CAS JAMAICA

FOOD SAFETY NEWSLETTER



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A letter from the editor

Allergens are a leading cause of food recalls in The United States of America (USA). Approximately a third of food recalls are associated with the presence of allergens. When consumed, allergens cause an auto immune response in the body of the allergic individual. Allergic reactions vary from moderate to severe. Symptoms include, hives, wheezing, itching, anaphylaxis and in severe cases death. Treatment for allergic reactions include the administration of antihistamines or the use of an EpiPen.

There are many different types of allergens. The BIG 8 allergen list was first established in 2004. The list consists of fish, wheat, soy, dairy, peanuts, tree nuts, fish and shellfish. As of January 2023, sesame was also added to this list (Figure 1). Of the nine allergens, milk has been identified as the major cause of allergic reactions. The main safeguard for consumers who experience allergic reactions is for them to avoid the allergenic ingredient. Allergenic consumers rely heavily on the proper labelling of products to alert them as to the presence of allergens. Earlier this year, the death of a fourteen year old student from the Liberty Middle School in Papillon, Nebraska, USA, made the headlines. The student was hungry and was offered a granola bar. Unfortunately, the student died as a result of an allergic reaction to an ingredient in the granola bar that he had eaten. The school district agreed on a \$1 Million USD settlement. This emphasizes the importance of schools being made fully aware of any allergens that students may have. While some persons outgrow their allergens, others remain allergic for life.

When manufacturing foods with allergens, care has to be taken to avoid cross contact to prevent the contamination of non allergenic products. Special consideration has to be taken with regards to the sequence in which foods are processed especially if the same process line is being utilized. Non allergenic products should be processed before allergenic products. Proper sanitation procedures also need to be implemented between runs. Other precautions include the use of designated equipment for allergenic products. Allergen test kits are also available to test for the presence of allergens. Did you know that ackees can also cause an allergic reaction? While uncommon, ackee has been known to cause allergic reactions. I had my first allergic reaction several years ago while visiting Canada. The source of the allergic reaction is uncertain as I had never had an allergic reaction before. After tracing the foods which I had consumed, it is suspected that it may have been from eating a can of ackees. In the United Kingdom, celery and sulphites are also considered as allergens. Sulphites are utilized as preservatives in foods such as wines and dried fruits. In Jamaica wheat is a common allergen with persons requiring gluten free products. The use of cassava flour in the place of wheat flour has been explored locally.

Current innovative trends include the production of vegan cheese and extraction of proteins from plants. Examples of plant protein sources currently being explored include potatoes and cabbage which allows for the production of allergen free products.



Figure 1. Sesame, joins the list of major food allergens

Dr Andrea Goldson-Barnaby currently serves as the Head of the Food Chemistry Division in The Department of Chemistry at The University of the West Indies, Jamaica. She is also the Programme Coordinator for the MSc in Food and Agro Processing Technology.



TRANSFORMATION OF FOOD WASTE INTO AN EDIBLE OIL

By Zoie Aimey

Food waste is defined as "the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers" (FAO, 2021, Food Loss and Food Waste). It encompasses fresh produce which upon sorting is not ideal for further packaging or processing, foods are discarded because of a closely which approaching or passed "best before date" and foods which are unused or left over and discarded from households or eating establishments (FAO, 2021, Food Loss and Food Waste). Food wastage and food loss total a third of the world's food and as such is a grave issue which Target 12.3 of the 2030 Agenda for sustainable development, seeks to address. This Target aims to reduce the per capita global food waste and food loss by half by the year 2030. Food waste as measured by Sub-Indicator 12.3.1.b - Food Waste Index, outlines statistics and accompanying objectives indicating the dire need for innovative ways to eliminate or reduce food wastage (FAO, 2021, Sustainable Development Goals).

The most common waste management procedure is the transportation of food waste to landfills where it decomposes and produces greenhouse gases such as carbon dioxide and methane gas (Salemdeeb, 2017), the latter of which is up to 80 times more impactful than carbon dioxide. One of the ways in which food waste can be reduced is by reprocessing this waste, thus converting it into other value added products. Fruits and vegetables are good candidates for reprocessing, А significant percentage of produce is wasted along the supply chain which can be converted to oils and extracts.



