

CAS JAMAICA

FOOD SAFETY NEWSLETTER

Peruvian cuisine



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A letter from the editor

On October 28, 2025, Hurricane Melissa, a catastrophic category 5 hurricane made landfall in Western Jamaica leaving widespread devastation, many homeless and without utilities for weeks. Hurricane wind speed of over 200 m.ph. was reported. This was the reality of Jamaica a few months ago. We continue to rebuild and forge forward despite the challenges. There are concerns regarding food security as farmers have lost crops and livestock.

Additionally, the health sector has been severely impacted with loss of infrastructure and disease outbreak. There are reports of Leptospirosis an infectious disease caused by the Leptospira bacteria which is contracted through contact with water or soil contaminated by the urine from animals. It causes flu like symptoms and is the most common zoonotic infection globally.

There has been much focus on the devastation caused by the hurricane, but I wondered, might there be some associated benefits. I have noticed rose plants flourishing post Melissa and trees bearing fruits. Hurricanes contribute to the distribution of nutrients in the ocean.

Hurricane Benefits

As the storm churns, nutrients are brought from the ocean floor to the surface promoting the growth of phytoplankton which form the basis of the marine food web. Other benefits include, bringing rainfall to areas experiencing drought, providing global heat balance, replenishing barrier islands and inland plant life with nutrients.

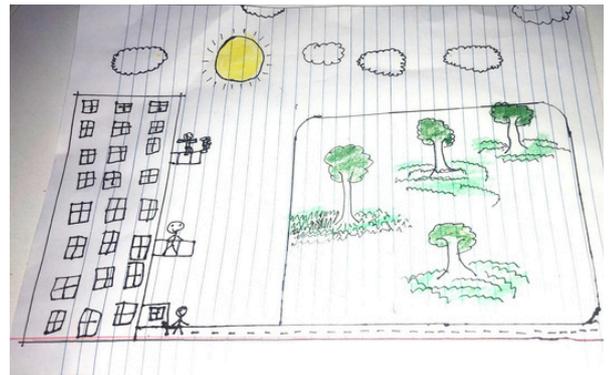


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The Weather and Me

by Daniel Campbell, Lister Mair/Gilby High School for the Deaf, Jamaica

Today the weather is looking good, but maybe
later the weather will change.
When it changes you feel it,
and this you will know.
Some days it remains the same.
Whether the weather is windy, rainy or stormy,
you will see it.
I love when it rains, because it sounds good.
When I sleep, it makes my night cool and calm
The weather and me.



Macmillan New Branches Poetry Competition Anthology

Converting wastewater to bottled water: The choice is clear

By Lashantae Porteous

Access to clean water is a vital component for good health. Most of Jamaica's potable water comes from aquifers that are held underground. However, many people think water comes from just the pipe that is turned on and off by the government. Water is not fully appreciated until it is gone. This is exactly what is taking place right now in Western Jamaica due to hurricane Melissa. The intricacy of water security is connected to human survival, health, and economic and social well-being. The scarcity of water in the island of Jamaica since the hurricane has highlighted the serious development and social challenges being experienced. The United Nations Development Programme report stated that water scarcity will affect 1.8 billion people worldwide by 2025. Further statistical data revealed that the lack of access to sufficient water supply is being experienced by approximately 1.1 billion people in developing countries. In addition, Jamaica is no exception to the issues faced with food and water scarcity.

Some factors such as power, inequality and poverty are a critical part of the availability of water in Jamaica. A researcher also highlighted that seventy-one percent (71%) of Jamaica's 2.7 million people have piped water, while another 5.7 percent (%) of residents depend on water from rivers and 3.1 % rely on pond water (Haughton, 2015).

The National Water Commission (NWC) is primarily responsible for water supply and wastewater management while The National Environment and Planning Agency (NEPA) plays an integral role in providing mandatory environmental protection, natural resource management and land use in Jamaica.

One thing that they both have in common is that they ensure that the effluent from factories meet certain standard before being released. The NWC plays a key role in the provision of potable water and sanitation services to most of Jamaica's population with over a hundred and sixty (160) wastewater treatment plants and several water supply systems operating across the island. NEPA policies are enforced to ensure that water treatment and discharge processes meet environmental and health standards. These regulations act as a protection for rivers, groundwater, and coastal areas fostering sustainable water management and ecosystem protection.

