American Society of Pharmacognosy

Winter 2023

Discovering Nature's Molecular Potential

ASP Newsletter: WInter 2023, Volume 59, Issue 4

Angerhofer Named ASP Honorary Member

By Barbara N. Timmermann, PhD

Dr. Cindy K. Angerhofer has been recognized this year as the newest ASP Honorary Member. Honorary members of the Society have a distinguished record in the field of natural products science and are also acknowledged for their service to the ASP. Angerhofer has truly notable accomplishments in the field of natural products research, and in a myriad of ways she has served the Society.

ASP President Tawnya McKee offered her congratulations and noted, "Cindy Angerhofer has spent her career working to advance the science of natural products and as an engaged and valued member of the ASP. She richly deserves her elevation in the Society to Honorary Member!"

Angerhofer pursued a PhD degree in pharmacognosy from the University of Minnesota in the department of the late Professor E. John Staba, who, like Angerhofer, was a former ASP president and honorary member. She then continued as a post-doctoral researcher in ASP member Professor John Pezzuto's group and as an assistant professor in the Department of Medicinal Chemistry and Pharmacognosy at the University of Illinois at Chicago (UIC) College of Pharmacy. While at UIC, she was professionally mentored not only by Pezzuto, but other pharmacognosy professors, like Geoff Cordell, Norman Farnsworth, Harry Fong, Douglas Kinghorn, and Doel Soejarto who introduced her to the ASP, encouraged her to publish in the *Journal of Natural Products*, and supported her successful NIH and World Health Organization grant applications.

Dr. Cindy K. Angerhofer

After eight years at UIC, she shifted her career in a

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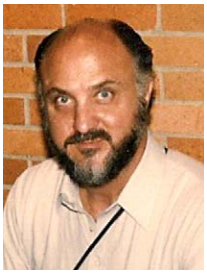
Cindy K. Angerhofer



Ara Der Marderosian

Peter H. Seeberger

Serge Fobofou

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For more information see the services website.

www.pharmacognosy.us/jobs/

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PHOTO: CUNY

Editor's Corner

American Society of Pharmacognosy

By Edward J. Kennelly, PhD

As I write this column, the winter solstice has just passed, and I'm looking forward to longer and eventually warmer days here in New York. This issue of the newsletter begins with a focus on the honors bestowed upon several ASP members, and that seems like an appropriate way to begin the new year.

Dr. Cindy Angerhoffer is well known to many ASP members for her sheer devotion to the Society and her leadership in the consumer use of natural products. After serving the ASP in many capacities from organizing annual meetings to serving as ASP president, she now has been bestowed the title of Honorary Member. Congratulations! ASP also welcomes two new Fellows, Drs. Nadja Cech and Sarah O'Connor. I was struck when Nadja mentioned in the article that she was encouraged to join the Society some time back by her colleague Dr. Nick Oberlies. I think it shows how important members can be in recruiting and retaining new members, and I hope you will spread the news about ASP to your colleagues in natural products who are not yet ASP members.

It's significant to consider that in the last five years the number of women being recognized for awards and serving in the highest positions of ASP has increased significantly. From my perspective, there has been a huge change in the society. The Diversity Equity and Inclusion Committee, now fully recognized as a standing committee of the ASP, has worked tirelessly for inclusion and more diversity in all aspects of the Society. It seems clear that their work, and the work of so many other like-minded members, including ASP President Tawnya McKee, is having a huge impact on the Society. Although there is much to celebrate, there is still significant work to be done.

We finish our coverage of 2023 ASP awardees with articles about the Tyler Prize and Suffness Award. Tyler honoree Robert Verpoorte's work in plant natural product chemistry has spanned five decades and used cutting edge technologies to answer questions about some of the most important plants used as herbal medicines. ASP Business Manager Laura Stoll has recently sent out nomination requests for the major ASP awards. I encourage all ASP members to consider if they know people to nominate. This process takes time but is a meaningful way to recognize top scientists in our field.

ASP received sad news that long-time member Dr. Ara Der Marderosian passed away in the fall. Dr. John Beutler has written a beautiful piece, accompanied by quotes from many ASP members. Der Marderosian led a life of fascinating scientific and artistic pursuits.

The 2024 annual meeting will be a combined meeting with ASP's European and Asian-aligned societies. This meeting will take place in the beautiful and historic city of Krakow. Many of the deadlines are sooner than usual, so please read the article and start making plans now if you want to attend.

I hope you have a wonderful and productive 2024, and I look forward to seeing many of you in Poland this summer! ■

Angerhofer Named ASP Honorary Member

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"Cindy Angerhofer has spent her career working to advance the science of natural products and as an engaged and valued member of the ASP. She richly deserves her elevation in the Society to Honorary Member!"

—Tawnya McKee

new direction and, in 1997, became the director of research and product development for the natural personal care company Tom's of Maine. For five years, Angerhofer led the development of plant-based topical cosmetics and over-the-counter products in addition to a novel line of herbal dietary supplements.

In 2003, she moved back to Minnesota to join Aveda Corporation as director of botanical research, which was followed by a promotion to executive director in 2009. Since 2018 she served as the executive fellow of botanical research at Estee Lauder Companies/ Aveda until her retirement in July 2023. Her long and successful career in the development of personal care products emphasized basic and applied research on botanical ingredients by performing phytochemical analysis, bioassays, and sustainable procurement of plant biomass.

It is apparent that over the years Angerhofer has changed and elevated the quality and standards bar for the cosmetic/personal care industry and the way it is perceived by the public today. She is a promoter of natural compounds and botanicals in the development of functional cosmetic products and contributed to the international visibility and quality of botanical products.

Angerhofer's recognition by her colleagues over the years is clear since she has won several important honors and awards. Notably, she was the recipient of the ASP 2015 Varro E. Tyler Prize that recognizes an individual who has made outstanding scientific contributions to the broad field of dietary supplements, with special emphasis on botanicals. Additionally, she was chosen as an ASP Fellow in 2020 for continuing high-level contributions in the field of natural products.

Angerhofer has played important roles in professional service and in consulting roles not only for the ASP but also for the American Botanical Council and the American Herbal Products Association. She has served as ASP president (2016-2017) and was a member of the ASP Executive Committee twice (2006-2009; 2015-2018). She participated in the organizing committees of several ASP annual and interim meetings over the years, namely the annual meetings in Portland, ME (2007), Oxford, MS (2014), and Madison, WI (2019), and the interim meetings in Costa Rica (1994) and Asilomar (2001). If you have attended meetings of the ASP, you know that she is a faithful attendee and a tireless advocate for our Society.

Angerhofer joins twelve other ASP Honorary Members including Drs. John Cardellina II, Alice Clark, Geoffrey Cordell, Gordon Cragg, Harry Fong, Edward Kennelly, Ikhlas Khan, Douglas Kinghorn, David Newman, Roy Okuda, James Robbers, and Barbara Timmermann.

Over time, Angerhofer has served the ASP splendidly as a loyal and productive member. There is no question that she has been a great ASP ambassador by promoting its outreach and visibility and is very deserving to be the newest ASP Honorary Member. On behalf of the entire Society, we congratulate Cindy for this special recognition! ■

It is apparent that over the years Angerhofer has changed and elevated the quality and standards bar for the cosmetic/personal care industry and the way it is perceived by the public today.

Cech and O'Connor Named ASP Fellows

By Vanessa Nepomuceno, PhD

The ASP is pleased to announce the selection of two new ASP Fellows, Drs. Nadja Cech and Sarah O'Connor. Fellows are considered among the highest honor that the ASP can bestow on a research scientist in the field of pharmacognosy. Fellows serve the ASP by providing counsel in scientific and professional matters. This illustrious recognition is a treasured, time-honored ASP tradition.

Cech is a Patricia A. Sullivan Distinguished Professor of Chemistry at the University of North Carolina at Greensboro (UNCG). Cech's interest in the use of plants for medicine began very early, stemming from her involvement as a child in establishing one of the world's largest medicinal plant and seed companies, a company still operated by her family today. She received her doctorate in analytical chemistry from the University of New Mexico, where she focused on electrospray ionization mass spectrometry. In 2001, she joined the faculty at UNCG. She is also currently a member of the Center of Excellence for Natural Product Drug Interaction Research and co-director of the Medicinal Chemistry Collaborative. Cech and her team focus on the development of metabolomics as a tool to understand synergy and complexity in biologically active botanical natural products. Cech's work has been continuously funded by the National Institutes of Health for more than 20 years, and she also was awarded the Jack L. Beal Award from the *Journal of Natural Products* in 2011.