Ramadan (2019) reports that the FAO recorded a significant increase in the edible oils market in 2016. Edible oils are important as they provide energy and essential fatty acids. They are also carriers of fat-soluble vitamins within the human body, maintain normal body temperature and protect body tissue (Neagu et al., 2013; Yang et al., 2018). Food applications include their utilization in salad oils, baking or frying fats, margarine and cooking oil. Salad or cooking oils can also be used in conjunction with other ingredients to produce mayonnaise and salad dressings (U.S. E.P.A., 1998).

Vegetable oils are the primary source of edible fats, comprising upwards of 75% of the total lipids consumed in the world (Yang et al., 2018). However, fruit oils are becoming more prevalent due to the increased need for nutritive fats which provide fatty acids, some of which are deemed essential. Examples of popular fruit oils used for their nutritive purposes include coconut oil, olive oil, palm oil and avocado oil. Fruit oils are typically extracted from the flesh of the fruit (mesocarp) or the seed kernel. Ramadan (2019) categorizes fruit oils based on their processing method, unique aroma, health benefits, low production yield and high price. The latter two characteristics make fruit oils difficult to source. Often, cheaper adulterated oils are found in commerce. Preventive methods such as labelling requirements, methods of analysis and purity and quality parameters must be established by regulatory bodies to mitigate adulteration (Ramadan, 2019).



Ms Zoie Aimey, Plant Manager Ulu Foods, Barbados Graduate Student, Food & Agro Processing Technology Programme Faculty of Science and Technology, The University of the West Indies, Jamaica

Fats and health

Healthy oils have zero trans fats, are low in possess higher levels saturated fat and of monounsaturated or polyunsaturated fatty acids (U.S. E.P.A., 1998). This is supported by a metaanalysis of eight randomized control trials which assessed replacing saturated fatty acids with increased consumption of polyunsaturated fatty acids (Mozaffarian et al, 2010). This change in diet resulted in a 19% reduction in coronary heart disease. More specifically, each 5% of the energy intake from polyunsaturated fatty acids decreased the risk of coronary heart disease by 10% (Mozaffarian et al, 2010). Increased consumption of polyunsaturated fats reduces low density lipoprotein (LDL) cholesterol ("bad" cholesterol) but has no effect on high density lipoprotein (HDL) cholesterol ("good" cholesterol) (Mozaffarian et al, 2010). LDL cholesterol is the main cholesterol in the body. It is absorbed and transported to the liver for excretion by HDL cholesterol (CDC, 2020). Excess LDL cholesterol can result in the deposit of "plaque" in blood vessels which can restrict blood flow to the heart and other organs, leading to heart attack and other cardiovascular conditions (CDC, 2020). This usually results when saturated fats are consumed, increasing LDL cholesterol (Unhapipatpong, et al., 2021). It should be noted however that saturated fatty acids are not consumed in isolation. They are present in complex food systems which in their entirety may not cause coronary heart disease (DiNicolantonio et al., 2016). Some foods with saturated fats may even have a positive effect on cholesterol. For example, saturated fats from plant sources, such as coconut oil and palm oil, are considered healthy oils.

By Zoie Aimey

It has been reported that palm oil increases both LDL and HDL, while coconut oil increases HDL and total cholesterol. Saturated fats from plant sources, have been found to "exert a neutral effect on cardiovascular health" (Unhapipatpong, et al., 2021). The mechanism by which short chain saturated fatty acids are absorbed differs from that of long chain saturated fatty acids. Coconut oil is purported to be a healthier oil as it is quickly metabolized due to the presence of short chain fatty acids, such as lauric acid, which is easily absorbed and transported throughout the body (Dayrit, 2014).

It is recommended that we consume fats which are rich in monounsaturated fatty acids as they can prevent cardiovascular disease (Yang, et al., 2018). This is possibly due to their ability to lower blood cholesterol and LDL while increasing HDL (U.S. E.P.A., 1998). Some of the more popular domestic oils contain high percentages of saturated fats. These include coconut oil, olive oil, canola oil and peanut oil (92%, 77%, 62% and 49% monounsaturated fat respectively) (U.S. E.P.A., 1998). Ackee aril oil is monounsaturated and contains a high level of oleic acid (55.44%), followed by palmitic acid (25.57%) and stearic acid (12.59%) (Goldson et al., 2014).



