

Society of Cosmetic Chemists  
Carolina Chapter

Feb 2020  
Volume 118

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MEET OUR SPEAKER ON PAGE 3

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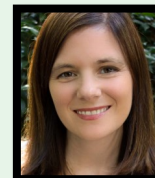
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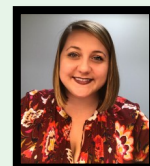
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## LETTER FROM THE CHAIR: STEVE O'CONNOR

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Hello and thank you for being a part of the Carolina Chapter of the Society of Cosmetic Chemists. To get started, let me introduce our 2020 chapter board, newsletter editor and webmaster: Cheryl Hili is our Chair Elect, Leslie Webb is our Treasurer and newsletter editor, Divya Namjoshi is Secretary, and Maggie Ghanem is our webmaster. Thanks to all for serving the chapter and if you would like to get more involved just contact one of your board members. Please also feel free to contact any of the board members with any questions or suggestions you might have on how to make our Carolina SCC Chapter even better for all.

What an exciting year we have for 2020. In addition to our chapter meetings we will once again have our Naturally Kiawah Symposium on Kiawah Island, SC September 30 – October 2. The responses to previous conferences on Kiawah Island have been outstanding and the number of participants has grown significantly since its inception. This year the theme "Naturally Kiawah" will focus on environmentally friendly ingredients, greens chemistries and processes, marketing and consumer trends, and regulatory updates. In addition, a continuing education program (CEP) course is offered and all are encouraged to attend. For full details on that course and the symposium as well as information to those interested in presenting at the symposium please visit our Carolina SCC website at [www.carolinasc.org](http://www.carolinasc.org). The deadline for submitting abstracts is March 1, 2020. Please also visit the website for details on any of our upcoming events and contact information for the chapter and board members.

Below is a listing of meeting dates for the upcoming year:

February 20 - Monthly Meeting and Technical Presentation – Elon University, Elon, NC

May 21 - Monthly Meeting and Technical Presentation – Charlotte, NC area

September 30 – October 2 – Naturally Kiawah Symposium and Continuing Education Program – Kiawah Island, SC


November 12 - Officer Installation/Technical Meeting – Raleigh, NC area

We hope you can join us for the meetings. We are looking forward to an informative, educational and fun year.

Best regards,

Steve O'Connor

Chair, Carolina Chapter



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## Meet Our Speaker: Dr. James (Vince) Gruber

*Director of New Technologies, Jeen International*



Dr. James (Vince) Gruber joined Jeen International in 2018 as the Director of New Technologies where he works with the teams at Jeen and BotanicalsPlus to develop new ideas and technologies for the personal care, cosmetic and therapeutic industries. Prior to joining Jeen, Dr. Gruber held positions at Botaneco, Sensient, Arch (Lonza) and Union Carbide (Amerchol) leading diverse technical teams developing active and functional ingredients employing, in many cases, fermentation-based product development technologies. He is the author of 20 refereed articles including 15 referenced in PubMed and holds 11 granted US Patents and additional published World Patent applications. He has authored numerous edited articles and book chapters and is an author and co-editor of the book

Principals of Polymer Science and Technology in Cosmetics and Personal Care, co-edited by Desmond Goddard and published by Francis Taylor.

## Enhancing Cosmetic and Therapeutic Ingredient Development Through Fermentation Technologies

Fermentation has been practiced as an art of preservation and flavor enhancement since mankind created civilizations. At its basics, fermentation is controlled spoilage and likely happened first by accident before humans began to understand the benefits of what controlling spoilage means. However, with the advent of development of specialized bioreactors and equipment to control both liquid and solid fermentation, the practice of the art has expanded considerably. Most people know, for example, that cabbage and other vegetables can be fermented by naturally-occurring microorganisms to provide the Korean specialty called Kimchi. Likewise, tea leaves are regularly fermented to enhance the flavor and benefits of the teas produced by the leaves. Most people know that under the right conditions, sugars are converted by yeast, like *Saccharomyces cerevisiae*, to produce alcohol via controlled fermentation. What makes fermentation attractive is that it can be done using a modest investment in fermentation equipment. Once a fermentation system is set up, it can be used over and over to produce countless ingredients that can find their way into nutrition, cosmetic and therapeutic applications. The process of fermentation can be simple, as the Kimchi example above suggests, or it can be quite intricate as may be required to produce a biological therapeutic or pharmaceutical product. This talk will summarize the art of fermentation and will focus on ingredients that have been developed for cosmetic applications via the methods of fermentation. It will discuss how various types of microorganisms can produce unique products and properties via fermentation. The talk will also touch on products on the market known to contain fermentation-based ingredients and on some of the regulations and beliefs that control the claims that can be made from fermentation-produced ingredients.