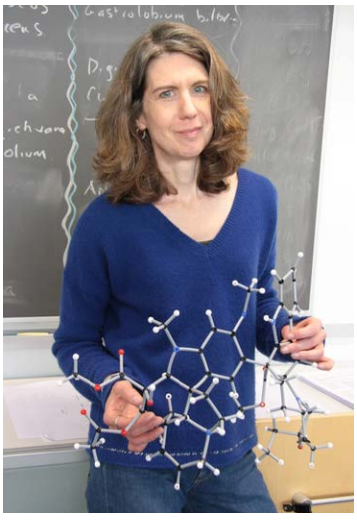
Dr. Nadja Cech
PHOTO: CASSANDRA QUAVE

Cech remembered fondly her introduction to ASP. "Many years ago, Nick Oberlies encouraged me, a mass spectrometrist who dreamed of studying natural products, to attend an ASP meeting. He told me 'The ASP would welcome you.' What a great decision that was! I have, indeed, always felt welcomed by the ASP community, and I couldn't be more honored to have been selected as an ASP Fellow."

O'Connor is the director of the Department of Natural Product Biosynthesis at the Max Planck Institute of Chemical Ecology in Jena, Germany. O'Connor earned her PhD in organic chemistry at the Massachusetts Institute of Technology (MIT) and completed her postdoctoral research at Harvard Medical School in the laboratory of the late Christopher T. Walsh. She held professorships at MIT and the University of East Anglia in the UK before continuing on to become a project leader at the John Innes Centre in Norwich. In 2019, she joined the Max Planck Institute and became an honorary professor at the University of Jena in 2022.

Her current research interests include the discovery of novel plant biosynthetic genes, investigating the biosynthetic pathways of terpenes to understand their mechanism and evolution, and exploring ways to reconstitute individual branches of plant pathways. O'Connor is the recipient of several awards, including the 2023 Leibniz Prize for fundamental discoveries in plant natural product biosynthesis, a prestigious German research award.

Fellows are considered among the highest honor that the ASP can bestow on a research scientist in the field of pharmacognosy.



Dr. Sarah O'Connor

In addition, she serves as an associate editor for the *Journal of Biological Chemistry*.

O'Connor noted, "I am so honored to be included as one of the ASP Fellows. Plants have been a source of medicine for thousands of years, and I have been privileged to witness in the last 20 years how far we have come in terms of harnessing and understanding the ways plants make these important molecules."

Fellows are chosen because of their extraordinary contributions in the field of natural products and serve as global ASP advocates. A list of current ASP Fellows can be found here. The Society celebrates and congratulates these exceptional individuals who have dedicated themselves to advancing natural products research. We look forward to their continued success! ■

In Memoriam:
Ara Harold Der Marderosian

By John Beutler, PhD

Long-time ASP member Dr. Ara Der Marderosian died September 11, 2023 in Smithfield, Rhode Island. He was 88. Der Marderosian was a devoted ASP member, serving on committees, contributing to the *Newsletter,* and attending annual meetings, often with his trusty single-lens reflex camera around his neck. Many of the wonderful early photos of ASP annual meetings in the archives were taken by Der Marderosian. He will be remembered not only for his contributions to pharmacognosy but also for his keen sense of humor and passion for the arts.

Der Marderosian (front center) at the first joint meeting between the ASP and the Society for Medicinal Plant Research held in Vienna, Austria, 1970.

On behalf of the ASP, President Dr. Tawnya McKee sent her condolences and noted, "Der Marderosian was a long-time active member of the ASP and one of the few members who actively researched hallucinogens and poisons in addition to his expertise in the alkaloids from morning glory varieties and many other research interests. He regularly attended ASP meetings throughout his career. The ASP extends its sympathy to his wife, Evelyn, and son, Ronald, and the rest of their family on their loss."

Der Marderosian was born in Somerville, Massachusetts. Like several other early members of ASP, he graduated from the Massachusetts College of Pharmacy with a BS and went on to receive his MS in pharmaceutical chemistry from MCP in 1958. He received his PhD in pharmaceutical chemistry at the University of Rhode Island in 1964 under the late ASP president Professor Heber W. Youngken, Jr. working on potential hallucinogenic indole alkaloids of several species and varieties of morning glories.[1]

In 1964, Der Marderosian joined the faculty at Philadelphia College of Pharmacy and Science (PCPS), later called the University of the Sciences in Philadelphia, where he spent the rest of his academic career, rising through the ranks to become Professor of Pharmacognosy in the Department of Biology and Research Professor of Medicinal Chemistry in the Department of Chemistry. He was also Scientific Director of the Complementary and Alternative Medicines Institute at PCPS. He taught at PCPS for 56 years before his retirement in 2010.

His diverse research interests included hallucinogenic botanicals, the phytochemistry and pharmacology of medicinal and poisonous plants, marine pharmaceuticals, drugs of abuse, and nutraceuticals. During his career, he continued his work with morning glory alkaloids from *Argyreia nervosa*;[2] several plants of this species, along with peyote cacti and *Cannabis*, were memorable occupants of the rooftop greenhouse at PCPS, grown under a Drug Enforcement Agency license. A highlight of his pharmacognosy laboratory course was when samples from the PCPS opium collection from the 19th century were displayed. Der Marderosian's interest in the history of pharmacognosy led him to curate the PCPS collection of pharmaceutical antiques, many donated from the estate of Eli Lilly. In a 1980 article, Der Marderosian and his coauthors noted that the collections "…recreate the colorful past of pharmacy, a past admirable for its innovative drive to refine the arts and sciences of medicinal therapy."[3]

His students explored the pharmacognosy of a wide variety of organisms, from local medicinal plants to subtropical marine invertebrates. For example, his laboratory worked on *Panax trifolius*, growing in the woodlands of Pennsylvania;[4] *Banesteriopsis* in a collaboration with the late Harvard Professor Richard Schultes;[5] and the alkaloid securinine from *Fluggea suffruticosa* for amyotrophic lateral sclerosis patients.[6] Der Marderosian published many scientific contributions including books and magazine articles in pharmacy publications, and he was the senior editor of the *Review of Natural Products*, which eventually extended to eight published editions with 2052 pages and over 400 herbal monographs.

He was a life-long advocate for the medicinal importance of

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plants. In response to a 2007 *Chemical and Engineering News* article on the importance of plant compounds as drug sources,[6] he wrote a letter to gently admonish the editor and promote the work of the ASP. "It is a shame, however, that the article did not mention the numerous European and Asian phytochemical academic organizations that have been promoting the field for decades…A visit to the ASP website (www.phcog.org) will be instructive to all. I hope this hint will encourage the never-ending need to study nature for all its hidden chemical treasures. It is certainly not a new idea."[7]

Der Marderosian graduated 11 PhD students and 12 masters' students. I was Der Marderosian's third PhD student, and he introduced me to ASP. Ara was a scientific omnivore, which fit right in with my proclivities. I studied the toxic *Amanita* mushrooms as part of my doctoral thesis for their variation in content of tryptamines and cyclopeptides.[8] He was also very generous. When I started on an independent career at Auburn University, he gave me *Flueggea* plants to grow, and I isolated securinine and its congeners, assigned the NMR,[9] conformation,[10] and later worked out the central nervous system target at the University of Texas Medical School at Houston.[10] This was quite a gift! He showed me how important it was to collaborate; that was probably his greatest gift to me.

Another of his doctoral students, ASP Vice President Dr. Joseph Betz, reminisced, "Ara was a guiding light in my career and my life. My path started with degrees in zoology and marine biology, where I studied toxic marine dinoflagellates. This led to a recommendation from my advisor at Long Island University to go to PCPS and study marine pharmacognosy with Ara. His influences shaped my approach to science and to life. An aficionado of the pun and the shaggy dog story, he was always smiling and optimistic, qualities that influenced my own approach to work and life. I will miss Ara greatly. He was a world class artist, musician, scientist, and friend."

Betz recalled that Der Marderosian made sure that his students were exposed to the breadth and depth of pharmacognosy at all levels. Der Marderosian was considered by many students, colleagues, and even the media as the "go-to" person for questions regarding natural products, dietary supplements, foods as medicines, and nutrition, not just because of his own personal expertise, but also because no one else came close to knowing what he did.

At times, Der Marderosian was featured in the popular media alerting the public of various public health concerns. For example, after testifying in court as an expert witness in several drug cases, including a seizure by the Pennsylvania State Police of a large quantity of cocaine authenticated through testing in his laboratory, Der Marderosian appeared on a local Philadelphia television station. Der Marderosian and Betz were on television

Der Marderosan (second, right) with Maynard Quimby and other colleagues at the 1974 ASP Annual Meeting.