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UNRAVELING THE PALATE PUZZLE: THE FASCINATING SCIENCE BEHIND OUR FOOD CHOICES



By Tanesha Baker

" More conscientious personalities consumed more fruits, less meat, and fewer sweet and savory foods"

Food holds a significant place in culture, yet various factors beyond culture influence our culinary decisions. Our food choices are driven by a multitude of factors, extending beyond mere Genetic predispositions, hunger. sensory perceptions, emotional states, social influences, and even the time of day all play a role in shaping what we eat. By unraveling the intricacies of the psychology behind our food choices, we gain valuable insights into our dietary behaviors and pave the way towards healthier and more mindful eating habits. Food is almost ubiquitous in our everyday life, and eating is one of the simplest yet most complex behaviors. In fact, it is estimated that we make up to 200 decisions related to food each day. Our food choices are not simply driven by hunger; instead, they are shaped by a complex interplay of factors. Psychometric measures have revealed a diverse range of eating motives, encompassing pleasure, habit, health concerns, sociability, and weight control. These motives can vary in the moment of eating, making their assessment challenging. However, the advent of mobile health (mHealth) and ecological momentary assessment (EMA) has opened new possibilities for capturing real-time eating experiences, providing valuable insights into the multifaceted influences on our food choices. Genetic predispositions and sensory perceptions partially determine our taste preferences and how we perceive flavors. The influence of genetics on our overall food choices remains a topic of exploration. Additionally, emotional states significantly impact our food decisions, with individuals often seeking comfort

cand solace in sweet and fatty foods during periods of stress or unhappiness. Social influences from friends, family, or colleagues also play a role in shaping our culinary preferences. Moreover, the time of day and seasonal changes can evoke specific food preferences, while personality traits influence the variety of foods we choose. The impact of food packaging and labeling further guides our decisions, as clever marketing strategies can attract or deter consumers from certain products. Understanding the intricacies of food choice motives empowers us to make conscious and healthier dietary decisions (Webb, 2023). The science behind our food choices unveils a complex web of influences that shape our dietary decisions. Understanding this intricate interplay empowers us to make informed and conscious choices about our diets, fostering a harmonious relationship with food and enhancing overall well-being. By delving into the fascinating science behind our eating habits, we pave the way towards a healthier and more mindful approach to our culinary selections. Armed with this knowledge, we embark on a journey towards a balanced and nourishing diet, where pleasure and nutrition harmonize, leading to a happier and healthier life. Even amid cultural influences on food choices, understanding the science and environmental factors can help us make better and more conscious choices.

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Ms Tanesha Baker, Project Manager and Communication Specialist The Reginald & Dionne Smith Foundation, Atlanta, Georgia, USA

The Impacts of Blockchain Technology in the Food Industry By Shari Marks

Abstract

Blockchain is a digital database or ledger that is distributed among the nodes of a peer-to-peer network. This technology consists of a decentralized and immutable digital ledger that records transactions and data in a secure and transparent manner. It can be used to enhance traceability and transparency throughout the food supply chain since multiple participants such as farmers, suppliers, processors, distributors, retailers and even consumers have access to the same information simultaneously. By using blockchain technology, stakeholders in the food industry can quickly and accurately trace the source of food-borne illnesses, contamination or fraudulent activities. If any of these issues arise, authorities can efficiently identify the affected products and take targeted action to prevent further spread or recall specific batches.

Introduction

Blockchain for the food supply is built around a distributed ledger that contains data on all food supply chain transactions and events. The ledger is formed by timestamped and encrypted data blocks, linked in chronological order. Each block holds a batch of transactions validated based on the predefined consensus protocol. Food supply chain participants interact with the blockchain ledger using mobile application or role-specific web.

In the food chain supply, there are a number of stages that the food item has to go through before it reaches the shelves of supermarkets. The main participants that have a part to play in this chain include: farmers, food producers, distributors and finally consumers. By recording every transaction or movement of a food item on a decentralized and secure ledger, stakeholders can trace the journey of a product from farm-to-table. This can help combat food fraud, increase food safety and build consumer trust.