Even though wastewater is treated and released with the thought of it being useless, it can be a resource with the addition of extra treatment processes. It is important to change how we see wastewater management. Instead of treating it as waste disposal, it should be viewed as a cycle of resource recovery that supports NEPA's sustainability goals and Jamaica's Vision 2030 plan.

Reference

1. Haughton, S. A. (2015). Jamaica's water insecurity | baker institute. Jamaica's Water Insecurity. <https://www.bakerinstitute.org/research/jamaicas-water-insecurity>

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Pulegone in mint

By Danielle Davis

Pulegone is a naturally occurring organic compound found in the essential oils of various mint species. It exhibits antimicrobial activity and plays a significant role in the fight against microorganisms by essential oils. It has been found to possess good antibacterial activity against the strains of *Staphylococcus aureus* and methicillin-resistant *S. aureus* (MRSA) as well as antifungal activity against *Candida albicans* (Bozovic and Ragno 2017). Additionally, pulegone was identified as a potent antimicrobial agent against *Salmonella* species (Bozovic and Ragno 2017). The high pulegone content of essential oils from *Calamintha nepeta* was also seen to display strong antifungal effects against *Fusarium* and *Aspergillus* (Bozovic and Ragno 2017). No effects were however seen against the gram (-) strains of *Escherichia coli* and *Pseudomonas aeruginosa*.

The toxic effects of pulegone are due to the metabolite menthofuran which arises due to the hepatic metabolic activation of the P-450 enzyme present in the liver (Bozovic and Ragno 2017). Metabolism of pulegone can occur via three pathways. These include hydroxylation with subsequent glucuronidation, reduction to menthone or isomenthone along with subsequent hydroxylation or glucuronidation and lastly the formation of mercapturic acids with subsequent hydroxylation (Voigt et al., 2024). Pulegone is metabolized to a series of hepatotoxins capable of causing liver cancer and rapidly destroying the liver. 10-Hydroypulegone is a hydroxylated form of the pulegone and is known to be unstable as it is easily converted into menthofuran or the more reactive 10-pulegone aldehyde.

Pulegone is beneficial in its ability to act as a natural repellent, antifeedant, herbicide as well as insecticide. It also possesses antioxidant, anti-inflammatory, antidiarrheal, antimicrobial and spasmolytic properties. In addition, its strong mint like aroma and flavour has been beneficial as both a digestive and respiratory aid as well as in culinary, medical and cosmetic uses. The toxin however, is carcinogenic due to its ability to bring about abnormal activity in several organs namely the liver, kidney and lungs. Its risk of carcinogenicity and adverse effects therefore increases as the dosage of the toxin increases. For humans, exposure to this toxin mainly comes through medication, flavouring, confectionery and cosmetics. The Tolerable Daily Intake (TDI) for pulegone was established by the Committee of Experts on Flavoring Substances (CEFS) to be 0.1 mg/kg body weight per day while in cosmetics, the maximum concentration was set to 1 % (Voigt and Franke 2024).

References

1. Bozovic, M. and Ragno, R., 2017. *Calamintha nepeta* (L.) Savi and its main essential oil constituent pulegone: Biological activities and chemistry. 22, 1-50.
2. Voigt, V., Franke, H., and Lachenmeier, D., 2024. Risk assessment of pulegone in foods based on benchmark dose-response modeling. 13, 1-14.



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Food for Astronauts

The National Air and Space Museum of the Smithsonian

Washington, D. C.