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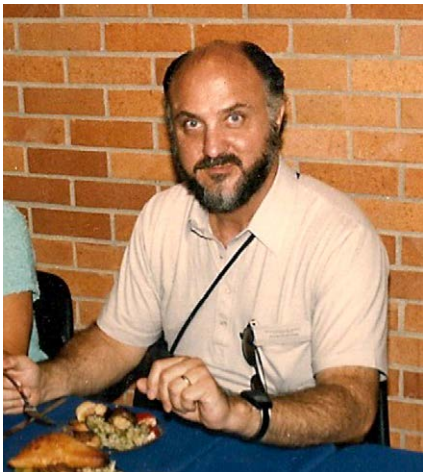
in the 1980s with Mr. Herb Denenberg, a well-known Philadelphia consumer reporter, outraged by the presence of nicotine containing plastic cigarettes that looked like children's toys.

Dr. Carrie Waterman, a later Der Marderosian doctoral student, worked with him on African ethnobotany, greatly appreciated his mentorship, and fondly remembered that "Ara played a vital role in my career... Ara's passion for plants and people carries on through my work and many of the other students he mentored and influenced. Ara was absolutely incredible!"



Der Marderosian at the 1986 ASP Annual Meeting in Ann Arbor, Michigan

Der Marderosian was remembered by many of his friends and colleagues for his many talents in fields far flung from science. His enthusiasm for photography is well known by many who met him at ASP meetings. At the 2008 joint pharmacognosy meeting in Athens, *ASP Newsletter* Editor Edward Kennelly remembered spotting Der Marderosian snapping photos of members in a stunning historic amphitheater backdrop. As recently as 2017, Der Marderosian and his daughter, Laura Torcomian, wrote for the *ASP Newsletter* on food fraud; Torcomian clearly carried on the Der Marderosian tradition of not only scientific writing, but also of art, as she drew a colorful original illustration for the *Newsletter*.[11]

Der Marderosian had many other artistic talents, including calligraphy, jewelry making, painting, and scrimshaw.[12] His musical interests included a deep-held passion for playing Armenian music, with proficiency with the clarinet and oud. He performed with the Boston Orientales, the Hellenic String Band, and at various folk music events. The Pennsylvania State Folklife Program listed him as a traditional Armenian music performer. Beyond the arts, he enjoyed bicycling, gourmet cooking, and pharmaceutical and botanical philately.[12]

ASP member and founder and executive director of the American Botanical Council, Mr. Mark Blumenthal, has a long-standing tradition of calling friends and colleagues on their birthdays and remembers these interactions with Der Marderosian fondly. "I will always cherish my calls to him on his birthday every January so we could share information, jokes, and puns – often bad puns – but he had no reservations about them. To Ara, an important part of life was about fun. It's as if he was an embodiment of the true meaning of *fundamental* – fun should always come before *da mental*!"

Beyond the exceptional depth and breadth of expertise on so many topics, Der Marderosian demonstrated wonderful personal qualities that were greatly appreciated by colleagues and friends. At PCPS, he encouraged students and colleagues to socialize more and share experiences. For example, when he noticed that few of his colleagues convened in the PCPS faculty dining room, Der Marderosian implored them to meet for lunch there, not only for good conversation but also to avoid having the university take away the underused space for another purpose. Dr. Daniel Hussar, Dean Emeritus and Remington Professor at PCPS, remembered at first, "There were less than ten of us who got together for lunch on a regular basis. However, many of the faculty who did not regularly attend did recognize the value of such gatherings, and we started convening in the late afternoon on a periodic basis in what was designated as the 'Ara hour' in tribute to his advocacy for communication among faculty colleagues." Another PCPS colleague Professor Emeritus Roger Schnaare fondly remembers, "Lunch usually had a joke/story telling competition – Ara usually won."

Der Marderosian is survived by his wife of 62 years, Evelyn, his son, Ronald (Maral), three grandchildren, and two brothers. His daughter, Laura Torcomian (John), predeceased him. ■

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Der Marderosian was considered by many students, colleagues, and even the media as the "go-to" person for questions regarding natural products, dietary supplements, foods as medicines, and nutrition, not just because of his own personal expertise, but also because no one else came close to knowing what he did.

In Memoriam: Ara Harold Der Marderosian

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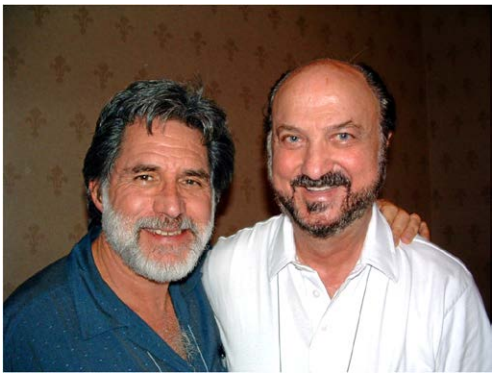
"Ara was a guiding light in my career and my life. My path started with degrees in zoology and marine biology, where I studied toxic marine dinoflagellates... His influences shaped my approach to science and to life."

—Dr. Joseph Betz

Der Marderosian enjoyed keeping up with colleagues and former students, often at ASP annual meetings.

George Hatfield (left) with three former doctoral students of Der Marderosian, John Beutler, Bill Obermeyer, and Joe Betz.



With Mark Blumenthal of the American Botanical Council (BOTTOM LEFT)

With Harry Fong, professor emeritus at University of Illinois, Chicago (BOTTOM RIGHT).

Bottom photos taken at the 2007 ASP Annual Meeting in Portland, Maine.

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Verpoorte Awarded the 2023 Varro E. Tyler Prize

By Young Hae Choi, PhD

Robert Verpoorte, Emeritus Professor at the Institute of Biology of Leiden University, was honored with the Varro E. Tyler Prize at the 2023 ASP Annual Meeting in Bethesda, Maryland. The Tyler Prize, named in honor of the first president of the ASP, is considered to be one of the top recognitions given by the Society for distinguished research in dietary supplements, especially botanicals.

Verpoorte's remarkable contributions to natural products research has spanned five decades, encompassing over 830 scientific publications in the forms of research papers, reviews, books, and book chapters. His impact extends beyond the sheer volume of publications; his chosen research topics have served as fundamental pillars in contemporary natural products research. Delving into Verpoorte's research journey unveils the evolution of natural products research over the past half-century. His enduring influence is not confined to his extensive body of research; rather, it serves as a catalyst, sowing the seeds for various branches within the field of pharmacognosy. Far from fading into the past, his contributions continue to thrive, shaping and nurturing diverse facets of pharmacognosy. ASP President Dr. Tawnya McKee, reflecting on his many contributions to botanical research, stated, “Rob Verpoorte has been a highly productive and respected member of the ASP and richly deserves the 2023 Tyler Prize."

Verpoorte, born in Eindhoven, the Netherlands, earned his PhD from the University of Leiden under the guidance of Professor Dr. A. Baerheim Svendsen from the Faculty of Pharmacy at Leiden University and Professor Dr. F. Sandberg from the Faculty of Pharmacy at Stockholm University, Sweden and involved phytochemical studies on African *Strychnos* species.

Verpoorte's tenure at Leiden University began in 1976 as a senior faculty member in the Faculty of Pharmaceutical Sciences. In 1987, he was promoted to the position of professor and assumed leadership of the Department of Pharmacognosy/Plant Cell Biotechnology. In 2003, his research group transitioned to the Institute of Biology within the same university. From that point until his retirement, he continued to hold the position of professor and served as the head of the Department of Pharmacognosy/Plant Cell Biotechnology, Section Metabolomics, at the Institute of Biology, Leiden University. Verpoorte officially retired in 2011 and currently holds the title of Emeritus Professor at the Natural Products Laboratory, Institute of Biology, Leiden University.

The Tyler Prize, named in honor of the first president of the ASP, is considered to be one of the top recognitions given by the Society for distinguished research in dietary supplements, especially botanicals.

Verpoorte (far left) and colleagues visiting Dr. N. G. Bisset’s laboratory at Chelsea College, London, UK in 1975.

His enduring influence is not confined to his extensive body of research; rather, it serves as a catalyst, sowing the seeds for various branches within the field of pharmacognosy.

Verpoorte’s research pursuits, akin to those of the legendary “Flying Dutchmen," transcended singular domains, spanning a diverse array of topics within natural products.

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Verpoorte Awarded the 2023 Varro E. Tyler Prize

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Verpoorte's research pursuits, akin to those of the legendary "Flying Dutchmen," transcended singular domains, spanning a diverse array of topics within natural products. These areas included plant cell biotechnology, biosynthesis, chromatography, metabolomics, genetic engineering, green technology, and the isolation of novel biologically active compounds from natural sources.

Verpoorte (far left) and colleagues taken in the 1980s in Leiden, the Netherlands.

These areas included plant cell biotechnology, biosynthesis, chromatography, metabolomics, genetic engineering, green technology, and the isolation of novel biologically active compounds from natural sources. Such diversity stemmed from his insatiable intellectual curiosity. Verpoorte is especially well-known for his pioneering contributions in the biosynthesis of indole alkaloids, NMR-based metabolomics, and green chemistry utilizing natural deep eutectic solvents within the realm of natural products research.