Internet of Things (IoT), Frequency Radio Identification (RFID) and Artificial Intelligence (AI) are some of the technologies that can be paired with Blockchain technology to create robust, efficient and even more secure systems within the industry. IoT sensors can monitor the temperatures of food products during transit. RFID tags are used for tracking assets throughout their lifecycle and AI algorithms can analyze the vast amounts of data stored in the blockchain to extract valuable identify insights, patterns, and also make predictions.

These technologies, driven by blockchain, have the power to revolutionize the food industry for generations to come.

Discussion

According to the World Health Organization, 1 in 10 people become ill with a food borne illness every year and approximately 420 000 people die as a result. The biggest problem faced by the food industry is the complexity of the global supply chain. It is difficult for retailers to tell the exact origins of a product. Food contamination cases have continued to rise despite quality checks and measures taken by retailers. When a contaminated item reaches the shelves of supermarkets, the consequences can be dire. It is usually very difficult to locate the link where contamination occurred. There can be cases where the food producer sends a good quality product, but the product was tampered with by someone involved in the food supply chain. In situations like these, it becomes a task to find out where exactly in the food supply chain the contamination happened. Not only does this cause health issues to consumers but the retailer can experience financial losses since entire batches of the products will have to be recalled and the company will gain a bad reputation due to the loss of trust and loyalty by consumers.

Food fraud or food adulteration is another problem faced in the food industry. Food fraud is the act of purposely altering, misrepresenting, mislabeling, substituting or tampering with any food product at any point along the farm-to-table food supply chain. An example of this was the 2013 case in the UK where 60%-100% horse meat was mixed with beef and was labelled and sold as beef in the market. The scandal stretched across Europe and beyond. The horse meat products infiltrated numerous supply chains and led to millions of products being withdrawn across Europe which costed businesses millions of pounds. Additionally, there was a huge loss of consumer confidence in some of the biggest brands within the UK market. Food adulteration is a branch off of food fraud. It is the process of lowering the nutritive value of food either by either removing a vital component or by adding substances of inferior quality. The adulteration of honey is a common form of food adulteration used to deceive consumers. This occurs when there is the direct addition of a certain amount of sucrose syrup (cane syrup, maple syrup, etc.) into the honey which is then sold as pure honey.

These loopholes in the food chain industry can be solved with Blockchain technology. This distributed ledger technology facilitates a shared digital view of the transaction data among the members in the food supply network. Each transaction is immutable and recorded only after consensus among the members. The traceability and transparency that this network provides will help build trust among consumers.

There are numerous stakeholders in the food supply chain management and each of them has to record the relevant information on the blockchain network. The supply chain starts with the farmers, therefore, the information required to store on the blockchain include things like will location. irrigation growth conditions of treatments. plants (temperature, humidity etc), date of packaging and dispatching as well as legal certificates. Next is the food processors/manufacturers who transform food products supplied by the food producers into products which meet consumers requirements.

Records that they are required to input on the blockchain technology include location, receiving date of raw materials, materials used in manufacturing, storage and packaging conditions, shelf life, dispatch date, etc.

Distributors are the next step and they act as a link between food processing companies and wholesalers/retailers. The information required to be stored at this stage include location and date of food, receiving storage conditions, inventory details, information on wholesalers/retailers, dispatch date, etc. Retailers receive these products from distributors and sell these to the end consumers. The retailers need to record the location, receiving date, inventory data, sales information, etc. When a food product is sold, it would be recorded on the blockchain so that it is impossible to sell any other product with the same label. The consumer is the final link in the food supply chain. Consumers will be able to access this information by scanning the barcode of the product or checking the unique serial number of the product on the company's website.

When a foodborne illness occurs, it is crucial to identify the source of the contamination as early as possible. Blockchain can enable rapid and accurate tracing of the affected products to their source within seconds. Identifying the source of the issue allows for targeted actions to prevent further spread and minimize the impact on public health.

An example of this is the Romaine lettuce that took place in 2018. The lettuce was contaminated with E. coli and affected more than 200 people in 36 states of the US. It even led to the death of 5 persons. The source of the contamination was the canal water which was used as irrigation for the lettuce. The trace back took months and a great deal of effort. If blockchain was used, the trace back would have been much shorter and the recall of the lettuce could have been faster, preventing more consumers from purchasing.

