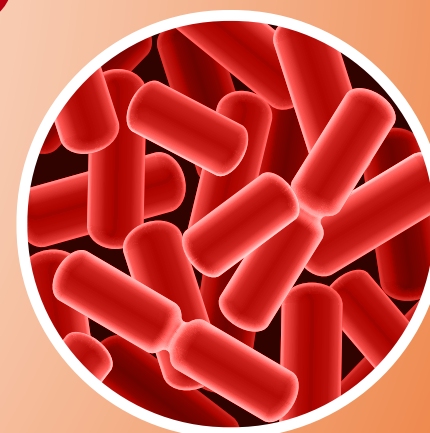


Antimicrobial Peptides in

Tomato Juice



Kill Typhoid-Causing Bacteria

Tomatoes are botanically classified as fruits because they develop from a single ovary and contain many seeds. They are legally considered as vegetables in the U.S. due to their common use in savory dishes rather than desserts. Widely available, affordable, and popular for their distinctive taste, tomatoes are rich in antioxidants, vitamins, and essential minerals. While their health benefits are well known, their antimicrobial potential has only recently begun to be explored.

According to a new study published in *Microbiology Spectrum*, a journal of the American Society for Microbiology, the researchers from Cornell University discovered that tomato juice contains natural compounds with powerful antibacterial properties. Using advanced computer analysis of the tomato genome, combined with laboratory experiments and simulations, they identified two key proteins called tomato derived antimicrobial peptides (tdAMPs), namely tdAMP-1 and tdAMP-2.

These peptides work by breaking down the protective membranes of harmful bacteria, effectively killing them. Among the two, tdAMP-2 was found to be more effective. Remarkably, these natural compounds were able to kill *Salmonella Typhi*, the bacteria responsible for typhoid fever including its hypervirulent and drug-resistant strains, as well as *Escherichia coli*, a common cause of urinary tract infections.

This discovery highlights the potential of tomato juice and its natural compounds to help prevent and fight bacterial infections, encouraging greater consumption, especially among children and teenagers, not just for nutrition, but also for their natural antimicrobial benefits.

References:

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- <https://asm.org/press-releases/2024/january/tomato-juice-s-antimicrobial-properties-can-kill-s>
- <https://journals.asm.org/doi/10.1128/spectrum.03102-23>
- <https://naturesweet.com/are-tomatoes-a-fruit-or-vegetable/>
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Sunscreen Products

Regulations in European Union

In the EU, sunscreens are classified as cosmetic products. Thus, they are regulated by Regulation (EC) 1223/2009.

According to this Recommendation, a ‘*sunscreen product*’ means any preparations (such as creams, oils, gels, sprays) intended to be placed in contact with the human skin with a view exclusively or mainly to protect it from UV radiation by absorbing, scattering or reflecting radiation.

For a sunscreen product to be considered effective in the European Union, it must protect against UVB and UVA radiation.

- ‘UVB radiation’ means sun radiation in the spectrum of 290-320 nm;
- ‘UVA radiation’ means sun radiation in the spectrum of 320-400 nm.

European sunscreen products, as you may have seen at points of sale, usually have specific claims such as the sun protection factor (SPF), UVB and/or UVA protection, broad spectrum and sunburn prevention claims. However, the European Commission requests that claims implying the following characteristics should not be made:

- 100 % protection from UV radiation (such as ‘sunblock’, ‘sunblocker’ or ‘total protection’);
- No need to re-apply the product under any circumstances (such as ‘all-day prevention’).

No sunscreen can provide 100% protection from the sun, so that European sunscreen products are required to include warnings such as:

- ‘Do not stay too long in the sun, even while using a sunscreen product’;
- ‘Keep babies and young children out of direct sunlight’;
- ‘Over-exposure to the sun is a serious health threat’.

It is also recommended to include instructions for use on the sunscreen product labelling to ensure consumers use it correctly and the claims on the label can be verified. Providing information on a sufficient amount of applied product on skin is crucial for effectiveness. Additionally, it is important to include warnings about the consequences of reducing the recommended quantity of product used.