His scientific engagement extends beyond research, encompassing a commitment to education and scientific communication. Since 1990, he has played a significant international role in various courses related to natural product research, spanning biotechnology, biosynthesis, separation, and metabolomics. Additionally, his active participation in conferences and scientific meetings, often delivering more than a dozen lectures annually, underscores his dedication to knowledge dissemination. Furthermore, Verpoorte has served as an esteemed editorial board member for numerous scientific journals. Notably, he held the position of editor (1996-2002) and editor-in-chief (2003-2016) for the *Journal of Ethnopharmacology,* editor-in-chief (since 2001) of *Phytochemistry Reviews*, as well as executive editor (since 2006) for *Biotechnology Letters*.

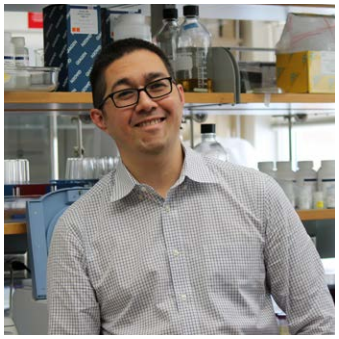
Verpoorte is considered by many colleagues as an exceptionally gifted scientist. The epitome of excellence in scientific endeavors requires more than a fervent passion for the pursuit of truth; it demands the qualities of being a keen listener, astute observer, thoughtful thinker, and articulate presenter. Verpoorte consistently embodies these attributes, maintaining a posture of attentive listening to colleagues and students, astutely observing nuances that might elude casual observation, approaching scientific problems with innovative thinking, and articulating his thoughts in a clear and accessible manner.

Guided by his favored scientific axiom, "There are no negative results, only unexpected ones," his multifaceted approach significantly contributed to the diversity and innovativeness evident in his research endeavors. Moreover, he exhibited a strong commitment to imparting his knowledge to students, with a particular focus on those in countries facing developmental challenges or societal restrictions. This is anchored in his belief that "the way to change the world is through education, nothing else." His educational initiatives bore substantial fruit, resulting in the supervision of over 70 doctoral theses. Additionally, he generously hosted numerous postdoctoral researchers and visiting scientists within his research group.

In recognition of his outstanding accomplishments, Verpoorte has been honored with numerous scientific distinctions, honorary doctorates, and professorships, including this Varro Tyler Prize from the ASP. However, these accolades, impressive as they may be, only partially capture his profound dedication to science and education. Even in retirement, he remains actively engaged in advancing scientific knowledge, receiving invitations to participate in various scientific meetings worldwide. Furthermore, he serves as a frequent lecturer, addressing audiences on subjects encompassing natural products chemistry, biotechnology, metabolomics, and green technology. ■

Kwan and Loesgen Receive Matt Suffness Awards

By Marcy J. Balunas, PhD



LEFT: **Dr. Jason Kwan** PHOTO: UNIVERSITY OF WISCONSIN-MADISON

RIGHT: **Dr. Sandra Loesgen** PHOTO: UNIVERSITY OF FLORIDA

Drs. Jason Kwan and Sandra Loesgen were each bestowed the Matt Suffness Award at the 2023 ASP annual meeting in Bethesda and presented invited talks. The Suffness Award is the highest honor ASP confers to younger members.

Kwan is an associate professor of pharmaceutical sciences at the University of Wisconsin-Madison and has made a significant impact in the field of natural products through his genome-centric approach to his work on uncultured symbiotic microbes. Through a focus on the entire genome of small molecule-producing symbionts, his group has uncovered significant insights into numerous symbiotic systems and their evolution. His recent efforts are focused on the important area of alleviating the supply issue inherent to all small molecules made by uncultured organisms.

Kwan began his career in natural products as a PhD student under Dr. Hendrik Luesch, where he isolated and characterized numerous molecules from marine cyanobacteria and published an impressive 13 papers. He graduated in 2010, moving on to conduct his postdoctoral research with Dr. Eric Schmidt at the University of Utah, where he worked on metagenomics of the marine tunicate *Lissoclinum patella*, with the aim of determining the biosynthetic pathway for the highly cytotoxic compounds, the patellazoles.

Since starting his independent career at UW-Madison in 2013, Kwan has continued to be interested in symbionts that make defensive natural products, and he has published an impressive suite of high-profile manuscripts. He also has received extensive federal funding for his research and has mentored a cadre of outstanding trainees. As one of his colleagues Dr. Tim Bugni has indicated, "Jason established a strong, well-funded research program built on innovative ideas to tackle challenging programs."

Loesgen is an associate professor of chemistry and an affiliate associate professor of medicinal chemistry at the Whitney Laboratory for Marine Biosciences at the University of Florida. Loesgen has developed an impressive research program centered on natural products drug discovery, primarily from marine fungi. Her research program is known for discovery, identification, and biological assessment of novel fungal metabolites but also encompasses synthetic chemistry, metabolomics, and assay development. Her previous mentor, ASP Fellow Dr. Carole Bewley, says, "She has excelled in discovery of new bioactive fungal metabolites and applies clever and rigorous spectroscopic and computational methods to determine absolute configurations."

Loesgen began her career with a PhD in organic chemistry and pharmacology from the Georg-August Universität Göttingen in Germany. After graduating in 2007, she undertook a postdoctoral fellowship in the laboratory of ASP Fellow Dr. William Fenical at the Scripps Institution of Oceanography at the University of California San Diego. Loesgen then continued her postdoctoral training with Bewley at the National Institutes of Health before beginning her independent career in 2019 in the chemistry department at Oregon State University. She moved to the Whitney Laboratory for Marine Biosciences at the University of Florida in 2019 and has continue to flourish, expanding her research program to understand the diversity and bioactivity of microbial metabolites, emphasizing those with potential medicinal applications. In addition to fantastic publications and research funding, Loesgen has an impressive number of patent filings, a clear demonstration of the success of her approach. In addition to her research success, she has had great success in mentoring and training the next generation.

The Matt Suffness Award recognizes the contributions of younger natural product scientists and provides a special forum for these ASP members to present research results. The award is named after Dr. Matt Suffness who served as the ASP president in 1989-90 and initiated the Young Investigator's Symposium, which now bears his name. Suffness is best known for his commitment to the development of Taxol as an anticancer drug, and he is remembered for his tireless support of natural products research, his efforts to facilitate multidisciplinary research efforts, and his accessibility and sound advice. He was particularly helpful to younger investigators trying to establish a successful research program and career. It is clear that both Kwan and Loesgen are highly deserving of this recognition as burgeoning leaders in natural products research. ■

Plan Now for ICNPR2024 in Krakow

By Stefan Gafner, PhD and Krystyna Skalicka Woźniak, PhD

The organizing committee invites all ASP members to join ICNPR2024 in beautiful Krakow, Poland. The registration site opened in November, and abstracts for oral or poster presentations can now be submitted via **icnpr2024.org**. Please note that the registration and abstract submission deadlines are earlier than usual for regular ASP meetings. The date for both deadlines is **February 15, 2024**.

Historic Krakow

The scientific program begins with a lecture by Peter H. Seeberger (Max Planck Institute, Potsdam, Germany), whose research focuses on the chemistry and biology of carbohydrates, carbohydrate vaccine development and continuous flow synthesis of drug substances. Another highlight will be the lecture by Ikuro Abe (University of Tokyo, Japan) who will present data on engineering natural products biosynthesis. ASP invited speakers include the 2024 Norman R. Farnsworth ASP Research Achievement Awardee David Sherman and Varro E. Tyler Prize awardee Paula N. Brown. A list of confirmed speakers can be accessed at **icnpr2024.org/Speakers**.

The conference includes four pre-conference workshops presented by the Botanical Safety Consortium (BSC), the Early Career Researchers (ECR), Animal Healthcare & Veterinary Phytotherapy, and the African Research Network. Please plan to arrive early enough to attend one of these workshops. Those attending meetings of the Society for Medicinal Plant and Natural Products Research (GA) may be familiar with some of the workshops, especially the Early Career Researchers Workshop, formerly known as the Young Researchers' Workshop, which allows junior members to present their research in front of a sizeable audience. The best presentations are then selected to be featured as part of the regular conference program. This is an opportunity for ASP members who are PhD students or early-stage post-docs (within their first year) to submit an abstract for a short talk.

The BSC workshop participants will explore routes of botanical exposure, interactions with drugs, dose-response nuances, acute and chronic toxicity, and a range of potential health endpoints. With hands-on graphing exercises, cutting-edge toxicity assessment tools, and interactive case studies — including challenges like product adulteration and new botanical discov-

The scientific program begins with a lecture by Peter H. Seeberger (Max Planck Institute, Potsdam, Germany), whose research focuses on the chemistry and biology of carbohydrates, carbohydrate vaccine development and continuous flow synthesis of drug substances.

