnology, Washington, D.C. For information contact: Biotech 84, London Online Inc., Suite 1190, 2 Penn Plaza, New York, NY 10121, (212) 279-8890.

June 10 - 13, 1984 - International Society of Chemical Ecology - Symposium on Chemical Ecology held at University of Texas at Austin. For information contact:

Dr. Larry Gilbert
Zoology Department
University of Texas at Austin
Austin, TX 78712

PSNA: July 9 - 13, 1984 Boston University - Biochemical Interactions of Plants with other organisms.

June 12 - 16, 1984 - Asiloma Conference Grounds, CA.

American Society of Plant Physiologists:

August 12 - 17, 1984 - Davis, CA., University of CA

June 23 - 27, 1985 Providence, RI, Brown University

PROFESSIONAL POSITIONS:

POSTDOCTORAL POSITION IN PHYTOCHEMISTRY OF PLANT-INSECT INTERACTIONS. Ph.D. in natural products chemistry and some training in ecology required. The successful applicant will be based in Boston where chemical aspects of the work will be performed. Summer field work will be done in Minnesota in collaboration with Dr. P. Morrow, Department of Ecology and Behavioral Biology, University of Minnesota, Minneapolis, MN 55455. The position is available in May 1983, for 2 1/2 years in the first instance. Beginning salary: \$17,000. Applicants should submit curriculum vitae, statement of research interests and arrange to have three letters of recommendation sent to Dr. R. W. Le Quesne, Department of Chemistry, Northeastern University, Huntington Avenue, Boston, MA 02115.

ASSISTANT PROFESSOR BIOLOGY - Ph.D. degree in botanical sciences with research interests in phytochemistry; teaching excellence with capabilities in physiology and morphology. Additional interests or teaching abilities in coevolution, ecology, systematics or perhaps other areas.

TO BEGIN September 1984. SALARY \$17,433 minimum for 9 months; flexible with experience. Fringe benefits include additional state contributions to social security, retirement, and insurance. Summer teaching is usually available. Major responsibilities are in teaching undergraduate and graduate courses. Also the successful applicant will be expected to develop a research program that compliments Department emphasis in Chihuahuan Desert biology, and to direct a small phytochemistry laboratory complete with HPLC.

Sul Ross State University is a member of the Texas State University System, is accredited by the Southern Association of Colleges and Schools and has an enrollment of about 2200 students with 1900 on campus in Alpine, Texas. The

Department of Biology offers courses leading to the B.S. degree in biology with and without teacher certification and the M.S. degree in biology. Send curriculum and personal vitae, transcripts, and three letters of reference to:

Dr. A. Michael Powell, Chairman
 Department of Biology
 Sul Ross State University
 Alpine, Texas 79832
 TELEPHONE: (915) 837-8812

Faculty appointment in plant cell and molecular biology.
 Department of Horticulture, Purdue University, West Lafayette,
 Indiana 47907

Appointment is 80% research and 20% teaching.

To initiate a research program in the application of molecular biology to improving productivity and/or quality of horticultural crops. Approaches should form a bridge between basic cellular/molecular biology and plant genetics.

Applicant will be expected to contribute to the graduate teaching program. Applicants should have a Ph.D. degree and demonstrated interest and ability to conduct research in plant molecular biology. Applicant must have a strong background in plant biochemistry or physiology and genetics. An ability to communicate effectively and to direct graduate students is expected. Experience beyond the Ph.D such as a post doctorate or a previous research appointment is highly desirable.

Appointment as Assistant Professor (12 mo. tenure-track). Candidates with superior qualifications may be considered at more senior level. Salary experience.

Applications will be accepted through January 1984 or thereafter until position is filled.

Applicants should send biographical information, a statement of professional goals, reprints of pertinent publications, transcripts and names of four references:

Professor Joe H. Cherry
 Chairman, Search Committee
 Department of Horticulture
 Purdue University
 West Lafayette, IN 47909

ITEMS OF INTEREST TO PHYTOCHEMISTS:

A new society is being started which will be called the Latin American Society of Phytochemistry. Dr. Luis J. Corcuera, the Secretary of the Society, is organizing a director of members and beginning a regional Newsletter. Anyone who is interested can contact him at:

Dr. Luis J. Corcuera
 Department de Biología
 University de CHief
 Casilla 653, Santiago
 Chile



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