



PSNA News

Phytochemical Society of North America
Sociedad Fitoquímica de América del Norte
Société Phytochimique de L'Amérique du Nord

Volume 55, Number 1

May 2017



President's Message

So here we are coming up to another summer and the next annual meeting of the PSNA. This year we are being hosted by the University of Missouri and the meeting is being chaired by the immediate past PSNA President Lloyd Summer. Lloyd and his organizing committee have been working diligently to bring an excellent slate of speakers and have created an engaging program that will benefit all who attend this meeting. <http://muconf.missouri.edu/PSNA2017/>

2017 PSNA Officers Election

The Election will be held by electronic ballot at the end of May! Watch for your invitation to vote and please participate!!

The PSNA annual meeting is the focus of our organization. In order for the PSNA to remain a viable, vibrant, and effective organization, it is essential that we continue to have a commitment to bringing the best and brightest phytochemical researchers together every year. But, the PSNA cannot do this without the attendance of our membership, both the new members and the long standing members. That is why it is absolutely essential that we, the membership, all act to actively recruit our fellow researchers, scientists, professors, teachers, post-docs, and students in both our institutions and departments and our collaborators across the world to attend the PSNA meeting. I have often heard first time attendees say that this meeting addressed issues that were extremely in tune with their research, and that they should have been coming to these meetings a long time ago. These meetings allow for a diverse coverage of topics focused on plant chemistry, genetics, and ecology, that are often lost in the shuffle at the bigger national meetings, or not covered in the smaller specific topic meetings. The university venue and

the single track program allows for interaction and the development of collaboration on plant science that you just can not get at other meetings. I am asking that all members try and recruit at least one (more would be better!!) colleague or student that has not been to a PSNA to attend this years meeting. I am sure they will find it interesting.

As you all should be aware, we are an all volunteer organization, the duties of running the meeting and the organization fall on the shoulders of our membership. The PSNA needs members to step up and help with the tasks essential to keeping our organization running. We always need help with chairing a future meeting, helping with the meeting program organizing committee, soliciting sponsorships, serving on our committees, and ultimately being asked to serve as an officer of the society. Starting off slowing by volunteering to help on a committee is a good place to start, and I ask that if you do volunteer that you be proactive and take a task or two on and get them done—whether it be posting meeting notices in your department, or sending in articles for our newsletter

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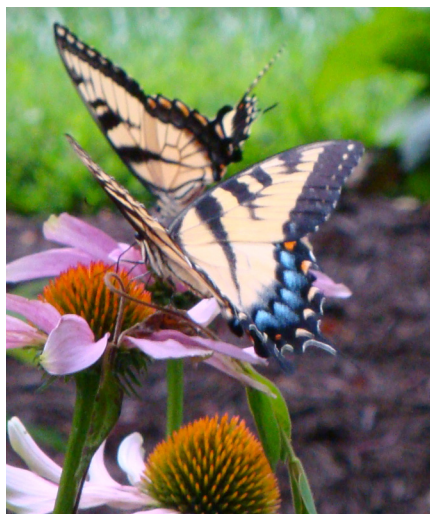
In this issue: The 2017 Meeting at the University of Missouri at Columbia
The PSNA and the National Academy Report of Genetically Engineered Crops
The 2017 PSNA Presidential Candidate
The web PDF version can be downloaded from the website: www.pсна-online.org.



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The Phytochemical Society of North America

The Phytochemical Society of North America (PSNA) is a nonprofit scientific organization whose membership is open to anyone with an interest in phytochemistry and the role of plant substances in related fields. Annual membership dues are U.S. \$60 for regular members and \$30 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada, and Mexico. PSNA meetings provide participants with exposure to the cutting-edge research of prominent international scientists, but are still small enough to offer informality and intimacy that are conducive to the exchange of ideas. This newsletter is circulated to members to keep them informed of upcoming meetings and developments within the society, and to provide a forum for the exchange of information and ideas. If you would like additional information about the PSNA, or if you have material that you would like included in the newsletter, please contact the PSNA Secretary or visit our website at www.pсна-online.org. Annual dues and changes of address should be sent to the PSNA Treasurer. Also check the PSNA website for regular updates.

The PSNA is an all volunteer organization which depends on its membership to run the organization. We appreciate the time and effort these volunteers are putting in to keep the organization up and running. As a member, please consider volunteering to serve on one of these committees. The PSNA can always use more help!

PSNA EXECUTIVES

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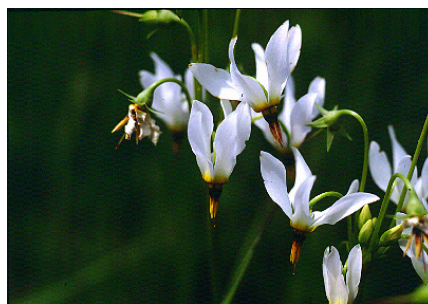
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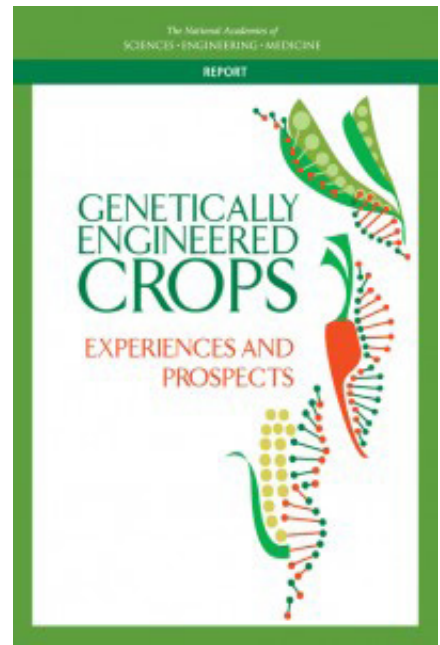
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(which we REALLY need), recruiting speakers for our young members event, or helping students attend our meeting, all are important. The key thing is not waiting to be asked to do something, but taking the initiative to get something done!