Prof. Peter H. Seeberger

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Plan Now for ICNPR2024 in Krakow

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The conference includes four pre-conference workshops presented by the Botanical Safety Consortium (BSC), the Early Career Researchers (ECR), Animal Healthcare & Veterinary Phytotherapy, and the African Research Network.

Submit abstracts for oral or poster presentations via icnpr2024.org by February 15, 2024.

ABOVE: **The Krakow Barbican is a historical landmark and remnant of the city's outer fortifications. The gateway leads into the Old Town and was once part of a defensive barrier around the walled city.**

PHOTO: WIKIPEDIA

eries — the course provides a comprehensive look into the complexities of botanical safety, making it essential for researchers, practitioners, and enthusiasts.

Information on transportation, accommodation, and city highlights are all available on the ICNPR2024 website. Current costs for flights from the USA to Krakow are in the range of US $1,000 – 1,800. Alternatively, participants can fly to Warsaw (tickets to the capital are generally less expensive) and then take the train to Krakow, which is about a 2–4-hour ride and costs approximately US $50.

With close to 777,000 inhabitants, Krakow is one of the largest and one of the oldest cities in Poland. It is a wonderful place to discover for those interested in history. The earliest settlements in the current location of Krakow date back to the 4th century. By the 10th century, the city was one of Europe's leading trading centers. After being destroyed by invading Mongols, the entire city was almost completely rebuilt in its previous form. During the 12th and 13th centuries, a 1.9 mile defensive wall, complete with 46 towers and seven main entrances, was built around the city. In the subsequent centuries, it became a center for arts and science. Krakow remained the capital of Poland until 1596, when Sigismund III moved the government to Warsaw.

Becoming the object of interest by neighboring forces, Poland was divided several times among the Austrian Empire, Russian Imperium, and the Kingdom of Prussia. Poland was granted statehood again in 1918, only to be separated once more at the beginning of World War II. The German invasion of Poland took a heavy toll, not only on the Polish people but also on many objects of cultural value which either were moved to Germany or were destroyed by the invaders. Several important historical sites and museums have been created/conserved to remember the atrocities and to honor those who suffered and died because of the German and Russian occupation of Poland during World War II.

The organizers offer several tour options that can be booked online. These include a trip to the UNESCO-listed complex and former concentration camp Auschwitz-Birkenau. This visit comprises of a guided tour of the prison dormitories, gas chambers and exhibitions at Auschwitz I and the remains of Birkenau's watchtowers, fences, barracks, and gas chambers. Another tour offers a visit to the enamel factory owned by German entrepreneur Oskar Schindler, who saved about 1,200 Jewish people from almost certain death during World War II by moving them from a concentration camp to his new factory in Brünnlitz. The enamel factory became world famous due to the 1993 movie "Schindler's List" directed by Steven Spielberg.

Two additional guided tours allow visitors to experience the Rynek Underground Museum or the Wieliczka salt mine. Included on the UNESCO World Cultural Heritage List, the salt mine is composed of a vast labyrinth of tunnels and chambers, some of which are decorated with beautiful statues, chandeliers, and intricate art carved directly into the rock walls of the mine.

Currently, Krakow is the artistic and intellectual center of southern Poland, and one of the most popular tourist spots in Europe. The vibrant heart of the city is Krakow's main Market Square, which is the largest medieval square in Europe. Among the city's characteristic buildings are St. Mary's Basilica, with its imposing gothic altar, and the Cloth Hall (Sukiennice), which is considered the best-preserved cloth market in Europe. A bugle call, a traditional five-note sound played using a trumpet, is played every hour on the hour from the top of the taller tower of St. Mary's Basilica. The square house is surrounded by numerous cafés, restaurants, pubs, galleries, shops, bookstores, and museums, which allow visitors to discover Polish art and culture.

In the name of the organizing committee of the ICNPR2024 Conference, we all hope to see you in Krakow. ■

Taking Action:
Inclusive Excellence in Hiring

By Wendy Strangman, PhD, Lesley-Ann Giddings, PhD and Christine Salomon, PhD

The diversity, equity, and inclusion (DEI) workshop at the 2023 ASP Annual Meeting in Rockville, MD, led by two dynamic speakers, was a great success with over 100 members in attendance. Dr. Debra Joy Pérez, chief equity officer from the US Pharmacopeia (USP), spoke about inclusive excellence during her talk "Equity for Excellence: Empowering Diverse Teams through Inclusive Hiring Practices." She was followed by Dr. Pamela Tamez, health policy analyst from the NIH, whose presentation was titled "Unleashing Innovation at NIH: The Power of Diversity in Scientific Workforce and Collaboration." Both invited speakers reflected on challenges and successes with creating a diverse workforce in industry and academia, as well as the tremendous benefits that overcoming these challenges provides for their organizations.

Pérez kicked off the session by outlining challenges faced at USP which may resonate with the experience of many ASP members' research groups: candidate sourcing, uneven diversity, and inconsistent processes. The majority of her talk then focused on a pilot hiring study initiated at USP to increase the company focus on inclusive hiring. She explained how results from the successful pilot showed that improving inclusivity in hiring enabled the USP to improve their organizational performance, attract and retain top talent, and increase engagement of USP staff. Specific hiring strategies employed in the pilot included targeting historically underrepresented communities, educational trainings for hiring officials to interrupt bias, and establishing inclusive hiring tools.

Additional key points from Pérez included the need to move away from the "post and pray" method of hiring and instead foster a practice of active recruitment, if improving diversity is a serious goal; the reminder that "work doesn't happen unless you have committed leadership"; and advice that if your organization/group does not have improving DEI as a focus, then work to build it within your own team and within your own sphere of influence.

Invited speakers Perez (left) and Tamez (right) at the diversity, equity, and inclusion workshop at the 2023 ASP Annual Meeting.

PHOTO: WENDY STRANGMAN

Tenants of USP Inclusive Hiring Pilot:

- Recognizing Diversity
- Embracing wide range of candidate qualities and perspectives
- Leveling the playing field
- Actively addressing recruitment bias
- Ensuring fair hiring practices

The second half of the workshop was led by Tamez, the NIH chief officer for workforce diversity, where their motto "Inclusion = Excellence" is a driving force. Her presentation focused on efforts at the NIH to increase workforce diversity and creat cultures of inclusive excellence. She highlighted several programs including their **Distinguished Scholars Program**, **Faculty Institutional Recruitment for Sustainable Transformation** (FIRST) program, and two Notices of Special Interest (NOT-OD-22-057 and NOT-OD-23-002) for administrative supplements to recognize excellence in diversity, equity, inclusion, and accessibility (DEIA). Tamez also discussed the DEIA Prize Competition for Institutional Excellence and several additional funding opportunities highlighted in the inset box.

This DEI session at the ASP annual meeting is a part of the ASP Diversity, Equity and Inclusion Committee's work to provide resources, raise awareness and facilitate ongoing discussions about best practices for improving equity within our society, educational institutions, and our workplaces. ■

NIH funding opportunities related to DEIA

- Science Education Partnership Awards (SEPA)
- Research with Activities Related to Diversity (ReWARD)
  - PAR-23-122
- Instrumentation Grant for Research Limited Institutions
  - PAR-23-138
- Strengthening Research Opportunities for NIH Grants (STRONG)
  - Structures Institutional Needs Assessment Plan
  - Development for Resource Limited Institutions
    - PAR-23-144

Hot Topics in Pharmacognosy

"Old" Structures and Novel (Resuscitated?) Antibiotic Agents

By David J. Newman, DPhil

Due to my somewhat "diverse" background where I spent a lot of my earlier research days (1959 onwards) trying to persuade organisms of all types to "produce" bioactive agents ranging from antimicrobial to antiparasitic agents, I have always been on the lookout for compounds that have been "resuscitated" as new information became available, often a slight modification of a base structure or a delivery system that led to a "new" agent. In the last two months or so, there have been some very interesting papers covering agents that fit into this paradigm, and I will discuss them below.

AN ADC USING MITOMYCIN C AGAINST IMPLANT BIOFILMS

In a paper in the open access journal *Advanced Science*, a Danish group led by Tvilum[1] described an elegant method of delivering mitomycin C to attack the surface biofilms elaborated by *S. aureus* that are significant risks for patients undergoing implant surgery with incidence rates between 2% for knee replacement up to 8.5% for spinal implants, requiring surgical intervention (where feasible) to remove the infective biofilms. By utilizing antibodies that are directed against in this case *S. aureus* and attaching via a labile polysulfide linker, the Danish group demonstrated that mitomycin C (**1**) (often thought to be only an anti-cancer agent) is now capable of acting as an antibiotic.

In a series of *in vivo* experiments in mice with implants that were benign or infected with suitable microbial biofilms and determining the effects of ADCs with vancomycin treatment or without, there were results demonstrating that the use of the experimental ADC (**2**) gave statistically significant reduction in biofilm levels compared to just vancomycin treatment.