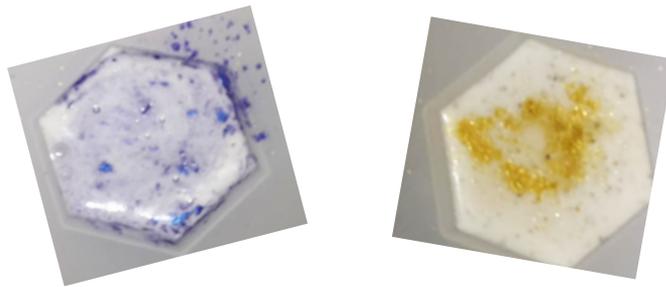
On display at the National Air and Space Museum are samples of food that were specially prepared for astronauts. What special considerations are observed when preparing foods for astronauts? A food processing technique that is commonly utilized is freeze drying. This process maintains the sensorial and nutritional properties of the food by utilizing low temperature and a vacuum to remove moisture from the food. This also results in a lightweight product. NASA continues to explore the development of food for astronauts that are nutritious and eaten easily. Gelatin coatings prevent dangerous crumbs from floating off and contaminating equipment. Freeze drying and special packages keep foods fresh. Foods are usually dehydrated and then prepared during flight by injecting the package with hot or cold water. Apollo Space Foods and Drinks can be rehydrated with hot or cold water. Examples of “Space Foods” include:

- Tuna Salad
- Butterscotch Pudding
- Chicken Stew
- Grapefruit drink
- Coffee with Sugar and Cream



Soapmaking

The history of soap making dates back thousands of years with evidence suggesting that the Babylonians were making soap from as early as 2800 B.C. from fats boiled with ashes. Students at Lister Mair/Gilby High School for the Deaf were fully engaged as they made soap utilizing the melt and pour method. Soaps are made by the esterification of fatty acids with bases such as sodium hydroxide or potassium hydroxide. Potassium hydroxide is utilized in the making of liquid soaps while sodium hydroxide is used to make bar soaps. Having clean utensils and a clean surface in food preparation is central to food safety. Water utilized in the cleaning process also needs to be potable. This means that it should be free from microorganisms associated with enteric diseases, toxic metal ions, toxic organic substance, objectionable odour, colour and taste. Sanitizers are utilized to kill bacteria.



Soaps made by students at LM/GH

Spondias dulcis

Did you know that June plums are a rich source of Vitamin A, Vitamin C, Vitamin B5? They are also known as golden apple. The green colour of the immature fruit is due to the presence of chlorophyll. As the fruit matures it changes to yellow due to the presence of carotenoids. The fruit may be eaten raw or may be converted to a refreshing drink. It is also utilized to make chutney and may be dehydrated. Be sure to stock up on your June plums as we are currently in the flu season.



THE AMERICAN CHEMICAL SOCIETY (ACS) FALL CONFERENCE

The American Chemical Society (ACS) Fall Conference was held in Washington, DC from August 17th to August 21st, 2025. The conference proved to be a very enriching and informative experience. Various networking opportunities were available at the conference. Our graduate students were afforded the opportunity to attend the Graduate School Fair which introduced them to various universities that they had not known before. They gained useful advice from current students regarding admission requirements and the graduate experience on campus. Dr Dorothy Phillips is the first female African American to hold the post of ACS President. It was truly an honour to meet her.

ACS Washington DC, Fall 2025



3°ACS LATAM+C Meeting for ACS Faculty Advisors

The 3°ACS LATAM+C Meeting for ACS Faculty Advisors held in Lima, Peru from November 21 - 24, 2025 was a highly successful event with participants from Jamaica, Trinidad, Costa Rica, Peru, Ecuador, Brazil, Mexico, Chile, Columbia and The United States of America. The meeting was held at the Pontificia Universidad Catolica del Peru in San Miguel. We were warmly welcomed by our host Dr Betty Galarreta, a Professor in the Chemistry Department. The meeting was a rich infusion of workshops and cultural exposition with visits to a local museum, Museo Marco. We also enjoyed the gastronomy of the country and were introduced to traditional dishes such as ceviche and the drink Chicha morado made from fermented corn. The main purpose of the meeting was to foster collaboration between the various student chapters in Latin America and the Caribbean as well as highlight funding opportunities available through the ACS.

Dr. José Rodríguez Corrales from FA Universidad Nacional, Costa Rica in his talk “Enhancing Soft Skills in Chemistry Students: Insights from the ACS International Student Chapter Experience” noted that there is an absence of curriculum to develop soft skills. Students who are members of the American Chemical Society student chapter gain valuable soft skills such as analytical thinking, resilience, flexibility and agility, leadership and social influence, creative thinking, motivation and self awareness, technological literacy, empathy and active listening



CAS Regional Conference Highlights

The CAS Regional Conference was held in Barbados on November 27 through to November 29th, 2025 at the School for Graduate Studies and Research at The University of the West Indies (UWI), Cave Hill Campus. The conference was well executed by the CAS Barbados Chapter led by Dr Andrea Sealy. Prof Raymond Jagessar delivered the opening plenary lecture. The conference had participants from Trinidad and Tobago, St Vincent and the Grenadines, Guadeloupe, Barbados, Guyana and Jamaica. There were a number of interesting talks which addressed sustainable development goals some of which are listed below.