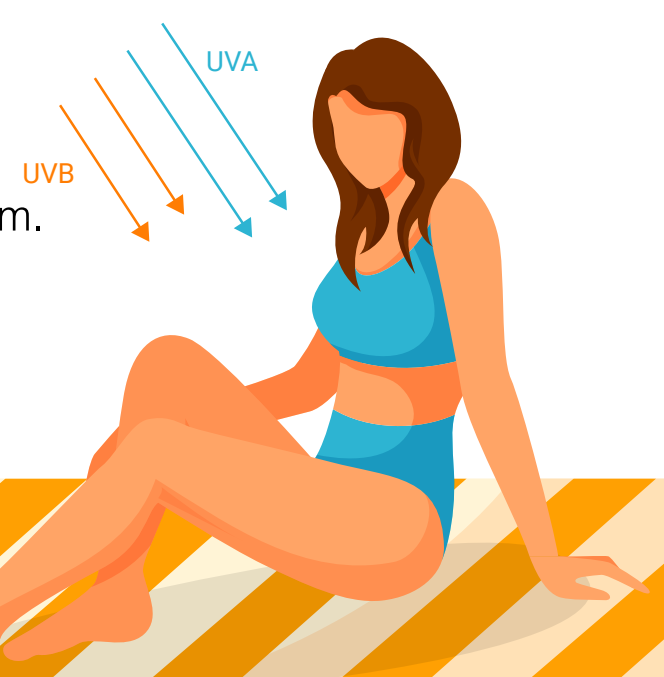
- ‘Apply the sunscreen product before exposure’;
- ‘Re-apply frequently to maintain protection, especially after perspiring, swimming or toweling’;
- ‘Warning: reducing this quantity will lower the level of protection significantly’.

The European Commission, through the recommendation, has established a minimum efficacy that sunscreen products marketed in the European Union must have. For this, it has given details on three key aspects directly related to efficacy: UVB protection, UVA protection, and Critical Wavelength.

- UVB protection: A European sunscreen product must have a sun protection factor (SPF) of at least 6. A product with an SPF below 6 cannot be classified as a sunscreen product.
- UVA protection: The UVA protection factor must be 1/3 of the sun protection factor.
- Critical Wavelength: The minimum critical wavelength of a sunscreen product must be 370 nm.

PLACE PRONE TO SUNBURN

Strongly burns | Medium burns | Slightly burns





Efficacy testing of sunscreen products:

To accurately measure the protection level of European sunscreens, it is essential to conduct various tests on the product using the specific, valid methods. The recommendation specifies that these methods should be standardized and reproducible, and must also include photo-degradation.

Preference is often given to *in vitro* methods. Only certain validated methods are recognized for conducting these tests to determine the sunscreen’s SPF, UVA protection, and critical wavelength.

- Sun Protection Factor (SPF) test: It must be carried out according to the International Sun Protection Factor Test Metho(ISO-EN-UNE 24444, *in vivo*) or any *in vitro* methods.
- UVA Protection test: This information must be obtained using the Persistent Pigment Darkening Method as modified by the French health agency Agence française de sécurité sanitaire des produits de santé – Afssaps (ISO-EN-UNE 24443) or any *in vitro* methods.
- Critical Wavelength test: It must be carried out using the Critical Wavelength Testing Method (ISO-EN-UNE 24443).
- The results from these tests will allow for various claims to be made on the product. It is important that these claims are clear, unambiguous, and meaningful, and they must be based on standardized, reproducible criteria. For instance, claims about protection against UVB and UVA rays can only be made if the product achieves the minimum efficacy standards. Depending on these results, the product should then be classified into one of the following protection categories: low, medium, high, or very high.
- Below is a chart that outlines the protection category based on the SPF results obtained from testing. This chart also specifies the SPF levels that can be labelled on the product according to these results.