Thus, by relying on endogenous disulfide attack on the thiol linkage in the ADC (**2**) releasing the "warhead" once the antibody portion of the ADC had bound to the bacterium was effective. Though this is an initial finding, its possibilities are highly significant, particularly as there are other ADCs not directed against cancer "in the preclinical space," but this is the first one I am aware of that is delivering an "antibiotic agent" to microbes that are part of a biofilm *in vivo*.

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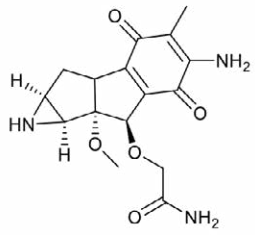
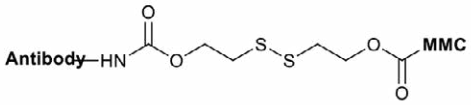
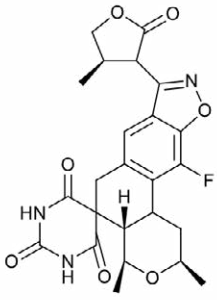


1; Mitomycin c



2; Experimental ADC



Hot Topics in Pharmacognosy: "Old" Structures and Novel (Resuscitated?) Antibiotic Agents

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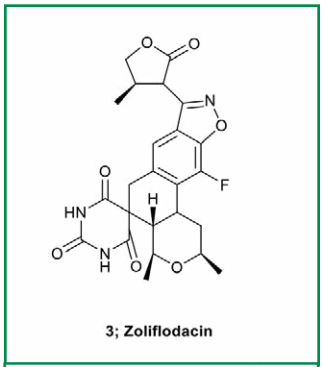
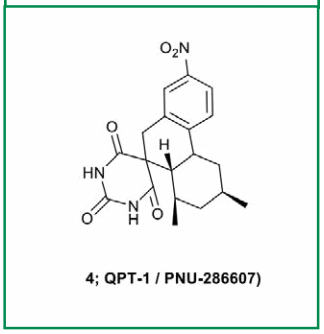
THE ANTIBIOTIC ZOLIFLODACIN

The second novel antibiotic is zoliflodacin (**3**) which is currently in a Phase III trial for oral treatment of gonococcal infections which, fairly recently, has become a major public health problem. It had a fairly checkered discovery with debate as to the origin of a precursor with one group claiming it came from an AstraZeneca discovery, whereas others claim it was developed from the precursor QPT-1 (PNU-286607; **4**) by Pharmacia. I shall use the Open Access paper by Morgan et al, as the information source.[2]



3; Zoliflodacin



4; QPT-1 / PNU-286607)

-Ser*-Thr-Dab*-Asp-Gly-Asn*-Asp*-Gly-Tyr-Val-Dab_Phe-

5; Cilagicin backbone

Thr-HSr*-Asp-Gly-Asn*-Gly-Gly-Tyr-Ile_Orn_Tyr

6; Paenilagicin backbone

Ser-Thr-Arg*-Asp-Gly-Asn*-Asp*-Gly-Tyr-Val-Ser-Tyr

7; Bacilagicin Backbone

Thr-Arg*-Asp-Gly-Asn*-Asp*-Gly-Tyr-Val-Arg-Val

8; Virgilagicin Backbone

Though a fairly large number of quinolone antibiotics have been approved, most stabilizing the DNA cleavage complexes with DNA gyrase and topoisomerase IV (topo IV), which are the two bacterial type IIA topoisomerases. This particular report demonstrates that this spiropyrimidinetrione antibiotic binds to the same site as the other quinolones, thus blocking DNA relegation. The 2.8 angstrom binding data demonstrates that this compound interacts with highly conserved sites on GyrB, implying perhaps less ability for the microbe to develop any target mediated resistance. Plus, in addition to activity against gonococcal infections, it demonstrates a minimum inhibitory concentration of 4 micrograms/ml against *Acinetobacter baumannii*, a major infective agent in humans and one of the ESKAPE pathogens for which there is a lack of effective antibiotics.

Even though the "origins of this agent" from the aspect of whose original structure led to the compound and who is actually developing it (*cf* article by Apoorva Mandvilli in the *New York Times* of 10 Nov. 2023), it appears that the Global Antibiotic Research & Development Partnership, or GARDP, a nonprofit, is shepherding the current development work.

Irrespective of whose earlier structures(s) led to this compound, the fact that it is here is a definite plus, due to the dearth of active antibiotics against public health "problem children!"

ANTIBIOTICS THAT BIND POLYPRENYL PHOSPHATE

A very recent paper from the Sean Brady group at Rockefeller University continues along the novel path that he pioneered and reports on their latest series of antibiotic structures that are discovered by their "biology-free discovery approach" where biosynthetic gene products (BGCs) are bioinformatically predicted and then the compounds identified are produced by direct chemical synthesis. These followed their earlier report on cilagicin (**5**), a Gram-positive active antibiotic that has a dual polyprenyl phosphate binding mechanism that impedes resistance development.[3]

In their latest paper[4] they demonstrated the discovery by using this technique of three cyclic peptides with lipid tails that they identified from *Paenibacillus puerhi, Bacillus cereus* and *Virgibacillus* sp. Bac332. These yielded, following synthesis, paenilagicin (**6**), bacilagicin (**7**) and virgilagicin (**8**), with the first and last being 11 amino acids (cyclized) and the middle having 12 amino acids in the cyclic portion. All three had a 13-carbon tail of an amide link. Their amino acid composition is given under structures using the three-character symbols for amino acids and an asterisk denoting the "D-isomer."

Of these three new compounds, the 11 amino acid variants, paenilagicin and virgilagicin, did not lead to resistance even after prolonged exposure, and both, as with cilagicin, sequester both undecaprenyl phosphate (C55:P) and undecaprenyl pyrophosphate (C:55PP). Interestingly, cilagicin is a 12-residue cyclic peptide but with a different activity profile to bacilagicin. All four, however, have excellent Gram-positive activities, but only cilagicin and paenilagicin inhibit *A. baumannii*.

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Hot Topics in Pharmacognosy: "Old" Structures and Novel (Resuscitated?) Antibiotic Agents

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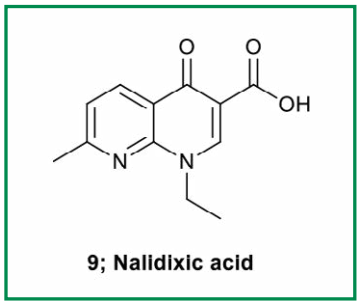
ORIGINS OF THE QUINOLONE CLASS OF ANTIBACTERIALS

Although this is a paper[5] that is now eight years old, I have included it in this article as it shows the "stories" behind the discovery of one of the important series of antibiotics, showing the influence of a "prepared mind." In addition to this "perspective with a backward look," a more recent review by Pham et al. in 20196 confirmed some of the earlier report and emphasized the serendipity involved, even though prepared minds were present.

Effectively, a group at the then Sterling company were trying to synthesize chloroquine in the late 1950s and, as part of the scheme, wished to identify the byproducts of the synthesis. One of these was the regioisomer of the normal intermediate in the process. This was a quinoline derivative and had some modest antibacterial activity. This identification led to the synthesis of nalidixic acid, a 1,8-naphthyridine derivative (**9**) with modest antibacterial activity.[7] The basic quinolone antibiotic structure had been patented four or so years earlier by ICI, and, even if Lesher et al, were not aware of those filings, remember this was in the late 1950s and electronic records did not exist. However, nalidixic acid-based compounds did go into clinical use in due course. So, serendipity did lead to novel agents with good antibacterial properties.



9; Nalidixic acid

The take-home lesson, even today, is to check your by-products from synthetic processes, particularly if trying to mimic a natural product and/or derivative structure as you never know what might be there! ■

The take-home lesson, even today, is to check your by-products from synthetic processes, particularly if trying to mimic a natural product and/or derivative structure as you never know what might be there!

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Meet a New ASP Member

Dr. Serge Fobofou

Dr. Serge Fobofou *is our featured new member in this issue of the* Newsletter. *He received his PhD from Prof. Ludger Wessjohann at the Leibniz Institute of Plant Biochemistry and the Martin-Luther University (MLU) in Germany. After graduation, he moved to the US to start his postdoctoral position in the laboratory of Professor Jon Clardy. As of 2022, Fobofou is both a principal scientist and an assistant professor at the Ric Scalzo Institute for Botanical Research at the Sonoran University of Health Sciences (formerly Southwest College of Naturopathic Medicine) in Tempe, Arizona. We are pleased to officially welcome Dr. Fobofou to the ASP!*

By Wendy Strangman, PhD

What is your scientific background?