Management of Waste Cooking Oil in the Kingston Metropolitan Area, Jamaica: Steps towards creating a circular economy. Presenter: Ms Aisha Trimmingham

Fast Tracking Climate-Smart Cassava Research through Multi-Stakeholder Partnerships: Insights from Project Grow Jamaica. Presenter: Dr Fradian Murray

Synthesis of activated carbon from cocoa plantation waste. Presenter: Desiree Koonj Beharry

Production and characterization of biochar from broiler poultry litter by slow pyrolysis. Presenter: Diandre Stephen

From Waste to Value: Development of edible films from Chenet Shell (*Melicoccus bijugatus*) pectin. Presenter: Che John.

The conference was a wonderful and transformative experience which has led to the creation of new bonds and strengthening of ties within the region as we navigate the challenges faced by the Caribbean region such as Climate Change.

The New CAS Executive 2026- 2027



L-R Dr Jeffrey Smith (Treasurer), Dr Albertha Joseph-Alexander (Public Relations Officer), Dr Andrea Goldson-Barnaby (Secretary), Prof Mark Wuddivira (President) and Prof Raymond Jagessar (Foreign Secretary).

Food Humour

Imagine being a medieval chef- you could lose your head not because of poison, but because the taster was just lactose intolerant.

How do you get spoilt milk FDA approved?
Reintroduce it as yogurt

A clean kitchen means fewer rats... but fewer rats will make hungrier cats...

Back then, expiration dates were easy- if it moved on its own, it had expired.

What did the food inspector say to the yogurt's joke?
That was a bit cheesy

A dirty cleaver makes cutting corners deadly.

How do you know when milk is not FDA ready?
When it curdles instead of pour

Contributed by Javian Walker

Quotable Quotes

The real world doesn't reward perfectionists. It rewards people who get things done.
Ziad K. Abdelnour

What do you do when you lose? Accept the defeat and move on. You never know what you win when you lose.
Rigoberto Hernandez

We spend more time learning how to make a living than we do learning to make a life.
Muhammad Alu

When one door of happiness closes, another opens, but often we look so long at the closed door that we do not see the one
that has been opened for us.
Helen Keller

Helen Keller lost her sight and hearing at just 19 months old after a severe illness.

She was the first deafblind person in the world to earn a college degree.

Her teacher was Anne Sullivan who at age 5 was partially blind and unable to read and write. At age 14 she was sent to a school for the blind, where she underwent surgery to improve her vision and learned to read and write. She excelled academically and graduated valedictorian. Anne taught Helen to speak and read Braille.

Excerpt from Our Daliy Bread
2025 Annual Edition

Haben Girma

The first deaf and blind black woman who graduated from Havard Law School and a recipient of The Helen Keller Achievement Award

Things Peruvian

N R O C O N C A T A C O M B S
 L O U A S E R O L F A R I M O
 A C A C N I O N I M A C O S I
 C S P C S U C V N I C C C O S
 A M O C M H H A C M F L O L A
 N V C S I C I L A L E C O A N
 T O R I A C C S A C L A E S F
 U T A C S I H H A N A A C U R
 T C L F C P A I C M D C M N A
 A S O A L U M A C C B E N A N
 M S E B C H O C S U C H A O C
 S N S A M C R E O N C A C N I
 U C U U A A A I O M N S L A S
 U S M A I M D E H C I V E C C
 N C O R U T O C S P F H I M O

Pisco
 Corn
 Solas
 La Cantuta

Ceviche
 Chicha morado
 Museo Larco
 San Francisco

Miraflores
 Machu Picchu
 Andean
 Catacombs

Llama
 Cusco
 Camino Inca



*CCAS Jamaica wishes for you and your families a
 Merry Christmas and Best Wishes for 2026*