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CAROLINA CHAPTER SOCIETY OF COSMETIC CHEMISTS  
Call for Papers  
2020 Naturally Kiawah Symposium

October 1, 2020  
Kiawah Island Golf Resort  
Kiawah Island, South Carolina

Authors are invited to submit titles and abstracts of no more than 150 words for original papers to be presented in podium format. All topics related to Natural and Green Science will be considered for presentation. Topics of interest for submission of the abstracts are:

- How Are Advances in Science Effecting the Development of New Natural /Green Raw Materials and Products
- Eco Friendly Manufacturing (carbon footprints, alternate forms of energy, waste management techniques)
- Effect of Natural/Green Products on Skin Biology
- Fair Trade Opportunities in Personal Care
- Preservation and Stabilization of Natural Products
- Marketing and Consumer Trends
- Regulatory Updates
- Sustainable Sourcing and Manufacturing
- Novel Delivery Systems for Natural Products
- Green/Natural Packaging

**DEADLINE: March 1, 2020**

Abstracts should be single spaced and typed on a separate sheet (150-200 words). Complete generic names as well as the INCI nomenclature are requested for all ingredients (INCI name only allowed in formula presentations if selected). Abstract Submissions should be informative. Please provide a cover sheet containing:

- Presenter Name
- Title (Prof., Dr., Mr., Mrs., Ms.)
- Author(s)
- Company Name
- Telephone Number
- Email Address
- Abstract Title
- A sentence statement of the study's objective
- Brief statement of methods, in pertinent
- Summary of results obtained
- Statement of conclusions

*Please submit your abstract via email to [scccarolinas@gmail.com](mailto:scccarolinas@gmail.com)*

All abstracts will be reviewed and selected by the CCSCC Education Committee no later than **May 1, 2020**. After acceptance of abstracts by the committee, all presenters will be required to submit an electronic copy of their full presentation 4 weeks prior to the event date. Final presentations will be due no later than **August 31, 2020**. No changes in presentations will be acceptable one week prior to or on the date of the presentation.





## SAVE THE DATE!

### Naturally Kiawah Symposium

Kiawah Island Golf Resort  
Kiawah Island, South Carolina

September 30-October 2, 2020

#### Special Events:

**September 30:** CEP Course and Evening Cocktail Reception with Supplier Showcase

**October 1:** Full-Day Technical Seminar and Evening Cocktail Reception with Supplier Showcase

**October 2:** Golf Outing at Cougar Point Golf Course or Spa Treatment at The Sanctuary

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**Gold-** \$1000: This includes recognition of sponsorship of breakfast or lunch, premium golf hole signage, banner for tabletop display, and appearance and recognition on all event flyers, programs and special event newsletters.

**Silver-** \$600: This includes banner for tabletop display, and appearance and recognition on all event flyers, programs and special event newsletters.

**Bronze-** \$300: This includes appearance and recognition on all event flyers, programs and special event newsletters.

Our sponsorship goal for the event is \$15000. We appreciate any support that you can give. If you would like to take advantage of this sponsorship opportunity, please email us for more information at [scccarolinas@gmail.com](mailto:scccarolinas@gmail.com).

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## Formulating on Trend: Waterless Cosmetics-



While water appears plentiful, it is suggested that of the available 3% percent of fresh water on Earth, only 0.4% is available for use as the rest is tied up in glaciers, snow packs and ice caps. And, if significant changes in water consumption are not made, two-thirds of the world may be facing water stress by the year 2025.<sup>1</sup>

Many areas have already faced dangerous drought conditions, such as those that contributed to devastating wildfires in California in 2018. Also in 2018, Cape Town, South Africa was facing a significant water shortage that could have completely shut off the taps. Residents were forced to resort to matters such as reusing shower water and limiting the number of times toilets were flushed.<sup>2</sup> As a result of this the historic shortage, the Procter & Gamble company launched a hair care brand called "Waterless," in Cape Town.<sup>3</sup>