I have been interested in natural product chemistry since my graduate studies, especially how discovering molecules produced by plants and understanding how they function can be applied to advance human health and well-being. I studied chemistry in Cameroon and later in Germany. For my doctoral studies, I joined the group of Prof. Ludger Wessjohann at the Leibniz Institute of Plant Biochemistry (IPB) and the Martin-Luther University (MLU) in Germany, where I conducted my research investigating new biologically active compounds from medicinal plants. During that time, I was especially interested in compound discovery from *Hypericum* species like *H. perforatum* (St. John's wort), a top medicinal plant in Germany. I investigated compounds from exotic *Hypericum* species like *H. roeperianum* growing in Africa and I used metabolomics to compare African *Hypericum* species with their European and American counterparts. After successfully completing my PhD thesis on the metabolomic analysis, isolation, structure elucidation and synthesis of bioactive compounds from medicinal plants, I moved to the USA to conduct my postdoctoral research at Harvard Medical School under the supervision of Professor Jon Clardy. In Clardy's group I became familiar with the chemistry of host-microbiome

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Dr. Serge Fobofou
PHOTO: KEELY PUCHALSKI

I have been interested in natural product chemistry since my graduate studies, especially how discovering molecules produced by plants and understanding how they function can be applied to advance human health and well-being.

Meet a New ASP Member: Dr. Serge Fobofou

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I became familiar with the chemistry of host-microbiome interactions and how to discover bacterial natural products by awaking silent biosynthetic gene clusters.

interactions and how to discover bacterial natural products by awaking silent biosynthetic gene clusters. This was a very significant and interdisciplinary project, as in a collaboration with scientists from MIT we could discover some novel terpenes from Novartis microbial collection by heterologous expression and analytical chemistry. After this experience, I have held research positions at the Technical University of Braunschweig and Baylor College of Medicine before serving in my current role.

How did you hear about the ASP?
I heard about the ASP during my graduate studies. However, I first attended the ASP meeting during my time in the Clardy group. This was a meeting of choice as several group members, including Prof. Clardy, regularly attends ASP meetings. That was in 2019 before the COVID pandemic, and I was very impressed as there were people from all over the world and fantastic talks as well as entertaining social activities. I was also privileged to give an invited talk at that meeting, which was a great experience.

Why did you decide to join ASP?
I joined the ASP because it is a vibrant community and the major natural product research organization in the US. Through ASP, I can best serve and contribute to the field as well as have updates on current trends and developments.

What would you like to achieve through your membership?
I want to be connected with other researchers in the society and, when possible, be in the position to bring more contribution to the field through my services. I am also very much interested in contributing to diversity and inclusion in the ASP.

What other scientific societies do you belong to?
I am a member of the American Chemical Society (ACS).

What do you like doing in your spare time?
In my spare time I like spending time with family and friends. However, I also enjoy travelling to discover new places, people, and foods. I also like going to church.

Is there anything else you would like other ASP members to know about yourself?
I am very excited to join the ASP as a member and hope to see you soon at the next ASP meeting! ■

I joined the ASP because it is a vibrant community and the major natural product research organization in the US. Through ASP, I can best serve and contribute to the field as well as have updates on current trends and developments.

New Members of ASP Winter 2023

ASP would like to welcome our new members. The Society's main objectives are to provide the opportunity for association among the workers in pharmacognosy and related sciences, to provide opportunities for presentation of research achievements, and to promote the publication of meritorious research. New members include one full member and 28 associate members. We look forward to meeting you and learning more about you and your work. Information on ASP membership is available here.

FULL MEMBERS

Dr. April Lukowski
United States

ASSOCIATE MEMBERS

Dr. Bamidele Ajilore
Nigeria

Mr. Shadrach Akrofi
Ghana

Dr. Mahboob Alam
Pakistan

Dr. Francis Atanu
Nigeria

Ms. Karson Barclay
United States

Ms. Danielle Burge
United States

Ms. Oguzie Emmanuella
United States

Ms. Bianca Flores
United States

Mr. Joy Folahan
United States

Dr. Andrew Gordon
Ghana

Dr. Prasoon Gupta
India

Ms. Rahni Hossain
Thailand

Dr. Tariq Javed
Pakistan

Dr. Tanveer Khan
Pakistan

Mr. Tian Lan
United States

Ms. Deirdre McCaffrey
United States

Dr. Rahul Mittal
United States

Ms. Joyce Moore
United States

Ms. Eyinmisan Ojuge
Nigeria

Mr. Roman Olivardia
United States

Ms. Carla Parke
United States

Mr. Adam Rahman
United States

Dr. Muhammad Riaz
Pakistan

Dr. Sana Riaz
Pakistan

Ms. Elsa Robinson
United States

Ms. Jasmine Walton
United States

Mr. Mason Webber
United States

Dr. Mohd Ziauddin
India

American Society of Pharmacognosy

Conference Calendar

The *Newsletter* is pleased to announce the following upcoming conferences and meetings. The events portrayed here reflect what listings and notices the *Newsletter* has specifically received. For a more extensive calendar, please visit the ASP website at www.pharmacognosy.us. If you have a conference or event you would like mentioned, please send us relevant information, including any graphics, at **asp.newsletter@lehman.cuny.edu**.

ASP Natural Product Sciences Webinar

Zoom Seminars

See website for dates and times.

www.pharmacognosy.us/natural-product-sciences-webinar/

C&EN Webinars

Various Days and Times

cen.acs.org/collections/webinars.html

Gordon Research Conference: Marine Natural Products

From Discovery to Production via Function to Applications

March 10-15, 2024

Ventura, California

https://www.grc.org/marine-natural-products-conference/2024/

22nd International Conference on the Science of Botanicals and the 7th World Congress on Medicinal and Aromatic Plants

April 15-18, 2024

Oxford, Mississippi

www.oxfordicsb.org

4th Synthetic Biology of Natural Products Conference

May 10-13, 2024

Cancun, Mexico

www.fusion-conferences.com/conference/160

International Congress on Natural Products Research (ICNPR 2024)

July 13-17, 2024

Kraków, Poland

www.icnpr2024.org

Gordon Research Conference: Natural Products and Bioactive Compounds

Natural Products: Diversity and Integration

July 28-August 2, 2023

Andover, New Hampshire

www.grc.org/natural-products-and-bioactive-compounds-conference/2024/

American Society of Pharmacognosy

Capital Communiqués

Natural Product-related News from NIH and Beyond

By Barbara C. Sorkin, PhD

AN UPDATE FROM THE OFFICE OF RESEARCH INTEGRITY (ORI) OF THE US DEPARTMENT OF HEALTH AND HUMAN SERVICES

- The ORI has published a **Notice of Proposed Rulemaking** proposing to clarify the 2005 Public Health Service Policy on Research Misconduct.

Updates from the National Institutes of Health (NIH)

- A number of leadership positions at the NIH have been filled in recent months:
  - On November 9 **Monica M. Bertagnolli** became the 17th Director of the NIH and the first surgeon and the second woman to hold the post. She previously served as the Director of the National Cancer Institute (NCI).
  - Also in November **Tara Schwetz** was named NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives (DPCPSI) and the Director of DPCPSI.

Monica Bertagnolli (left) and Tara Schwetz (right) PHOTOS: NIH

- Within DPCPSI two of the research coordinating offices have new directors:
  - In July **Stefan M. Pasiakos** was named Director of the Office of Dietary Supplements (ODS).
  - In September **Andrew A. Bremer** was named Director of the Office of Nutrition Research.

Stefan Pasiakos (left) and Andrew Bremer (right) PHOTOS: NIH

- Another update on the **NIH Data Management and Sharing (DMS) policy** that went into effect earlier this year. DMS costs are no longer required to be requested as a single line item in detailed grant application budgets. From now on DMS costs must be included with other costs in the appropriate cost categories (e.g., personnel, equipment, supplies, other expenses), following standard form instructions.
- Do you ever wonder why you have to submit an annual progress report (an RPPR for ongoing awards) for each of your NIH grants? This **NIH blog** explains why and what your NIH Program Officer is required to look for in your RPPR.

NIH-SUPPORTED RESOURCES

- As part of its support for rigorous design and transparent reporting of NIH-supported research using in vivo models, the NIH recently hosted a **webinar** on the animal research, reporting in vivo experiments (ARRIVE) Essential 10, and posted a video of the webinar along with supporting materials.

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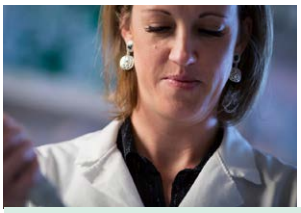
- Scientists at the NIH National Institute of Environmental Health Sciences recently published a generalizable workflow for the non-targeted chemical analysis of dry botanical dietary supplements to support the understanding of differences between marketed products, including the detection of organic contaminants and adulterants (Quiroz-Delfi et al., 2023, *Analytical and Bioanalytical Chemistry*, https://doi.org/10.1007/s00216-023-05004-y). Application of the approach to blue cohosh (*Caulophyllum thalictroides*), goldenseal (*Hydrastis canadensis*) and yohimbe (*Pausinystalia yohimbe*) is reported. The authors note that their approach supports detection of similarities and differences between products even where there are no standard reference materials available for the products, that use of both NMR and HPLC-MS provided greater ability to distinguish amongst products than either method alone, and that use of both aqueous and organic extraction added to the ability to detect contaminants and/or adulterants.