Labelled category	Labelled sun protection factor	Measured sun protection factor	Recommended minimum UVA protection factor	Recommended minimum critical wavelength
Low protection	6	6 - 9.9	1/3 of labelled sun protection factor	370 nm
	10	10 - 14.9		
Medium protection	15	15 - 19.9		
	20	20 - 24.9		
	25	25 - 29.9		
High protection	30	30 - 49.9		
	50	50 - 59.9		
Very high protection	50+	≥ 60		

And remember, as with any other cosmetic products, any additional claims made on a European sunscreen product must be supported by evidence. If a sunscreen meets the minimum efficacy standards, it can feature claims such as “Broad Spectrum” or “UVA protection.” Furthermore, Cosmetics Europe, the European trade association for the cosmetic and personal care industry, has introduced a standardized logo that is now used by many brands. By displaying this logo on their products, European sunscreen manufacturers can assure consumers that the sunscreen offers the necessary protection against both UVB and UVA rays, and that this protection has been verified using standardized testing methods.



Therefore, when formulating and developing European sunscreen products, it is crucial to carefully select a UV filter or a combination of UV filters. This ensures that the resulting product not only meets the minimum required efficacy, but also becomes a top-choice product for individuals seeking effective sun protection.

KIWI

A Protein Digestion Tip

WHY YOU FEEL TIRED EVEN AFTER EATING WELL?

One key reason often overlooked is not getting enough protein to meet your body's needs. Protein isn't just about building muscle; it is vital for tissue repair and growth, a primary component of enzymes and hormones that regulate bodily functions, and crucial for a strong immune system.

While we get protein from various foods like meat, eggs, milk, beans, and grains, our fast-paced lifestyles or dietary restrictions can lead to insufficient protein intake. Many turn to protein supplements or adding more to meals. However, the body might not absorb it all at once. Research suggests a digestion limit of around 15 grams of protein per protein shake serving, meaning we might need a little help to maximize its benefits.

Kiwi, a refreshing fruit that offers a natural solution. Kiwis are rich in the enzyme actinidin, known for its protein-digesting properties. There is a study in the British Journal of Nutrition found that consuming kiwifruit with high actinidin content sped up the digestion of beef in the stomach and its emptying. This indicates that kiwi can help your body break down protein more efficiently, potentially reducing bloating after protein-rich meals and promoting better digestive health.

Therefore, paying attention to your protein intake and incorporating foods like kiwi with its protein-digesting enzyme actinidin are the keys to ensuring your body fully benefits from this essential nutrient and functions optimally.



Blocking Bitterness

in Functional Foods

Understanding Bitterness

Bitterness in functional foods and drinks often comes from compounds like caffeine, plant extracts, and amino acids, which activate bitter taste receptors. This poses a challenge for developers to create products that are both healthy and enjoyable. Innovative solutions are key to overcoming these flavor hurdles.

Smart Science Solutions to Combat Bitterness

- **Sodium Gluconate**: It binds to bitter molecules like caffeine and urea, preventing them from activating the bitter taste receptors.
- **β-Cyclodextrin (β-CYCLO)**: It encapsulates hydrophobic bitter compounds within its internal cavity, shielding taste buds from the bitter compounds.
- **Homoeriodictyol Sodium Salt (HED)**: It interacts with bitter compounds at a molecular level, reducing how intense the bitterness feels.
- **Zinc Sulphate (ZnSO₄) and Magnesium Sulphate (MgSO₄)**: Zinc can block the taste receptors, while magnesium helps control the taste balance.
- **Carboxymethylcellulose Sodium Salt (CMC)**: It thickens and stabilizes the product, improving the texture and spreading out the bitterness.

These blockers, however, can sometimes bring out unwanted flavors, like metallic or sour tastes.

Flavor Strategy Tips

- **Add Tartness**: Use cranberry, pomegranate, or green tea to balance bitterness.
- **Bold Flavors**: Strong flavors like lemon or cinnamon can overpower bitterness.
- **Redirect Taste**: Cooling flavors like menthol or warming spices like capsaicin can distract from bitterness.