This involvement becomes vitally important for our society officers. The executive committee (of mostly past PSNA officers) are always looking for involved members who have shown dedication to the society to serve in our officer positions: President, Secretary, Treasurer and Meeting Chair. Our bylaws dictate that we have an election for the first three officers, but in fact the jobs are both time consuming and demanding. We must have officers that are dedicated to keeping the PSNA running as well as being able to fit these duties into an otherwise busy personal schedule. Each year the Society must elect a new president. This year we have asked Professor De-Yu Xie of North Carolina State University if he would accept the nomination for PSNA president and he has graciously said yes. It is difficult enough to find one candidate to accept this responsibility, let alone two, so this year we will run De-Yu as our sole candidate along with an opportunity for our membership to write in candidates of their choice. Our Secretary Argelia Lorence, and our Treasurer Dharendra Kumar, have accepted the nomination for another term. The election will be held by electronic ballot towards the end of the month, and I ask that each of you please participate in the election when you receive your email ballot. Consider it an obligation of being a member. This will also be an opportunity for you to provide input to the PSNA leadership, whether it be comments and suggestions, candidates for officers or to volunteer. If you do make suggestions, please

PSNA in public forum on National Academy report on genetically engineered crops

In 2016, the National Academy of Sciences released a comprehensive report on genetically engineered crops (<http://nas-sites.org/ge-crops/>). The report, which was co-written by Rick Dixon, former PSNA president and recipient of the Phytochemical Pioneer Award in 2015, is one of the most frequently downloaded documents from the NAS website and has received both praise and criticism. As a follow-up, NAS invited representatives of 15 scientific societies to provide comments on the report at an open forum convened on December 7, 2016. The comments from a diverse group of society representatives indicated general support of the findings of the NAS report across many disciplines. Mark Lange attended the forum on behalf of PSNA and a video of his presentation is freely available



(<https://vimeo.com/album/4310385/video/195868377>). The society representatives also wrote a commentary for Nature Biotechnology that was published in April, 2017 (http://www.nature.com/nbt/journal/v35/n4/full/nbt.3842.html?WT.feed_name=subjects_plant-genetics%2010.1038/nbt.3842). Feel free to contact Mark Lange with your questions about or comments on his presentation (lange-m@wsu.edu).

President's Message continues ... offer a plan of execution (and offer of help) to making these suggestions work.

We continually pester our members to renew their membership, but over the past few years the tangible benefits of membership have diminished. We no longer print a newsletter, we do not offer a subscription to a journal—we are asking your renewal simply in good faith to support the organization. I have been giving the matter some thought and we are working with some of our meeting sponsors to develop some membership perks. As for the newsletter, we are down to two issues a year. It would be great

to have monthly issues, but without material that is hard to do. If the PSNA does not have a staff to come up with material to fill a newsletter each month, so I ask again for our membership to submit articles for publication. To get a higher profile, we need our membership to step up and make this happen!

So I charge you the membership of the PSNA to: 1) attend this year's meeting, register now! 2) recruit at least one of your colleagues to attend this meeting as well, 3) vote in the election later this month as an obligation of your membership, 4) and send in an article for the newsletter, to help the PSNA become a more effective society!



56th Annual Meeting of the Phytochemical Society of North America

August 5-9, 2017 | University of Missouri | Christopher S. Bond Life Science Center | Columbia, Missouri, USA

The PSNA invites you to attend its 56th Annual Meeting, to be held August 5-9, 2017 at the University of Missouri-Columbia MO, USA.

The 2017 PSNA meeting organizing committee has planned an outstanding agenda for this year's meeting at the University of Missouri in Columbia. The registration for the meeting is now open, you can follow the links from the home page of the PSNA at www.pсна-online.org. The University of Missouri is beautiful historic campus steeped in agricultural research. Located roughly mid-way between Kansas City and St. Louis, and near the resurgent Missouri River wine country, there are plenty of things to see and do in Missouri. Make your plans to attend today!

REGISTRATION

All fees are in \$USD and include receptions, beverage breaks, lunches, banquet and registration materials.

Fee Structure	Early (before July 21)	Regular (after July 20)
PSNA Member	\$500.00	\$550.00
Non-Member	\$560.00	\$610.00
Graduate Student Member	\$300.00	\$350.00
Graduate Student Non-Member	\$330.00	\$380.00
Undergraduate Student	\$150.00	\$200.00
Guest Banquet Ticket	\$60.00	\$60.00

If you are an undergrad, graduate student or postdoc, you can indicate if you want your submission to be considered for a Travel Award or a Best Presentation/Poster Award during the submission process. Awards will be presented during the Award Banquet on Tuesday, August 8.

As part of the online submission process, you will be required to upload your abstract as Microsoft Word .doc or .docx.

The submission deadline is July 14, 2017.

TENTATIVE PROGRAM

Sunday August 6

9:00-9:45 - Plenary: Toni Kutchan (Donald Danforth Plant Science Center)

9:45-12:00 - Imaging, Phenotyping & Metabolomics - Richard Ferrieri (Missouri Univ. Research Reactor)

12:00 – 1:00 Lunch

1:00-2:45 - Terpenoids - Reuben Peters (Iowa State Univ.)

3:15-5:00 - Alkaloids – Vince de Luca (Brock Univ., Canada)

5:30-7:30 – Poster Session 1 Atrium (even numbered)

Monday August 7

9:00-9:45 Plenary: Georg Jander (Boyce Thompson Inst/Cornell)

9:45-12:00 Phytochemistry & Ecology

-
12:00 – 1:00 Monday (August 7) Lunch – Career Panel/Workshop

1:00-2:45 Lipids – Ruth Welti (Kansas State Univ.)

4:30-5:30 Society Business Meeting

5:30-7:30 Evening – Poster session 2 (odd number)

Tuesday, August 8

9:00-9:45 Plenary -

10:00 – 12:00 Synthetic Biology and Metabolic Engineering - Metabolic Engineering - Ed Cahoon (Kansas State Univ)

1:00-2:45 Phytochemistry & Microbiomes: Gary Stacey (Univ. of Missouri)

3:15-5:00 Food and Nutraceuticals -

7:00-9:00 Award banquet, Atrium

Wednesday August 9

9:00-10:30 Phytochemical Signaling – Abe Koo (Univ. of Missouri)

11:00-11:45 Plenary Latin America Phytochemistry – Maria Luisa Villarreal, Mexico

11:45-12:00 PSNA 2018 Mexico

12:00 Close of PSNA 2017

TRAVEL

Airports

The Columbia Regional Airport is a short 15-minute drive north to the MU campus. A taxi from the Columbia Regional Airport to the MU campus is approximately \$36.

For those who'd rather fly into a larger airport, Columbia is located midway between airports in St. Louis International (STL) and Kansas City International (MCI). Columbia is about a 2-hour drive from the St. Louis airport (STL) and a 2.5-hour drive from the Kansas City Airport (MCI).