The mass population must make substantial changes to behaviors in order to preserve the integrity of the water supply. Many cosmetics contain high concentrations of water because it is a great solvent and inexpensive. However, many formulators are reconsidering the compositions of cosmetics and personal care products, placing greater emphasis on sustainable, green and clean products. Not only do anhydrous formulations conserve water, they allow for significantly less plastic packing. In fact, it is estimated that only 9% of all plastics produced are recycled, with most ending up in landfills and polluting oceans, causing harm to birds, marine mammals and fish.<sup>4</sup>

Other issues can hamper efforts of conscientious consumers who are recycling. China once took in most of the United States' recycling to turn into new goods but recent bans on the types of solid waste permitted into China are causing significant impacts, and some municipalities have been forced to incinerate. Non-recyclable items tossed in recycle bins require complex sorting and can cause issues with processing equipment.<sup>5</sup>

The case for waterless and minimally packaged products is clear. Some historical formulation types are being revived and redesigned. Products like soap bars can be packaged in recyclable paperboard or sold as individual loose bars, sans packaging. Cosmetic brand LUSH sells shampoo bars, solid conditioners, soaps, scrubs and massage bars minus packaging, or "naked" as they call it.

### BAR SOAPS

Soap is one of the oldest known cosmetics. The first recorded mention of soap was ancient Sumerian tablets. Soap is simply the alkali salt of fatty acids that has cleaning, lathering and surfactant properties. Presumably due to such a long history of known safety, the U.S. Food and Drug Administration (FDA) has exempted soaps that meet this definition from regulation as a cosmetic.

Animal-derived fats like tallow and lard were the earliest sources of triglycerides for saponification. In fact, the first commercial soap manufacturers in the United States were in cities with thriving meat packing industries, such as The Procter & Gamble company in Cincinnati, OH; and The Armour Soap Works in Chicago, IL, which became The Dial Corporation and later, Henkel North American Consumer Goods.<sup>6</sup>

The introduction of Jergens Body Shampoo in the 1990s was considered a major innovation. Soon, a dramatic shift from bars to liquid soaps and cleansers occurred because they were more convenient and less of a mess to deal with;<sup>7</sup> e.g., when left in a wet soap dish, soap bars would absorb water, producing a gelatinous "soap mush" film. While the mush was easily removed with the next use, it was unpleasant and increased the bar wear rate.

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## CONTINUED—Formulating on Trend: Waterless Cosmetics

### Syndet and Combo Bars

Body washes often are comprised of 80% or more water and they are packaged in plastics. This presents an opportunity for soaps—or more common today, synthetic detergent (syndet) and combo bars. Traditional soaps pose the disadvantage of a high pH, which disrupts the skin's acid mantle. In addition, as mentioned, it can form soap scum that precipitates on bath and shower surfaces in the presence of hard water. Synthetic surfactants do not present these drawbacks, which makes them a more popular choice today.

Synthetic surfactants also can be blended with conventional soaps, referred to as combo or combi bars. The pH of pure soap-free syndet bars is in the range of 5 to 7, which makes them much more “skin-friendly.” Common synthetic surfactants used in syndet bars are sodium cocyl isethionate and sodium lauryl sarcosinate. These are blended with plasticizers, binders, emollients and fillers, along with other aesthetic-enhancing ingredients to create syndet bars.

Today, a variety of preformulated syndet, or combo noodles, are available from suppliers who have considerable expertise in syndet production. This allows formulators to create premium bars with less time spent on product development.

### Shampoo and Shampoo/Conditioner Bars

Waterless cleansing products are also developed for hair care, although one disadvantage to a shampoo bar is the drying feel it can leave. With the addition of superfatting agents, however, some conditioning properties can be added.

Fats and oils such as palm oil, olive oil and cocoa butter has long been known as superfatting agents in soap making. On the other hand, such agents can plasticize the bar, leading to increased bar wear rate and mushing.<sup>8</sup> Moisture content and hardening agents can be added to combat these effects. As such, popular oils like argan and jojoba are making their way into shampoo/conditioner bars. Better conditioning can be achieved through the addition of ingredients such as behentrimonium methosulfate and cationic guar gums.

### Powder Facial Cleansers

Amino acid-based glutamates are supplied as dry powders, are very mild and are highly biodegradable. While they can be used on their own to create powder cleansers that foam well when applied to the skin in the presence of water, a creative approach that provides a unique sensory profile is to add sodium bicarbonate and citric acid. The two react once mixed with water to produce vigorous, bubbling foam. Natural oils and butters can be added to enhance skin feel and enhance moisturization.