Walmart recently conducted a traceback test on a bag of mangoes in one of its store. It took more than 6 days to traceback the origin of these mangoes. When the same test was conducted using blockchain, it took the company 2.2 seconds to find the original farm. This shows how powerful and useful blockchain technology can be to the food industry. Furthermore, the use of blockchain can also contribute to sustainability efforts by promoting responsible sourcing and reducing waste through improved inventory management. While blockchain has the potential to revolutionize the food industry, it does come with its own set of challenges. A key disadvantage is the quality and accuracy of data being inputted into the blockchain. No matter how secure or tamper-proof the blockchain is, it cannot guarantee the validity of the original data inputted. Fortunately, this flaw can be combatted by technologies such as Internet of Things (IoT) sensors, RFID tags and Artificial Intelligence (AI). Although the setup of these platforms can be expensive, when these technologies are used together they can significantly enhance supply chain management, logistics, inventory control, customer engagement and most importantly, food safety.

Conclusion

Overall, blockchain technology has emerged as a promising technology with far-reaching implications for the food industry. It has the potential to revolutionize the industry by bolstering food safety, increasing efficiency, promoting accountability and sustainability throughout the supply chain. When coupled with other technologies, blockchain can further enhance the food supply chain. Additionally, this technology is becoming a popular tool among big-named companies. Therefore, it will be no surprise when the food industry shifts to Blockchain Technology in the near future.



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Ms Shari Marks, St Vincent & The Grenadines Graduate Student, MSc Food and Agro Processing Programme The University of the West Indies, Jamaica

Female Pioneers in the Field of Chemistry



JAMAICA

The University College of the West Indies, (now The University of the West Indies), first graduated women in 1953.

Dr Shirley Thomas was the first female to be awarded a doctoral degree in Chemistry from The University in 1970. Before retiring Dr Thomas served as a Lecturer in the Faculty of Science and Sports at University of Technology.

Prof Helen (Parkins) Jacobs was the second female to be awarded a doctoral degree in Chemistry from The University of the West Indies in 1978. Before retiring Prof Jacobs served as lecturer and Head of the Chemistry Department at The University of the West Indies.

The first female student to gain 1st class Honours in Chemistry from The University of the West Indies was Barbara Hogg in 1961 (10th graduation ceremony).



Mandalena Mendy is the first Gambian woman to pursue a PhD in Chemistry at University of York. The focus of her research is the synthesis of aryl derivatives of indole for inverse electron demand Diels-Alder reaction.





Datin Dr Zuriati Zakaria is the first Malay woman from Malaysia to receive a PhD in chemistry. She was one of the first batch of science students who graduated from Universiti Kebangsaan Malaysia (UKM), a University developed in 1970 with the Malay language as the official language. Prof Zakaria was a delegate of the recently hosted Commonwealth Chemistry Conference where she co-chaired the panel discussion on Gender Equality (SDG 5) and Reduced Inequalities (SDG 10). She is pictured here with Sainey Cham, President of Chemical Society of The Gambia.



Contributors Prof Emeritus Robert Lancashire, The University of the West Indies, Jamaica Sainey Cham, President, Chemical Society of The Gambia

ACS Student Engagement Initiatives Diversity, Equity, Inclusion & Respect (DEIR) Workshops





Workshops were held on January 26 and April 13, 2023 to sensitize our students about the importance of DEIR. Our presenter was Ms Nadia Veiro. The students found the sessions informative and enlightening.

ACS Visits Alligator Head Foundation, Portland, Jamaica

The field trip to Alligator Head foundation was a very interesting one. The most interesting aspect was learning how the area got its name given that there's no Alligator found in Jamaica. The tour was very interesting. I've learned about mangroves to some extent previously but this my was first time learning about corals and their uniqueness, how they're grown and how they are returned/"planted" in the sea. It was also very interesting to find out that efforts are being placed in introducing this area of science into high schools as I would've loved the opportunity to learn about it then. The boat ride was very lovely and my favorite part of the tour. Being able to see the corals deep in the sea through the glass bottom boat was truly amazing and fascinating. I've always heard about coral life existence on the sea floor but being able to witness such existence yourself is just truly fascinating. I enjoyed every moment of this field trip, and I truly appreciated the educational aspect.