On-Campus Housing

Dorm-Style Campus housing will be available during the PSNA 2017 meeting. These are suite style rooms located near the southeast side of campus and close to meeting locations. Reservations for Campus Housing is available during conference registration.

Dorm Style Housing- Excellence Hall, 904 Virginia Avenue, Columbia, MO
Residence Life
Single Room: \$52.50 per person
Double Room: \$29.50 per person
Reservation deadline: July 21, 2017

Off-Campus Hotels

Meeting attendees who wish to stay in a hotel are responsible for making their own lodging reservations directly with the hotel. A block of rooms have been reserved at the hotels designated below. Please note that room rates do not include tax and/or hotel fees. Attendees should identify themselves as with PSNA 2017 when making reservations. Please verify cancellation policies with each property.

Please book by July 4, 2017 for group rate, based on availability.



De-Yu Xie: Candidate for PSNA President

This is my 17-year's membership of the PSNA. I still remember that I was so excited to join the PSNA in 2001 when I was a postdoctoral fellow in Drs. Nancy Paiva's and Richard Dixon's laboratory. The simple reason was that this was my first time to become a member of an international professional society. Also, the year of 2001 was my first time to attend the annual meeting of the PSNA held in Oklahoma City. I did not present any data in that meeting because my role was to provide services to help the meeting, such as scheduling bus and helping registration desk. Since then, I become a "fan" of the PSNA because I can meet phytochemistry colleagues from different countries. Over the past 17 years, I only missed one annual meeting. I have learned a lot from other members and from my involvements in certain society's activities, and experienced the development of the society in many ways. In 2009, I was honored to become one of the recipients of the Arthur C. Neish Young Investigator awards. I am highly grateful to the PSNA for this important award and this recognition. It means a lot to my career. Since 2013, I have been participating in organization of annual meet-

ing and serving the Future Meeting Committee of the society. In 2014, with the nomination of Dr. Fred Stevens, our previous president, I served the society's advisory committee. Fortunately, the society approved my application to organize the 53rd annual meeting of the PSNA at North Carolina State University. I was so happy that nearly 160 participants attended this meeting. Fund raising also went well so that in addition to being able to provide free food, drinks, and banquet for all attendees during the entire period, this meeting saved nearly \$10,000 for the society. Today, I feel highly honored to be nominated again by PSNA members to campaign for the next president of the PSNA. If I will be elected, in addition to continue to all current society's activities, I am excited to expect to work hard with all members to strengthen the society in the following aspects: 1, enrollment improvement of membership; 2, improvement of our annual meeting's registration; 3, seeking potential joint activities with Phytochemistry-related Societies in other countries, such as countries in Europe and Asia; 4, development of a social media-based society's communication network; 5, fund raising for development of a phytochemical education network or scholarship; and 6, others.

Presently, I am a tenured associate professor and moving up for full professor in the Department of Plant and Microbial Biology at North Carolina State University. I was awarded my bachelor degree majoring in Biology at Hunan Normal University in 1988, my master degree majoring in Cytogenetics in 1993 in the Department of Biology at Beijing Normal University, and my PhD majoring in Plant Physiology at Institute of Botany, Chinese Academy of Sciences, Beijing. From July 1997 to Jan. 2001, I was a postdoctoral fellow in the Institute

of Molecular Agrobiolgy at the National University of Singapore. From Jan. 2001 to July 2005, I was a postdoctoral fellow at Dr. Richard Dixon's lab at Noble Foundation, Ardmore, Oklahoma. From Aug. 2005 to June 2011, I was a tenure-track assistant professor in the Department of Plant Biology, at North Carolina State University. My lab is working on biosynthesis and metabolic engineering of anthocyanins, proanthocyanidins, and sesquiterpenes (artemisinin). To date, I, as the first author, corresponding author or co-author, have published over 50 peer-reviewed articles including ones in *Science*, *Cell*, *Plant Cell*, *Phytochemistry*, *Plant journal*, *Plant Physiology*, and others.

How Can We Grow the PSNA?

Mark Berhow

I feel this society has two basic goals during the course of a year: hold an annual meeting and provide invited papers for a yearly review publication. As a society, it is essential to hold the meeting and provide the review articles, but we still struggle with enhancing our membership engagement—why should a member continue to renew their membership? I would hope that a member will renew because they want to support the PSNA mission. But, if one joins an organization one is often enticed by a series of “benefits”: We struggle to provide even two newsletters a year, we do not offer a journal subscription (that could be a good or a bad thing), and we do not offer any other benefits. While the PSNA does not offer many of the traditional benefits of a “membership,” it does offer an invaluable chance to develop ties to the phytochemical research community.

I would like to explore ways in which we could improve our member benefits. This would have several benefits to the PSNA, we would do a better job of keeping in contact with our members and hopefully better engage them. Often in larger societies they have a paid staff to take care of these duties: maintaining an accurate membership roster, taking care of preparing the newsletters and distributing them, following up on sponsor solicitations, taking care of meeting preparations, etc. etc. The PSNA does not have a paid staff, all that the PSNA manages to do is accomplished by volunteer help. Generally, most of the PSNA volunteers have another, or several other, jobs to do and all too often the day-to-day operations of the PSNA get put on the back burner. While our volunteers often get these things done, it has in the past been difficult to keep things up to date. Then it has been tough to even consider doing the work to bring added benefits that could be passed on to the membership.

So how can the PSNA build a stronger suite of benefits to better engage and retain our members? One obvious way would be to provide more regular newsletters or informative emails. This requires an active editor and a constant stream of articles. As I have been involved with the newsletter for the past few years, I can tell you that unless the secretary or I hunted down some articles or wrote articles, we have not had much in the way of submitted articles. The time consuming part of preparing a newsletter is getting the content, no content, no newsletter. I do feel that the single most positive thing we can do is provide regular newsletters to keep in contact with our members. However, without a dedicated effort to bring articles in this will not happen. I have harped

on getting members to submit articles many times all with the same result, only a few articles have dribbled in, just not enough for twelve issues a year. Is it worth considering contracting with a management group to help with handling the newsletter and our membership roster? I think it would, but that comes at a cost, a cost that would have to be off set by dues or other means of raising funds.