Withania somnifera
PHOTO: DAVID J. STANG

- Both the NIH National Center for Complementary and Integrative Health (NCCIH) and ODS have recently posted updated information on ashwagandha (*Withania somnifera*), the NCCIH with an updated "Herbs at a Glance" page, and the ODS with a new Health Professional Fact Sheet.

PRESENTATIONS, WORKSHOPS, WEBINARS

- The NCI is offering a virtual Integrative Medicine course consisting of a series of real time and pre-recorded hour-long seminars on topics including natural products research, traditional Chinese medicine, Ayurveda, dietary supplements, Cannabis and the microbiome. Here's the full schedule of real time webinars and link for the required registration.
- Upcoming NIH Office of Dietary Supplements (virtual) Seminars (**all 11am US ET**):
  - **Wednesday, January 10, 2024**, *Using Dietary Supplements and On-line Databases to Enable Precision Nutrition* **David S. Wishart,** Faculty of Sciences, Biological Sciences, and Department of Computing Science, University of Alberta, Edmonton, AB, Canada
  - **Wednesday, February 28, 2024,** *Immune System-Microbiome Interactions and Health* **June L. Round,** University of Utah School of Medicine, Huntsman Cancer Institute, Department of Pathology, Division of Microbiology and Immunology, Salt Lake City, UT
  - **Wednesday, March 13, 2024,** *Dietary Supplements: Interactions with Taste and Smell* **Paule V. Joseph,** Chief, Section of Sensory Science and Metabolism, National Institute on Alcohol Abuse and Alcoholism (NIAAA)



Dr. June L. Round
PHOTO: CHARLIE EHLERT

ODDS AND ENDS

- Out of thin air? The athel tamarisk (*Tamarix aphylla*) may be able to obtain water from the air even in its desert environment. Christie Wilcox noted in her coverage of this report that the plant's response to salty soil may suggest ways for humans to adapt to dry climates.

Athel tamarisk

From the Archives

Bloom and Grow: Forty Years of *HerbalGram*

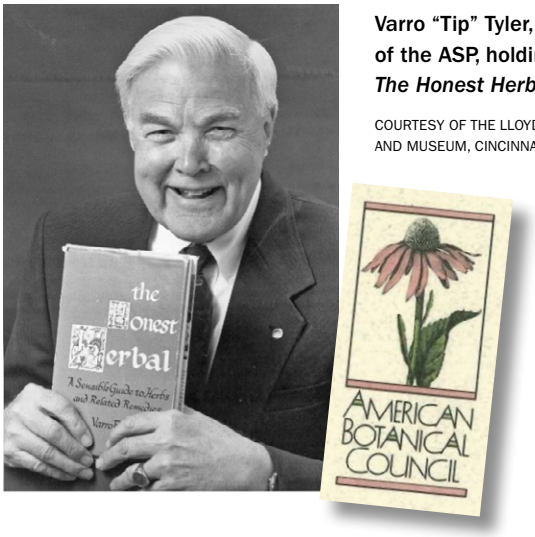
This year, the American Botanical Council (ABC) is celebrating its 35th anniversary of incorporation. Additionally, its publication HerbalGram *is celebrating its 40th! As many past and current members of the ASP have been associated with the ABC, we salute both the anniversaries of the Council and* HerbalGram *with a look back on their early years, their ASP connections, and their impact today.*

By Christine Jankowski, MA

The American Botanical Council (ABC) was created to bring information on the science and the traditional practices of herbal medicine to the masses. Based out of Austin, Texas, the founders wanted to provide education on how to safely use herbal medicine and medicinal plants.[1] The best way to share that information in the 1980s was a printed journal.

HerbalGram was originally created by ASP member Mark Blumenthal and Rob McCaleb in 1976 as a small newsletter known as *Herb News* for the Herb Trade Association (HTA). At that time, Blumenthal was a founding board member for them, and he started the newsletter while he was running his company Sweethardt Herbs Inc. Before HTA ceased operating in 1981, *Herb News* covered up to date information on herbal medicine. In the following year, the American Herbal Products Association (AHPA) was formed by Blumenthal and McCaleb, then a research director for Celestial Seasonings.

They went on to revive *Herb News* for the AHPA and for their own newly formed nonprofit, Herb Research Foundation, in 1983. This publication, renamed *Herbalgram*, featured the latest news in herbal medicine as well as recent research, conference information, and



Varro "Tip" Tyler, first president of the ASP, holding an edition of *The Honest Herbal,* 1982.

COURTESY OF THE LLOYD LIBRARY AND MUSEUM, CINCINNATI, OHIO.

reviews of herbal publications which were covered in each issue. As said by Blumenthal, "*HerbalGram* was one of the few sources of accurate, reliable information on herbs and medicinal plants, the emerging market, and related topics".[2] Blumenthal served as the editor and McCaleb was the associate editor.

In 1988, Norman R. Farnsworth, a well-known name from the ASP, assisted Blumenthal and ethnobotanist James Duke with the founding of the ABC. Farnsworth's continued commitment to bring science-backed evidence in the use of natural products led to his support. He joined the ABC Board of Trustees along with another prominent name from the ASP, Varro E. Tyler. A large part of their responsibilities while serving on the board was to review

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"*HerbalGram* was one of the few sources of accurate, reliable information on herbs and medicinal plants, the emerging market, and related topics".[2]

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articles that were to be featured in *HerbalGram*. Correspondence, including faxes and letters, was exchanged between them and other colleagues to check sources and review the text before publication.[3]

With the new support from the ABC, the newsletter received a facelift: *HerbalGram* was now spelled with a capital 'g' and the page count expanded. Article contributors to *HerbalGram* included ASP members such as Steven Foster, Ara Der Marderosian, and Roy Upton. An early version of the ABC bookstore (offered towards the end of multiple issues) sold reprints authored or co-authored by ASP members including Tyler, Farnsworth, Foster, A. Douglas Kinghorn, and Doel Soejarto.

The ABC has grown over the years with memberships representing 80 countries.[4] *HerbalGram* is still a peer-reviewed quarterly publication. McCaleb stepped down from his role in the early 1990s, but Blumenthal is still the editor-in-chief of *HerbalGram*. The ABC has made huge contributions to the herbal community including publications like the English translation of the *Commission E Report* and other monographs. As the internet has become the prominent source, ABC's website has reflected that change by uploading digital editions of *HerbalGram* (HerbalEGram) and press releases and sharing resources about natural products.

Congratulations to the American Botanical Council and *HerbalGram*! Here's to 40 more years! ■


HERBALGRAM

Published by the AMERICAN BOTANICAL COUNCIL and the HERB RESEARCH FOUNDATION

FEATURE ARTICLE:
ST. JOHN'S WORT
Used for centuries in European folk medicine, this herb is being studied for its potential anti-retroviral activity. Page 24.

SPECIAL REPORT:
HUPERZIA:
HYPE OR HOPE? Compounds from this traditional Chinese herb are being researched for possible treatment of Alzheimer's disease. Page 21.

MEDIA WATCH:
Sir James Black,
recipient of the Nobel Prize for his work on drug development supports Evening Primrose Oil research. Page 8.

The Hoxsey Film
A new documentary asks: "Did the Hoxsey cancer cure really work?" Plus, Dr. Jim Duke's review of this herbal formula. Page 11.

MARKET REPORT, MEDIA WATCH, BOOK REVIEWS, HERB BLURBS, POTPOURRI, CONFERENCE REPORTS, AND MORE...

SPECIAL DOUBLE ISSUE

St. John's Wort
Hypericum perforatum
from The Natural History of Plants
H. Bullion, 1880

THE LLOYD LIBRARY & MUSEUM

The cover of *HerbalGram* with the first inclusion of American Botanical Council on the masthead, 1988.

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LITERATURE CITED

1. *HerbalGram* About Us. www.herbalgram.org/about-us/ (accessed 2023-11-01).
2. Blumenthal, M. Reflecting on 40 years of *HerbalGram*. *HerbalGram*. **2023**. *138*: 1.
3. Finding Aid, *Norman R. Farnsworth Papers*, Lloyd Library and Museum, **n.y.**
4. Blumenthal, M. ABC's journal *HerbalGram* celebrates 40th anniversary. *HerbalGram*. **2023**. *www.herbalgram.org/news/press-releases/2023/abc-s-journal-herbalgram-celebrates-40th-anniversary/* (accessed 2023-11-01).

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