Ms Chamique McFarlane, President ACS Jamaica Student Chapter, The University of the West Indies, Jamaica







L-R: Chamique McFarlane (President), Kyra Taylor (VP), Nadesha Pinnock (PRO)

2nd Commonwealth Chemistry Congress



L-R: Ms Shaunte Cotterell, Dr Nadale Downer-Riley, Mr Jordan McKenzie, Dr Andrea Goldson-Barnaby, Dr Debbie-Ann Gordon Smith Dr Ainka Brown, Mr Jermaine Smith

Jamaican Delegation

The Second Commonwealth Chemistry Congress was hosted at The University of the West Indies, St Augustine Campus, Trinidad on May 23 - May 25, 2023. It was truly an auspicious occasion. Our Jamaican colleagues, Dr Richard Fairman (Head of Department), Dr Richard Taylor (Senior Lecturer) and Dr Petrea Facey(Letcurer), who are currently employed at the Department of Chemistry, St Augustine Campus made us extremely proud. A wonderful gala event which was hosted on Wednesday night of the congress had a repertoire of performances including dance, poetry, a philharmonic orchestra and of course the steel band which ended the showcase. The congress had over 200 registered participants and 33 countries represented. The next congress will be held in South Africa in 2025.



Mr Jermaine Smith with Dr Vicki Gardiner (1st Commonwealth Chemistry President) Mr Smith was one of the two best poster winners under the Scientific Theme of Clean Water and Sanitation



Chemical Society of The Gambia

By Oladele Oyelakin & Sainey Cham

Formation of The Chemical Society of The Gambia is closely related to the inception of the University of The Gambia, UTG. UTG came into existence by an act of parliament in March 1999. In February 2000, an international academic panel recruited and interviewed the first members of academic staff. In October 2000, the first set of students started classes; only two were admitted to study chemistry. In terms of numbers, the number of chemistry students has fluctuated over the years; it has hardly surpassed ten.

None of the chemistry graduates showed any interest in forming a chemical society. Interest in forming a chemical society has been coming from third year and final year students of UTG. However, an association of science students has been existing since circa 2002. This organization consists of students who major in biology, chemistry, mathematics and physics.

The Gambia has two public Universities, UTG and a newly established technical and engineering university which is under the support of Kwameh Nkrumah University in Ghana and two private universities. None of these universities have any chemistry programme; and any chemistry courses offered is as part of another programme, for example, medicine.

Two different cohorts of chemistry students had showed interest in forming a chemical society. It was not possible because of sufficient drive and will talk to interested Gambians and also to deal with the cumbersome national procedures that are required to form such learned organization. In 2020, some undergraduate chemistry students managed to muster enough willpower to pull through all the red tape. It was not easy. How did it all start? Some undergraduate chemistry students came together with the idea of forming a task force together with an interim executive. Social media helped in a difficult way because internet data in The Gambia is expensive. The task force was formed via WhatsApp. Thus, communication using WhatApp was cheaper. One of the assigned tasks was to ascertain what it would involve in order to register an organization like the chemical society. Some chemistry lecturers helped with a lot of advice pertaining to the membership of the chemical society. It was found out that a constitution was required, along with names of executive members.

The task force was tasked with drafting a constitution, designing a logo and obtaining a tax identification certificate which would eventually be required for legal registration in The Gambia. It took one year for the assigned responsibility to be achieved. Getting things done in The Gambia can be challenging; not all things can be done online and moving from office to office via public transportation is challenging. Everything that required funds was done by using personal funds; no money existed officially for that purpose. This was a great sacrifice on the part of some of the members.

Every member of the task force was very enthusiastic about the formation of a chemical society; it had never been done before. Further to this, one of the chemistry lecturers advised that it would be nice to reach out to other existing chemical societies: in the sub-region, outside the sub-region and outside Africa. Everyone looked forward to meeting graduates of chemistry and chemistry related disciplines from other countries. The Gambia is not a well-known country in Africa; it is small and not notorious for chemistry. It has the reputation of been very peaceful. Many times when Gambians are abroad studying, they often encounter a lot of surprise when asked: where are you from? Whenever anyone hears the word: The Gambia; the next question is: where is that? Remember that the UTG is first public University in The Gambia; a university never existed in The Gambia before now. Further to this, chemistry as a discipline has acquired the air of a very difficult discipline whose graduates always end up in a classroom, teaching; this prospect is not something that many Gambians look forward to.

