

CONTENTS

Page 2:

Awards and Recognitions

Page 4:

Meetings and Events

Page 5:

Upcoming Events

Page 7:

The year of the Periodic Table

Page 8:

Just for Fun!

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Welcome to the Food Group Newsletter

WELCOME!

Thank you for taking the time to look through the brand new Food Group Newsletter, we hope that you find it useful, informative and interesting.

The RSC Food Group decided to launch this newsletter as a periodic digest of all that has been happening within the RSC Food Group, the RSC itself and in the wider world of academia, industry and innovation.

If you have any ideas, events, articles that you would like to have published in the next edition of the newsletter, then please get in touch. We would particularly like to start a section talking about inspirational chemists, so if you fit the bill then please get in touch.

Regards,

Alan on behalf of the RSC Food Group

Awards and Recognitions

FOOD ORAL PROCESSING POSTER PRIZE

This year, two posters from the Food Oral Processing Conference Poster competition were chosen to win a prize. The winners were:

Mr. Jumpei Okawa from Niigata University Graduate School of Medical and Dental Sciences for his poster presentation titled as “Impact of Masticatory Performance and Chewing Strokes on Retro-Nasal Aroma”

And

Ms. Katherine Hurst from University of Nottingham for her poster titled “Impact of structural properties of solid snack food matrices on salt dissolution and salt delivery during food oral processing”

Congratulations to the winners, who were selected from 26 entrants, beating off some tough competition to win this accolade.



Abstracts available here:

<https://www.nottingham.ac.uk/conference/fac-sci/biosciences/fop18/documents/fop-2018-book-of-abstracts.pdf>

Awards and Recognitions

NURSTEN PRIZE

The 6th Nursten flavour symposium was held at the University of Nottingham on 27-28 September 2018. Held in memory of Professor Harry Nursten, who was the head of the food science department at the University of Reading.

The RSC food group sponsored prize was this year won by Imogen Ramsey for her poster presentation: Assessment of different membrane technologies, processing parameters and efficiency on beer flavour using a lab scale dealcoholisation unit.



FOOD GROUP JUNIOR MEDAL

We are pleased to announce this year's winner of the RSC Food Group Junior Medal is Dr Joanne Gould, based on her contribution to food chemistry, particularly in relation to her research on sustainable and renewable ingredients. Joanne is currently an Assistant Professor at The University of Nottingham and is continuing her work in chemical sciences focused on renewable proteins.

We received some excellent and diverse nominations this year and the panel found it difficult to select just one winner. We would like to thank all this year's nominators for supporting and encouraging early career chemists and all the nominees should be proud of their achievements to date.

The medal will be presented at our next meeting and AGM in February, when there will be an opportunity for the winner to present during our afternoon event.

Meetings and Events

RSC Food Group: Naturals in Food Conference, October 2018

In October 49 attendees joined up for the Naturals in Food Conference held at Burlington House. This event was organised to address the use of natural and artificial components in food and beverages and their respective pros and cons.

The meeting covered a wide variety of topics:

- Regulations: Do rules always make sense for naturals as well as artificials? Might they mislead consumers?
- Risk assessment: How to evaluate long term risks and benefits for all food ingredients. How to disseminate the risks appropriately
- Consumers: Attitudes towards natural v artificial, how do they form their views and what influences their choices?
- Product development: Including ingredients such as flavours and colours as well as pet food
- Perspectives: How do naturals and artificials fare in a more ethical and sustainable culture



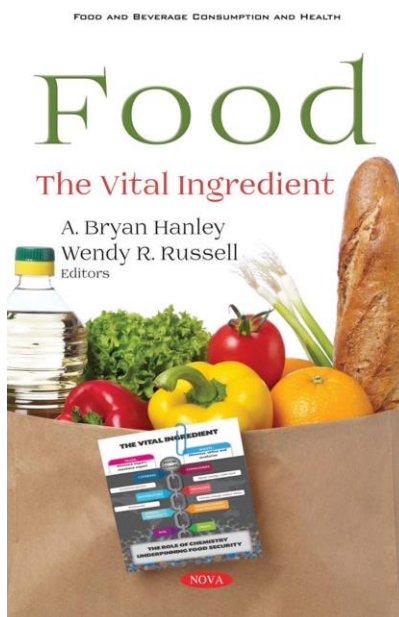
Upcoming Events

PUBLICATION LAUNCH

FOOD, THE VITAL INGREDIENT: This book presents expert opinions of thought on the challenges and opportunities people face in key areas in all aspects of food production, consumption and appreciation and how current knowledge can help to define our future. It is comprised of twelve chapters and deals with the whole food system, from primary production to the consumer purchase. It will be of value to stakeholders including scientists, policymakers, industry members and consumers.

This publication will be launched on Wednesday 13th February 2:30 – 4 pm at Burlington House.