Continued on page 8

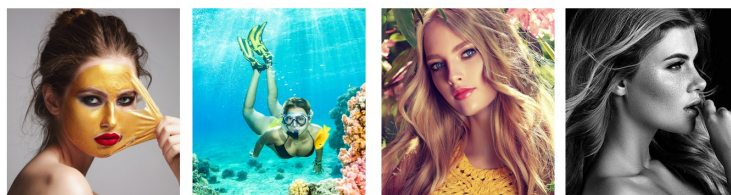
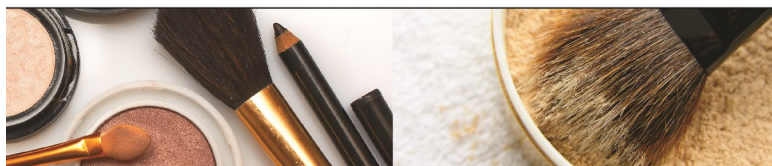


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## CONTINUED—Formulating on Trend: Waterless Cosmetics

### Dry Shampoo

In her seminal work from 1937, *Canitics: The Art and Science of Hair Dyeing*, Florence Wall described what she called, “powdered dry cleaners. When introduced to the hair, [these] absorb some of the superficial grease and dirt.”

Today’s concepts are basically the same. Dry shampoo products allow consumers to skip a day or two of hair washing and help to refresh their style. Ingredients such as talc, rice starch and aluminum starch octenylsuccinate are used to absorb sebum from the scalp. Zeolite or cyclodextrin are added to absorb complex odors such as cigarette smoke.

Dry shampoos are typically packaged as powders or aerosol sprays, which are shaken, sprayed into hair and brushed to distribute. Powders should be mixed with a ribbon blender or other suitable equipment to create homogenous blends. For aerosols, the powders are typically dispersed in ethanol prior to filling.

### Preserving Waterless Cosmetics

One might think preservatives are not required in anhydrous formulations, but this is not always the case. FDA regulations for an adequately preserved product state that cosmetics need not be sterile—but they also must not be contaminated with pathogenic organisms, and the concentration of non-pathogenic organisms should be low.

Furthermore, cosmetics must be shelf-stable under these conditions and during use by the customer. Each cosmetic therefore must be tested for preservative efficacy under the potential conditions of consumer use. Each cosmetic that is not self-preserving also must be tested for microbial contamination prior to interstate shipment.<sup>9</sup>

Consumers can introduce water and microbes into cosmetics, and if the products are not adequately preserved, these microbes will grow. This can result in not only an unpleasant odor and appearance in the product, but serious infections in users. Indeed, one study found counts of > 500 CFU/g of *Staphylococcus* spp. and *Escherichia coli* in cosmetic powders and eyeliners, which are typically anhydrous.<sup>10</sup> Cases of eye infections from contaminated mascara have been well-documented.<sup>11</sup>

### Water Activity

In waterless cosmetics, an understanding of the chemical and physical requirements for microbial growth can be an effective way to reduce, or in some cases eliminate, preservatives. Water and nutrients are needed for microbes to survive and support population growth. Thus, one approach to preventing microbial growth is to consider a product’s water activity.

Water activity ( $a_w$ ) is defined as the ratio of the vapor pressure of the product compared to the vapor pressure of pure water. The scale of water activity runs from pure water at 1.00, to completely devoid of water at 0.00. Microbial growth occurs preferably at water activity levels above 0.90; but there are some osmotolerant organisms that can survive water activity as low as 0.60.

Dry powders typically have low water activity but products can be exposed to moisture—especially since many cosmetics are stored in bathrooms, where conditions can get warm and humid. Also, other debris and contaminants from the skin can get into the product during use, especially if the fingers or an infrequently cleaned applicator is being used. Lipsticks and lip glosses are two other examples where consumer use can introduce moisture and influence the measurement of water activity. Testing should be performed along with consumer use to gather more information on the potential need for preservatives in anhydrous cosmetics.<sup>12</sup>

### Conclusions

As concerns about the state of our environment continue to mount, there are many opportunities to formulate water-free products by looking back at historical techniques and incorporating modern technologies. From cleansing balms to solid foundation sticks, the number of anhydrous products on the market continues to grow, as does the opportunity for innovation.