Another way to enhance membership engagement would be to offer additional benefits. This also involves work on someone's part to build these. As the PSNA is not involved directly with a journal, we have usually only been offering a discount to a subscription to *Phytochemistry* or a discount to one of the books we have contributed to. Could we do more? I am sure we could. But this will require a dedicated effort by a volunteer to make this happen. I have some ideas I am working on, but I would like to ask our membership if they could come forward with some ideas for benefits, AND follow through with executing the tasks required to get it done. These could be discounts with our meeting sponsors, discount subscriptions to journals, other societies, to gain access to electronic catalogs, etc. I would really appreciate it if members could look into ways that the PSNA could provide some more tangible benefits to our membership.

Remember the goal here is to better engage our members so that more members attend our meeting and renew their memberships! Let's engage!



Phytochemical Society of North America
Sociedad Fitoquímica de América del Norte
Société Phytochimique de L'Amérique du Nord
New Member Application Form

Please fill in the following application and return to the Treasurer with your dues payment. Once your application has been processed, you will receive newsletters and special mailings. You are also eligible for PSNA member discounts on the Recent Advances in Phytochemistry series (See Website).

Payments should be made by one of the following: check drawn on a US checking account, US travelers check, or US money order, International Money Order, Credit Card on the PSNA Website or Paypal payment to psnatreasurer@gmail.com. Please make check or money order payable to the Phytochemical Society of North America.

Credit Card Payment: Paying membership dues online via credit card has now been established. Please select the link from the PSNA homepage to pay by credit card. A paypal account is NOT required but will expedite the process. If using a paypal account, send directly to psnatreasurer@gmail.com

Advance Payment: It is now possible to pay dues in advance. If you wish to take advantage of this feature, please indicate above the years for which you would like to pay in advance.

Dues schedule: Regular member - \$60.00 per year
 Student member - \$30.00 per year

Return this statement along with your payment to: Dhirendra Kumar, Ph.D.
 423 Brown Hall Box 70703
 East Tennessee St. Univ.
 Johnson City, TN 37614 USA
 kumard@etsu.edu

Name (Dr., Mr., Mrs., Ms.):

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PSNA News

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Sociedad Fitoquímica de América del Norte
Société Phytochimique de L'Amérique du Nord

Volume 55, Number 2

Fall 2017

President's Message



Dear PSNA Members,

It is truly an honor to serve the phytochemical society and work on behalf of its members. I participated in many conferences since I became a PSNA member in 1998 but never ran for an office within the society. Over the course of the last year, while serving as President-Elect, I realized more than before how important it is for individuals to actively engage in society business. We are a volunteer organization that depends on the commitment of its membership. Hopefully, the content of this newsletter gets you excited about PSNA

and we can count on you in the future.

I will start this letter by thanking several individuals on the Executive Committee for their service, will then make a few announcements, and end with information about recent developments that are relevant to the membership.

KUDOS

Mark Berhow (Past-President) for his leadership in 2016/2017, for his efforts to maintain and update the PSNA website, and for producing our newsletters.

Lloyd Sumner and his team for organizing a highly successful annual conference 2017 (more on pages 4-7 of this newsletter).

Argelia Lorence (Secretary) for keeping us organized and maintaining our Twitter account (@PSNA2016).

Dhirendra Kumar (Treasurer) being diligent and proactive about ensuring the financial well-being of our society.

Reinhard Jetter (Editor in Chief, Phytochemistry Reviews) for managing manuscripts based on selected presentations given at PSNA annual meetings.

Lloyd Sumner for setting up our Facebook presence. There are now links to Facebook, Twitter and LinkedIn on the PSNA home page.

CONGRATULATIONS

Deyu Xie on his election as president for 2018/2019.

Neish Award Winner - Daniel Owens (University of Hawaii).

Poster Award Winner (Post-Doc category) – Lucas Busta (University of Nebraska).

Poster Award Winner (Doctoral Student Category) – Xiaoyue “April” Chen (Washington State University).

Poster Award Winner (Masters/Undergraduate Student Category) – Saroj Lohani (East Tennessee State University).

ANNOUNCEMENTS

Dhirendra Kumar will serve a second term as Treasurer. Thank you, Dhirendra!

Nominations needed for Executive Committee: President (2019/2020) and Secretary.

PSNA Conference 2018 will be held at Universidad Autonoma de San Luis Potosi (Mexico) (more on page 12 of this newsletter).

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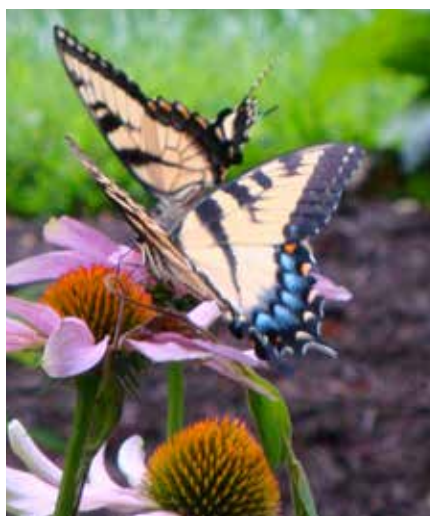
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The 2018 Meeting in San Luis Polosti, Mexico!

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Fall 2017



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The Phytochemical Society of North America

The Phytochemical Society of North America (PSNA) is a nonprofit scientific organization whose membership is open to anyone with an interest in phytochemistry and the role of plant substances in related fields. Annual membership dues are U.S. \$60 for regular members and \$30 for student members. Annual meetings featuring symposium topics of current interest and contributed papers by conference participants are held throughout the United States, Canada, and Mexico. PSNA meetings provide participants with exposure to the cutting-edge research of prominent international scientists, but are still small enough to offer informality and intimacy that are conducive to the exchange of ideas. This newsletter is circulated to members to keep them informed of upcoming meetings and developments within the society, and to provide a forum for the exchange of information and ideas. If you would like additional information about the PSNA, or if you have material that you would like included in the newsletter, please contact the PSNA Secretary or visit our website at www.pсна-online.org. Annual dues and changes of address should be sent to the PSNA Treasurer. Also check the PSNA website for regular updates.

The PSNA is an all volunteer organization which depends on its membership to run the organization. We appreciate the time and effort these volunteers are putting in to keep the organization up and running. As a member, please consider volunteering to serve on one of these committees. The PSNA can always use more help!

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continued from page 1 ...