<http://www.rsc.org/events/detail/36570/rsc-food-group-launch-of-food-the-vital-ingredient-publication>



Upcoming Events

SCI-RSC PLASTICS, FROM CRADLE TO GRAVE AND RESURRECTION

WEDNESDAY 19 JUNE 2019, SCI, LONDON, UK

The use and misuse of plastics has attracted considerable attention. The UK government has already pledged to work to reduce waste plastic. The Chancellor Philip Hammond announced a £20m fund in the spring budget to help businesses and universities to develop “new technologies” to help achieve the target of eliminating “avoidable plastic waste” by 2042. There will be upcoming funding calls as well as a need to review the whole area to reduce, replace and refine the use of plastics.

This conference brings together key sectors with the aim of focusing on assessing challenges and opportunities for researchers, industry and government. There will be a thematic link between the uses of plastics, their replacement with other materials, where it is advantageous, the toxicological hazards and benefits of plastic use and the post-use challenges and opportunities.

More details available here:

<https://www.soci.org/Events/Display-Event?EventCode=ENV567>



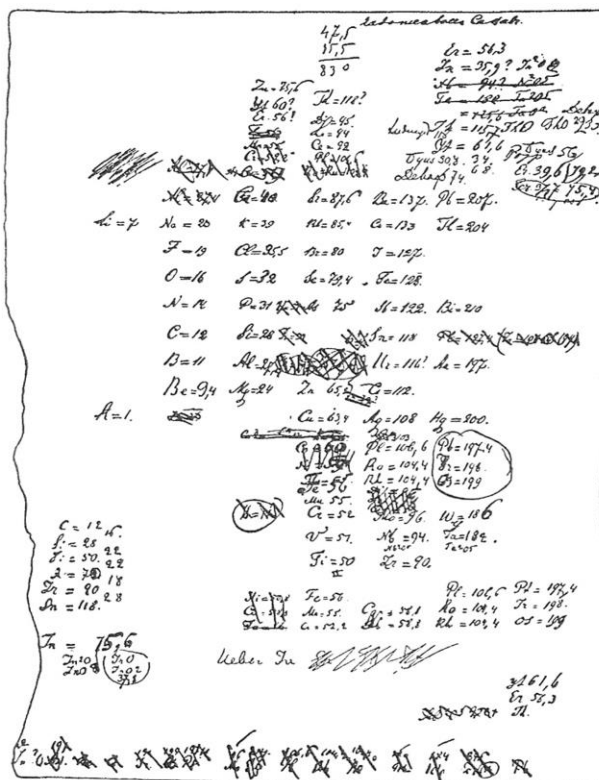
The Year of the Periodic Table

2019 sees the 150th anniversary of the conception of Mendeleev's Periodic Table, a tool, no doubt used on a daily basis by everyone reading this newsletter, and food chemistry probably has a stronger link to "tables" than other fields!

To commemorate this great Chemist and his invention, we will be highlighting an element in each edition of this newsletter and the role it plays in food chemistry.

The picture on the right is Mendeleev's workings on the original table of elements.

This edition: Sulfur



S

Sulfur

16

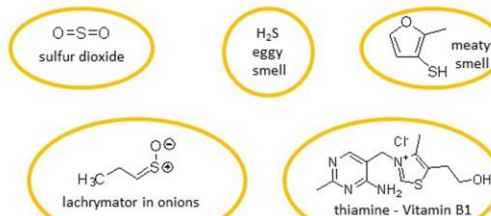
Occurrences in food

- Proteins (S-containing amino acids are cysteine and methionine)
- Particularly eggs, meat, coffee, vegetables
- Sulfur compounds responsible for aroma of onions, leeks, garlic and the compound that makes you cry.
- Glucosinolates in brassica (broccoli, sprouts, etc.) have potential anticancer properties and break down to
- isothiocyanates which give an acrid mustardy flavour.