MAY

- 4-5

The Makeup Show NYC, New York, USA
<https://www.themakeupshow.com/nyc/>
- 6

Rahn Seminar – Hair Care, CAHB Center, Bangkok, Thailand
- 7-8

LuxePack New York, New York, USA
<https://www.luxepack.com/>
- 8

Thor Seminar, Hanoi, Vietnam
- 8-10

Beauty Istanbul, Istanbul, Turkey
<https://beauty-istanbul.com/>
- 8-10

Food & Beverage Innovation Forum 2025, Shanghai, China
<https://www.foodtalks.cn/fbif/en>
- 11-15

The Society of Environmental Toxicology and Chemistry (SETAC) Europe 35th Annual Meeting, Vienna, Austria
<https://www.setac.org/>
- 12-13

Natural & Organic Products Expo, London, UK
<https://www.naturalproducts.co.uk/>
- 12-14

China Beauty Expo, Shanghai, China
<https://www.chinabeautyexpo.com/>
- 12-14

International Conference on Food Oral Processing, Physics, Physiology and Psychology of Eating, Valencia, Spain
<https://eventos.adeit.es/117459/detail/7th-international-conference-on-food-oral-processing-physics-physiology-and-psychology-of-eating.html>
- 14-16

International Conference on Water Energy Food and Sustainability 2025, Leiria, Portugal
<https://icowefs.ipleiria.pt/>
- 14-16

CITE Japan, Yokohama, Japan
<https://www.citejapan.info/en/>
- 20

Labio Seminar, Ho Chi Minh City, Vietnam
- 20

CAHB and Mini CAHB Seminar – Sun Care and Skin Care Trends 2025, Chemico Vietnam Co., Ltd., Hanoi, Vietnam
- 20

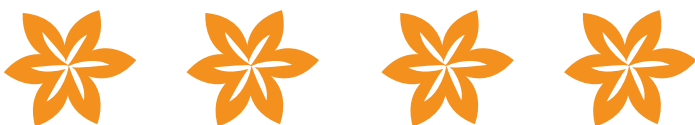
Foodworld India 2025, New Delhi, India
https://ficci.in/event_details/25112447294277
- 21-22

Philippine Food and Beverage Summit 2025, Manila, The Philippines
<https://escom-events.com/foodphilippines2025>
- 22

CAHB and Mini CAHB Seminar – Food, Chemico Vietnam Co., Ltd., Ho Chi Minh City, Vietnam
- 28

Momentive Seminar – Harmonie Series, Bangkok, Thailand
- 27-31

THAIFEX – Anuga Asia, Bangkok, Thailand
<https://thaifex-anuga.com/>



JUN

- 4-5

Cosmetic Business, Munich, Germany
<https://www.cosmetic-business.com/en/>
- 5

Biochempro Seminar, Chemico Vietnam Co., Ltd., Hanoi, Vietnam
- 10-13

Seoul Food & Hotel 2025, Seoul, Korea
<https://www.seoulfoodnhotel.com/introduce/01.php>
- 11

CAHB & Mini CAHB Seminar: Food, PT. Chemico Surabay, Surabaya, Indonesia
- 11-14

ProPak Asia 2025, Bangkok, Thailand
<https://www.propakasia.com/ppka/2025/en/index.asp>
- 17-18

Free From Specialty Food & Wine 2025, Vienna, Austria
<https://vienna.freefromfoodexpo.com/>
- 18

Lycored Webinar
- 18

Corum Seminar, Chemico Vietnam Co., Ltd., Hanoi, Vietnam
- 18

CAHB & Mini CAHB seminar: Sun and Skin Care Trend 2025, Chemico Myanmar Co., Ltd., Yangon, Myanmar
- 18-20

Cosmetics & Home Care Ingredients, Istanbul, Turkey
<https://chcistanbul.com/en>
- 24-26

Hi & Fi Asia-China 2025, Shanghai, China
<https://www.figlobal.com/china/en/home.html>
- 25-27

Cosmoprof CBE ASEAN 2025, Bangkok, Thailand
<https://www.cosmoprofcbeasean.com/>





Momentive Seminar, Vietnam

Momentive Performance Materials Inc. in collaboration with Chemico Vietnam Co., Ltd. organized an interesting seminar on April 23rd, 2025 under the topic “THE INGREDIENTS TO A BEAUTY MENU: A Multi-course Skin Care Daily Regime”. As a high-performance silicones and specialties company, Momentive introduced the series of silicones as advanced solutions for skin care products. All attendants had a chance to experience 20 prototypes of sun care, skin care and make up products to know more about the effectiveness of each raw material. A Skin Analyzer was also used to test the effectiveness of ingredients.



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