Eric E. Conn (Professor Emeritus at UC Davis), PSNA president in 1971 and one of the founding fathers of plant biochemistry, passed away on September 2, 2017. More on Eric Conn's life and impact on phytochemistry will follow in the next newsletter.

RECENT DEVELOPMENTS AND FUTURE OUTLOOK

Over the last year, I have been working with Mark Berhow on improving the appeal and content of the PSNA website (www.pdna-online.org). You will notice that much of the archival and outdated information has been removed; however, you can still find listings of past officers, award winners and bylaws under the "PSNA Business" tab. The focus is on giving you facile and convenient access to the most important news and announcements. As a service to our membership, we are also posting job advertisements for free. Please do not hesitate to contact us with suggestions and requests (incl. job advertisements) via e-mail to berhow@comcast.net or lange-m@wsu.edu.

Following up on the original suggestion by Mark Berhow and discussions with the PSNA Executive Committee, I have extended invitations to several individuals to join our Advisory Board. The goal is to have representation from across North America (U.S., Canada and Mexico) and by scientists at different career stages (from graduate students to senior faculty). We have also initiated a Past Presidents Club, hoping to harness the wisdom of our most experienced members. As a team, we will continue to strive toward increasing PSNA's visibility and impact, and to provide career development advice to our younger members.

The single most important event for our society is the annual meeting. PSNA conferences have a remarkable history of featuring presentations of exceptional quality covering the diverse fields of plant chemistry, biochemistry and molecular genetics. Our awards go to up-and-coming researchers with great potential for continued innovation in these areas and the conferences are an excellent venue to meet your colleagues and make new friends. I am very excited about the fact that our 2018 conference will be held in Mexico. If you attended the 2017 conference, you saw a video that highlighted the cultural depth and architectural beauty of San Luis Potosi (more information on page 12 of this newsletter). I am looking forward to working with our local organizers (Denisse Atenea de Loera Carrera and her team) and the PSNA Advisory Committee to put on a 2018 conference you do not want to miss. Stay tuned!

Thanks for reading,

Mark Lange,
PSNA President 2017/2018

Current Job Postings on the PSNA Website

<http://www.pdna-online.org/jobs.html>

Assistant Professor Position in Plant Biochemistry, Department of Plant Biology, College of Biological Sciences, University of California, Davis (posting JPF01813) posted October 24, 2017.

Postdoctoral Associate Position in Plant Quantitative Genetics at the University of Nebraska-Lincoln (<http://employment.unl.edu>, position F_170115), posted October 11, 2017.

Faculty Position in Biological Mass Spectrometry, Michigan State University, Posted Sept 21, 2017 <http://careers.msu.edu/> (posting #466964).

Dr. Eric Conn 1923 - 2017

The PSNA would like to note the death of Dr. Eric Conn on September 2, 2017. Dr. Conn was a pioneer in phytochemical research and an enthusiastic member of the PSNA, serving a term as one of the early PSNA presidents in 1971. He was honored with the PSNA Lifetime Member Award and not one but two Phytochemical Pioneer awards in 2007 and 2011! The next newsletter issue will be dedicated to remembering the life and work of Eric Conn.

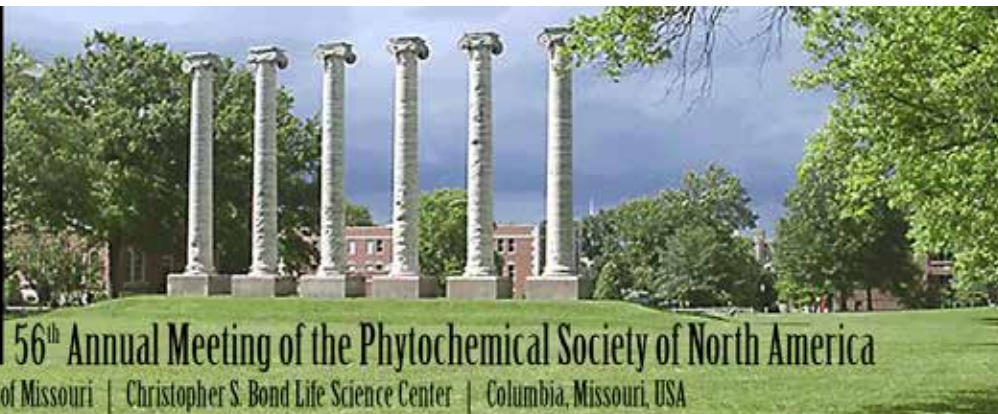


Assistant Professor, Plant Biochemistry, Department of Plant Biology, University of California, Davis, posted Sept 21, 2017. <https://recruit.ucdavis.edu/apply/JPF01813>

Tenure track faculty position in the Dept. of Food Science & Human Nutrition at Colorado State University, Ft. Collins, CO, posted Sept 19, 2017 <http://www.fshn.cchhs.colostate.edu/>

A postdoctoral position in plant molecular biology and biotechnology at UBC's Okanagan campus (Kelowna, BC) to investigate molecular aspects of secondary metabolism in Cannabis sativa plants. Posted September 8, 2017. CV and contact information for three referees to: barb.lucente@ubc.ca

Analytical Technologies Center Lead, Chemical Biology and Therapeutics (CBT) department at St. Jude Children's Hospital, Memphis, TN. Posted July 28, 2017.



56th Annual Meeting of the Phytochemical Society of North America

August 5-9, 2017 | University of Missouri | Christopher S. Bond Life Science Center | Columbia, Missouri, USA

56th Annual Meeting of the PSNA

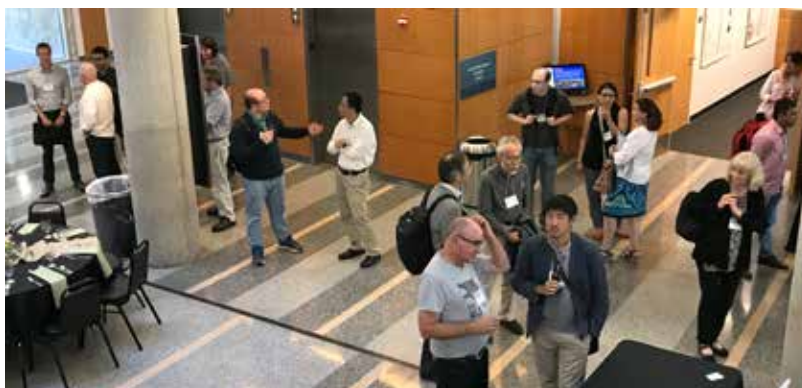
Another outstanding program, coupled with very nice weather, resulted in a highly productive and informative PSNA meeting. All that attended came away with a renewed perspective on the state of phytochemical research around the world, and no doubt appreciated the opportunity to interact with each other in this unique small group meeting program. The PSNA meetings are simply the best opportunity to learn about current research and build and renew collaborative ties. This meeting continued in this fine tradition.