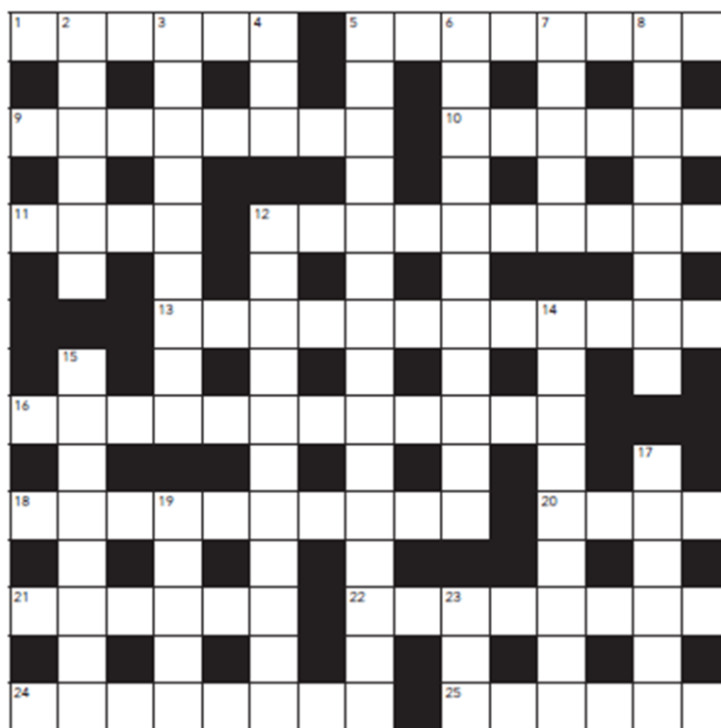
Roles in food

- Use of sulphate as fertiliser to improve crop quality.
- Hold proteins together (by disulfide bonds between cysteine residues).
- Essential for formation of bubbles in bread. (disulfide bridges in gluten stabilise bubbles).
- SO₂ is used as a preservative e.g. in wine, dried fruit.
- Variety of sulfur compounds contribute to the aroma of foods, particularly savoury aromas.



Just for Fun!

CROSSWORD



Quick (just for fun)

Across

- 1, 10 Across Father of modern genetics (6, 6)
- 5 Area within Europe which facilitates free movement between nations (8)
- 9 Captivating (8)
- 10 See 1 Across (6)
- 11 First name of the author of Frankenstein (4)
- 12 Gloomy or referring to a tomb (10)
- 13 Study of physical and biological aspects of the Earth's major water bodies (12)
- 16 Coin collectors (12)
- 18 Ordered by doctor or pharmacist (10)
- 20 Midday (4)
- 21 Stone bracket (6)
- 22 Famous physicist (8)
- 24 Tidal waves (8)
- 25 Kenyan city (6)

Down

- 2 SI Unit for measuring angles (6)
- 3 Biochemist and first American woman to win a Nobel prize in science (5, 4)
- 4 Bone in the chest (3)
- 5 Aids for insomnia (8, 7)
- 6 Equalised (11)
- 7 Beethoven Symphony which includes Ode to Joy (5)
- 8 Optical washing devices (8)
- 12 Edible shellfish, a speciality of New England (7, 4)
- 14 Salts of element with atomic number 33 (9)
- 15 Containing copper (8)
- 17 One of the elements discovered by Davy (6)
- 19 Polish American medical researcher who developed the oral polio vaccine (5)
- 23 The three essential elements listed in many fertilisers (3)

Just for Fun!

SUDOKU

Be		Cl			As	
		Na	Si			Se
F				Mg	Ga	Fe
Cu		Po			Sr	Sn
	I		Ba			Xe
	Sr	Rn		Cs		In
Ne		C	Cr			
O		Si	Ar			
	Zn			Al		Kr

CHEMISTRY CHRISTMAS CRACKER JOKES

Q: What do you do with a dead chemist?

A: Barium

Q: Anyone know any jokes about sodium?

A: Na

Q: Why does hamburger yield lower energy than steak?

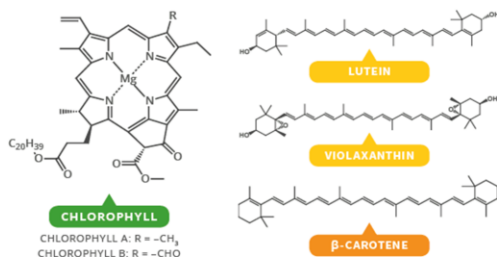
A: Because it's in the ground state.

FOOD CHEMISTRY INFOGRAPHIC

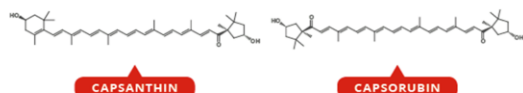
THE CHEMISTRY OF BELL PEPPERS

Bell peppers go through a spectrum of colours as they ripen – here we look at the compounds behind their colour, aroma, and flavour.

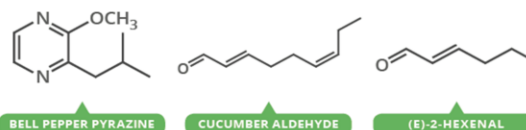
BELL PEPPER COLOUR CHEMISTRY



Chlorophyll, used by plants for photosynthesis, gives bell peppers their initial green colour. As the pepper ripens, these are decomposed, and a range of carotenoid pigments appear. These include lutein, violaxanthin, and beta-carotene, which give yellow and orange hues. Eventually red carotenoid pigments including capsanthin and capsorubin appear. These red pigments are almost exclusively found in peppers.



BELL PEPPER AROMA



The aroma of bell peppers also develops as they ripen. In green peppers, the characteristic smell is largely due to a single chemical, 2-methoxy-3-isobutylpyrazine ("bell pepper pyrazine"). Other minor contributors include (E,Z)-2,6-nonadienal ("cucumber aldehyde"). The concentrations of most volatile compounds drop during ripening, with the exception of (E)-2-hexenal and (E)-2-hexenol, lending a sweeter, fruitier note to the aroma.



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