For More Information visit [Cosmetics and Toiletries Website!](https://www.cosmeticsandtoiletries.com/formulating/category/skincare/Formulating-Waterless-Cosmetic-566342431.html)

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# Society of Cosmetic Chemists

Carolina Chapter



SOCIETY OF COSMETIC CHEMISTS  
SERVING GREATER NORTH AMERICA SINCE 1945

## NATIONAL NEWS



SOCIETY OF COSMETIC CHEMISTS  
SERVING GREATER NORTH AMERICA SINCE 1945

**January 7, 2020 – New York, NY** — This is a very special year for the Society of Cosmetic Chemists (SCC) as the organization celebrates its Diamond Jubilee. Founded in 1945, the SCC is the oldest and largest membership organization focused exclusively on cosmetic science education.

*“After 75 years, the Society boasts one of the biggest footprints in the cosmetics and personal care industry,”* said Erica O’Grady, CAE, Executive Director/CEO of the Society. *“With our international, national and local events, we are proud to represent the industry and the greater scientific community as a well-respected organization that has never strayed from its mission: to advance cosmetic science.”*

This past year, the SCC acquired a record 5,700+ members globally – with some of those memberships spanning as many as five decades – which speaks directly to the value of SCC membership. The last 75 years have featured seventy-three annual scientific meetings, two US-hosted international congresses with the International Federation of Societies of Cosmetic Chemists (IFSCC), two co-hosted intercontinental conferences with the Italian SCC, multiple industry partnership collaborations, and hundreds of education events presented domestically.

*“When you reflect back on our history it is evident that education, innovation and collaboration are very important to the SCC,”* said Mindy Goldstein, the 74<sup>th</sup> SCC President and owner of Mindy S. Goldstein, PhD Consulting. *“I am sure that our founder, Maison G. deNavarre, would be very proud of all his predecessors’ accomplishments in pursuit of realizing his vision for the Society.”* she added.

To commemorate the occasion, a new 75<sup>th</sup> Anniversary logo was unveiled at the SCC’s 2019 Annual Scientific Meeting & Technology Showcase on December 18<sup>th</sup> in New York City.

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### Researchers Discover Skin Cancer Suppressor—*Michele Behrens*

A team from the University of Bath's Department of Biology and Biochemistry has discovered a new way to treat melanoma and possibly other cancers, too.

The researchers explored a group of “long non-coding RNAs” (lncRNAs) with colleagues at the Ludwig Institute for Cancer Research at the University of Oxford, and the Wellcome Sanger Institute and University of Lausanne, Switzerland. lncRNAs are molecules transcribed from the part of DNA that does not create protein and whose functions remains largely unknown. This particular group of lncRNAs was hypothesized to contain cancerous cells.

From a group of 245 lncRNAs that were associated with melanomas, the scientists identified one melanoma called Disrupted in Renal Carcinoma 3 (DIRC3). Grown in lab experiments, DIRC3 acted as a tumor suppressor to block the spread of human melanoma cells. Then, by using gene editing to switch off the production of DIRC3, the team saw “anchorage-independent growth” of melanoma cells—a sign of malignant cancer spreading. The cells were noted to have drastically increased by two to eight times.

The scientists also demonstrated that DIRC3 switches on a key tumor suppressor gene, IGFBP5, revealing the role of genetics in the complex networks important for melanoma growth and spreading to other parts of the body. The researchers then used clinical data to link DIRC3 expression to melanoma patient outcomes. They discovered that melanoma patients who produced high levels of DIRC3 had a statistically significant increased survival rate, compared with patients who expressed low levels.

In his interview video, Keith Vance, Ph.D., of University of Bath Department of Biology and Biochemistry stated, “This research [and clinical implications] is in a very early stage, but we are excited about the possibility of activating DIRC3 to develop new melanoma treatments. . . The problem of current treatments are that not all patients respond to treatments and in the many patients that do, they develop a resistance to current therapies. There’s a definite need for new melanoma treatments to be developed and we think targeting molecules such as DIRC3 could go a long way to be used in combination with current therapy to improve the treatment of this disease.”

For more information about this study, visit the University of Bath website.

<https://www.cosmeticsandtoiletries.com/research/biology/Researchers-Discover-Skin-Cancer-Suppressor--567326811.html>



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