Photos from the PSNA 2017 meeting can be found on our new PSNA Facebook page and you are invited to join our group (<https://www.facebook.com/groups/123656255036110/>). Please send us a request to join the group and we'll get you in the loop.



Professor Lloyd W. Sumner was our meeting organizer and he is part of the University of Missouri's Department of Biochemistry and Metabionics Center. He is also a former president of the PSNA. The Society would like to thank him, his staff, and the Conference and Events Services of the University for organizing a fantastic meeting. It is a lot of work and effort to coordinate all the little details that go into running such a show.



The PSNA 2017 Symposiums included: Imaging, Phenotyping & Metabolomics; Terpenoids; Alkaloids and More Terpenoids; Phytochemistry & Ecology; Lipids; Synthetic Biology and Metabolic Engineering; Industrial Phytochemistry; Food & Nutraceuticals; and Phytochemical Signaling.

The PSNA gratefully acknowledges the support of our PSNA 2017 meeting sponsors including:

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Bond Life Sciences Center, University of Missouri

College of Agriculture, Food & Natural Resources, University of Missouri

Metabolomics Center, University of Missouri

Plant Phenomics Facility Arkansas State University

NSF Plant Imaging Consortium

NSF Plant, Algae, and Microbial Metabolomics Research Coordination Network (PAMM-NET)

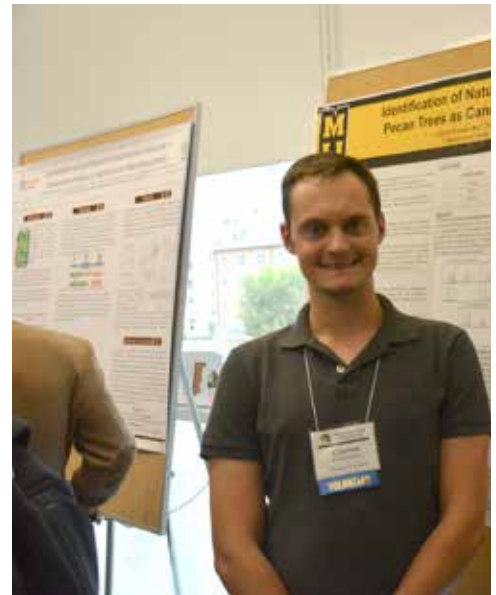
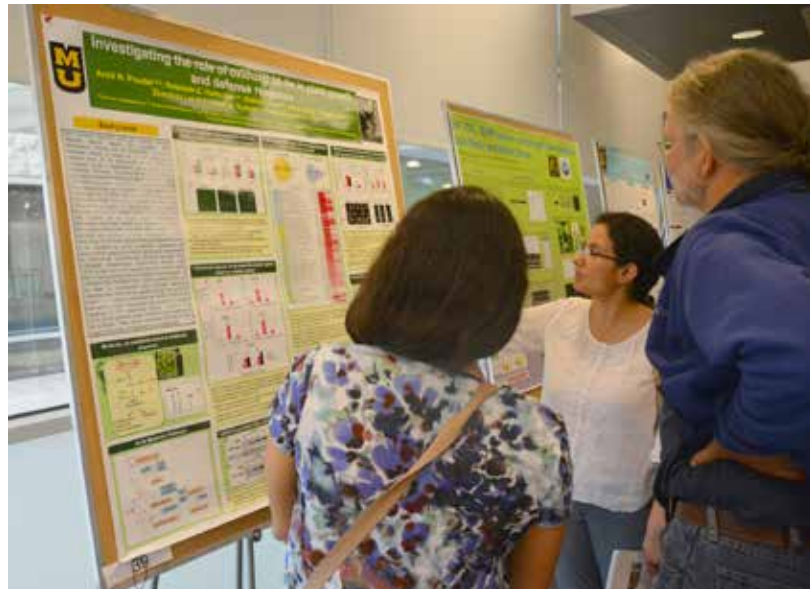
National Science Foundation

Missouri Wines

The mission of the PSNA is to inspire and foster research and development in the chemistry, molecular biology, biochemistry and systems biology of plant metabolites, their impact upon plant, animal and human physiology and pathology, renewable energy, and their economic utilization and value (www.psna-online.org/). PSNA meetings provide participants with exposure to the cutting-edge research of leading international scientists, but remain small enough to offer an interactive and intimate environment conducive to knowledge exchange and strategic discussion.







The **Arthur C. Neish Young Investigator Award** is presented to young scientists who have just started to develop their independent research careers. This year's Neish Awardee was Dr. Daniel K. Owens of the University of Hawaii Manoa. More details about Prof. Owens follows.

Daniel K. Owens earned a BSc

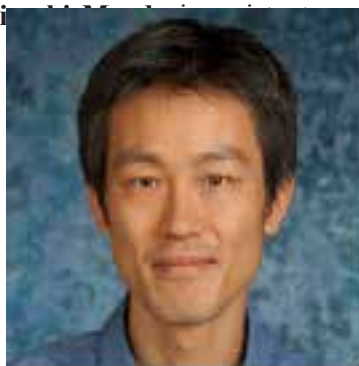


degree with a concentration in biochemistry from East Tennessee State University where he first began research into natural products and flavonoid metabolism by developing a novel assay system for flavanone-3-hydroxylase. He continued working with flavonoids in the lab of Brenda Winkel at Virginia Tech and was awarded his PhD for examining the labile dioxygenase enzymes involved in flavonol biosynthesis in *Arabidopsis thaliana* with a particular focus on the flavonol synthase isozyme family. He then began a postdoctoral position in the lab of Cecilia McIntosh where glucosyltransferase enzymes with the potential to influence flavor chemistry and other aspects of metabolism in Citrus species were identified and thoroughly characterized. Subsequently, he moved to a plant physiologist postdoctoral position with the USDA-ARS Natural Product Utilization Research Unit in Oxford, MS where natural products were investigated as herbicide leads and herbicide resistant crop plants were characterized in the labs of Franck

Dayan and Stephen Duke. Daniel is currently an assistant professor in Molecular Biosciences and Bioengineering at the University of Hawaii - Manoa in Honolulu, HI where his lab is investigating the herbicidal potential of natural products from allelopathic tropical and subtropical plants as well as beginning to study the potential of glucosyltransferase enzymes to interact within the flavonoid metabolon.

The Society's effort to stimulate early careers in phytochemistry was also exemplified by the "**Phytochemistry/PSNA Young Investigator Research Grant Award**", which is sponsored by Elsevier and presented biannually to a dynamic young scientist within ten years of receiving their doctoral degree and currently leading an independent research program in the broader areas of phytochemistry at a university, or at a government or not-for-profit research institute. Last year's winner was Dr. Hiroshi Maeda from the University of Wisconsin-Madison. He returned to this year's meeting to give a keynote talk on his research. More information about Prof. Maeda follows.

Hiroshi Maeda is currently an as-



stant professor in the Department of Botany at University of Wisconsin-Madison. He received BS and MS degree in Biotechnology at Osaka University. He then moved to the US and obtained PhD at Michigan State University in 2006, working with Dr. Dean DellaPenna on tocopherol (vi-

tamin E) functions in photosynthetic organisms. After working as postdoc with Dr. Natalia Dudareva at Purdue University on phenylalanine and benzenoid volatile biosynthesis in petunia flowers, he started his current position at UW-Madison from the fall 2011. Dr. Maeda's laboratory has been investigating evolutionary diversification of the tyrosine biosynthetic pathway in various plant species. Dr. Maeda is the recipient of the 2006 Anton Lang Memorial Graduate Student Award from MSU DOE-Plant Research Laboratory, the 2011 Eric Conn Young Investigator Award from the American Society of Plant Biologists, and the 2016 Arthur Neish Young Investigator Award from PSNA.

A young member's luncheon was held with a panel discussion with Richard Shoemaker of Bruker BioSpin and Vince DeLuca of Brock University, which exposed students and postdocs to various career options.

The annual banquet and awards ceremony was held on Tuesday evening. The PSNA gave out 23 student travel awards and three poster awards, continuing the tradition of providing support to student participation in the PSNA.

2017 PSNA Best Poster Award Winners were:

Lucas Busta, University of Nebraska-Lincoln, Post Doctoral Poster Award

Xiaoyue Chen, Washington State University, Graduate Student Poster Award

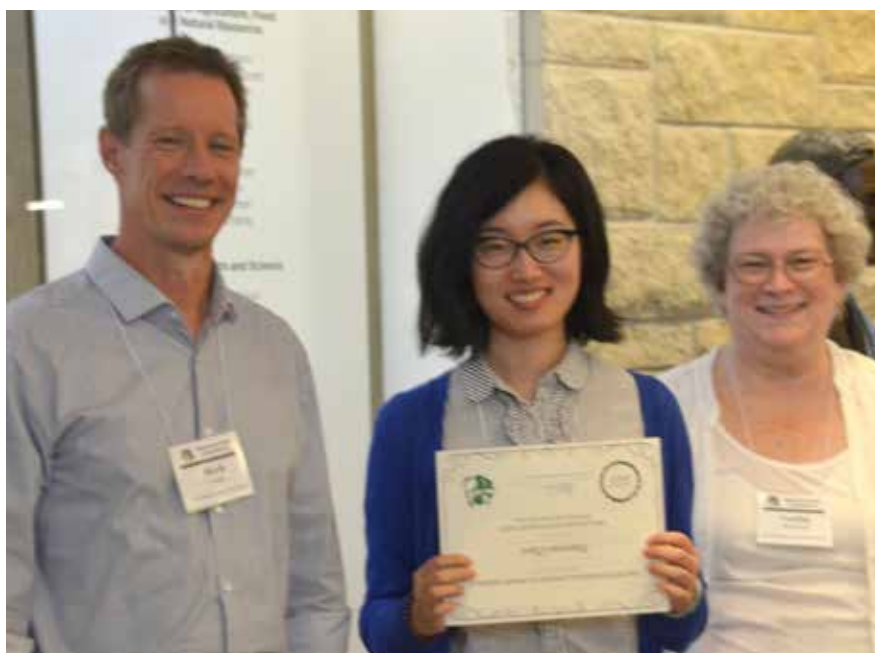
Saraj Lohani, East Tennessee State University, Undergraduate/Master's Poster Award

Characterization of SIP68 for its Role in SA Mediated Stress Signaling in Plant

Saroj Chandra Lohani¹, Abdulka-
reem Odesina¹ and Dhirendra Ku-
mar¹

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SIP68 is an SABP2-interacting pro-
tein identified in a yeast two-hybrid
screen. SABP2 is an important plant
protein which catalyzes the conver-
sion of methyl salicylate to salicylic
acid. Salicylic acid is one of the im-
portant plant hormones that provides
defense at both local as well as distal
uninfected plant organs known as
systemic acquired resistance. SIP68
was characterized as UDP-glucosyl-
transferase (UGT). Since SABP2
has a role in plant defense and
UGT's are involved in many impor-
tant plant processes, there is the pos-
sibility of a role for SIP68 in plant
biotic and abiotic stress signaling.
Full length SIP68 was cloned and
expressed in *Pichia pastoris*. The
recombinant affinity purified SIP68
glucosylates flavonols (kaempferol,
quercetin, gossypetin, fisetin), fla-
vanones (hesperetin, naringenin),
flavones (apigenin, luteolin), and
isoflavones (4-acetone-7 Hydroxy-
6-methoxy-isoflavone) with vary-
ing degree. The highest activity was
detected with kaempferol followed
by quercetin. However, SA was not
a substrate for glucosyltransferase
activity of SIP68. Our aim is to as-
sess the role of SIP68 in abiotic and
biotic stress signaling in the plant.
One of the approaches is to alter the
expression of SIP68 in the plant us-
ing CRISPR-Cas9 gene editing sys-
tem. Transgenic plants with altered
SIP68 expression will be analyzed
for their response to pathogen in-
fection (biotic) and environmental
stresses (abiotic). We also aim to lo-
calize SIP68 inside tobacco cells us-
ing the enhanced Green Fluorescent



Protein (eGFP) fusion. This research will help us to add another clue in understanding the plant defense as well as localization of our protein of interest inside the plant cell.

A (-)-kolavenyl diphosphate synthase catalyzes the first step of salvinorin A biosynthesis in *Salvia divinorum*

Xiaoyue Chen^{1,2}, Anna Berim¹, Franck E. Dayan³, David R. Gang^{1,2}

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Salvia divinorum (Lamiaceae) is a powerful hallucinogenic annual herb used by indigenous cultures of Mexico for medicinal and ritual purposes. It produces an array of bioactive neo-clerodane diterpenoids, with salvinorins A as the major accumulated products of the biosynthetic network. Salvinorin A is a highly selective kappa-opioid receptor agonist. This investigation aimed to identify the enzyme that catalyzes the first reaction of salvinorin A biosynthesis, the formation of (-)-kolavenyl diphosphate ((-)-KPP), which is subsequently dephosphorylated to afford (-)-kolavenol. Peltate glandular trichomes were identified as the major and perhaps exclusive site of salvinorin accumulation in *S. divinorum*, using detection approaches including MALDI-based imaging mass spectrometry (MALDI-IMS). The trichome-specific transcriptome was used to identify candidate diterpene synthases (diTPSSs). *In vitro* and *in planta* characterization of a class II diTPS designated as SdKPS

confirmed its activity as (-)-KPP synthase and its involvement in salvinorin A biosynthesis. Mutation of a phenylalanine into histidine in the active site of SdKPS completely converts the product from (-)-KPP into *ent*-copalyl diphosphate. Structural elements were identified that mediate the natural formation of the neoclerodane backbone by this enzyme and suggest how SdKPS and other diTPSSs may have evolved from *ent*-copalyl diphosphate synthase.

The chemical diversity, activity, and biosynthesis of bioactive carrot polyacetylenes

Lucas Busta¹, Evan LaBrant¹, Patricia Santos², Dylan K. Kosma², Edgar B. Cahoon¹

¹Center for Plant Science Innovation and Department of Biochemistry, University of Nebraska – Lincoln, Lincoln, Nebraska, 68588, USA

²Department of Biochemistry and Molecular Biology, University of Nevada, Reno, Nevada 89557, USA

As our climate becomes more variable and unpredictable, phytochemicals that contribute to plant disease resistance become ever more important research targets. A class of lipid compounds called polyacetylenes are produced in various Apiaceae (e.g. carrot, coriander) and Asteraceae (e.g. sunflower, artichoke) species in response to pathogenesis. Accordingly, it has long been suspected that these compounds contribute to pathogen resistance. If this is indeed the case, knowledge of the genes involved in polyacetylene biosynthesis and accumulation could be a valuable resource for creating crop lines with improved pathogen resistance.

The recent publication of a high quality carrot genome and tran-

scriptomes has enabled functional genomics approaches to exploring polyacetylene structure, function, and biosynthesis in this species. We began with a detailed analysis of carrot polyacetylene chemical structures and their distribution in diverse carrot tissues. After TLC purification, we identified five major (two novel) and seven trace polyacetylenes, with faltarindiol and faltarinol being the major constituents of the whole polyacetylene pool. These compounds accumulate primarily in the peel of the carrot root. Next, we purified faltarinol and faltarindiol found that mycelia of the necrotrophic fungus *Sclerotinia sclerotiorum* exhibited a 25% reduction in growth rate on substrate containing just 20µg/ml polyacetylenes. We then prepared carrot cell cultures and elicited then with mycelial protein extracts from the mold *Phytophthora megasperma*. This treatment caused the accumulation of several different polyacetylene species and, based on RNA-seq, the upregulation of several fatty acid acetylenase genes putatively involved in the initial steps of polyacetylene biosynthesis. We are currently in the process of evaluating the activity of these genes in heterologous systems.

2017 PSNA Travel Award Winners were: Kristen Wilbeck, Peiqiang Wang, Danh Cong Vu, Bal Krishna Thakuri, Kate Simmons, Suhas Shinde, Jihyun Park, Marcos de Oliveira, Nirman Nepal, Armando Magana, Saroj Lohani, Sean Johnson, Md Imdadul Haq, Novianus Efrat, Xiaoyue Chen, Lucas Busta, Korey Brownstein, Aaron Birchfield, Wajid Bhat, Aparajita Banerjee, Shantaya Andrews, Beverly Agtuca, and Abbas Abdoli.



This was an outstanding meeting with a great program. The PSNA would like to thank all who attended this meeting as your attendance was a key to a successful program. The PSNA would also like to thank the organizing committee for putting together a great program and line-up of speakers.

The 2017 Scientific Organizing Committee of the PSNA

Scientific Organizing Committee
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The PSNA poster session featured nearly 50 posters on a wide and interesting range of topics.

Next year's meeting will be held August 4-8, 2018 on the campus of the Universidad Autónoma de San Luis Potosí in San Luis Potosí Mexico. Please mark your calendars now!





The next meeting of the PSNA will be held at the Universidad Autonoma, in San Luis Potosi, Mexico, August 4 – 8, 2018. The meeting will feature the rich phytochemical research of Mexico as well as the great slate of PSNA speakers and presentations. The University has outstanding programs in plant chemistry and biochemistry and is located in historic San Luis Potosi.

“where you can get a glimpse of the past, proudly reincarnated through the finely preserved streets, facades and architecture of our city center”

The PSNA is making a special effort to provide travel awards to encourage the attendance of students for this meeting. Reserve a spot on your calendar now for this exciting phytochemical-focused meeting. Travel to San Luis Potosi is easy, with direct flights from Mexico City, Houston, and Dallas. Registration, lodging, and abstract information will be posted soon after the new year begins.

We look forward to seeing you in Mexico for 2018!

2018 TENTATIVE CONFERENCE PROGRAM

Saturday, August 4, 2018
 Real Plaza Hotel
 Conference Registration
 Welcome Reception



Sunday, August 5, 2018
 Conference Registration, Rogelio Jiménez Auditorium Lobby
 Symposiums 1-4
 Poster Session with Refreshments, Professional Exams and Council Halls

Monday, August 6, 2018
 Plenary Symposiums 5-8
 Poster Session with Refreshments, Professional Exams and Council Halls

Tuesday, August 7, 2018
 Symposiums 9-11
 Presentation PSNA 2019
 Traditional “Callejoneada” through historic downtown

Wednesday, August 8, 2018
 Symposiums 12 & 13
 Tour in Museum Laberinto de las Ciencias y las Artes
 Visit to UASLP Botanic Garden
 Award Banquet, Edificio Central de la UASLP

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