The first relevance of the Chemical Society of The Gambia was appreciated when it was invited to be a member of a committee on chemicals set up by the Standards Bureau of The Gambia. This meant some form of recognition. Further to this, it was suggested that the Society shows itself to the larger society by conducting a nationwide tutorial for final year high school students preparing for their final year examinations in the sub-regional examination: West African Secondary School Certificate Examination. The focus of this exercise was on chemistry. It was a welcomed exercise and the Chemical Society publicized it on television. This received a lot of applause from high school students and chemistry graduates. The exercise dealt with only laboratory practical in chemistry. No hands-on exercise took place; just lectures on finer details of what is required in examination.

Final approval and registration in Ministry of Justice of The Gambia was met with a lot of skepticism which came across as a comic relief. Ministry of Justice officials associated the members of the Chemical Society with the infamous: Chemical Ali of Iraq. A notable achievement of the Chemical Society of The Gambia was its recognition and invitation to the Commonwealth Chemistry. How did the Chemical Society of The Gambia know about Commonwealth come to of UTG and a Chemistry? graduate А chemistry lecturer had informed some members of The Society about ล Commonwealth Conference that took place some years ago and there seem to have been no representation by The Gambia. The information was that there was a need for The Gambia to be represented. With the formation of a chemical society, it seemed that the stage was set for that. Emails were sent and communication started with Commonwealth Chemistry.

The Chemical Society of The Gambia looks forward to expanding its membership base and collaborating with other chemical societies. Few members are PhD graduates, a bit more are master's graduates. This is interesting when one observes that other chemical societies usually have a lot of PhD graduates.



L-R: Sainey Cham (President), Andrea Goldson-Barnaby, Mariama Sanneh, Sulayman Gaye (PRO)

Oladele Oyelakin, Senior Lecturer and Chairman Advisory Board Chemical Society of The Gambia Sainey Cham, President, Chemical Society of The Gambia

Did you know?



Malpighia emarginata (acerola cherry) also known as West Indian or Barbados Cherry can be found growing throughout the Caribbean and other tropical regions. It is used to produce a refreshing drink. The seeds, a byproduct from processing has been utilized to make bagasse flour which exhibits antimicrobial activity.

Did you know that the consumption of three acerola cherries is enough to meet the recommended dietary allowance for ascorbic acid for adults?

Reference

Marques TR, Caetano AA, Rodrigues LMA, Simao AA, Machado GHA, Correa AD. Characterization of phenolic compounds, antioxidant and antibacterial potential the extract of acerola bagasse flour. Acta Sci Technol. 2017;39(2):143

FOOD SAFETY CROSSWORD PUZZLE



Across

- 4. Between 4°C and 60°C (40°F 140°F).
- 5. A symptom of food poisoning.
- 6. This refers to the unintentional transfer of

dangerous microorganisms from one food to another. 7. Is to be done immediately after touching raw meats for at least ten seconds.

- 8. A food regulation agency in Jamaica.
- 9. Need to be reheated to at least 165°F.
- 10. Are ten times more likely to get a listeria infection.

Down

1. This tool can be used to determine whether or not meat is truly cooked.

2. This refers to the presence of toxic substances and or undesirable microorganisms in items intended to be consumed.

3. A bacteria found in the intestines of healthy birds but also known to cause diarrheal illness in humans.



Contributed by Ms Tanasheree Danvers, Summer Intern, The Chemistry Department, The University of the West Indies, Jamaica

WORD SEARCH Spices

т	Ν	Ν	G	F	Е	Μ	G	V	Р	Ι	0	А	Е	G
А	U	F	I	S	\times	L	Ζ	I	W	F	v	L	G	I
к	I	R	I	М	М	0	М	А	D	R	А	С	А	Ν
I	F	Ν	М	Υ	U	Е	т	С	Ζ	F	к	s	s	G
R	А	Т	в	Е	Ν	С	т	Е	н	Н	G	0	Ζ	Е
Р	I	А	G	Т	R	Υ	R	А	М	Е	S	0	R	R
А	I	Н	0	Е	\times	I	\subset	\times	А	в	Z	F	Р	W
Р	G	R	I	С	м	W	\subset	С	0	J	м	U	в	Т
Q	К	F	М	F	U	т	W	Н	Q	U	Е	Ν	\times	Ν
U	В	А	S	I	L	Р	U	Х	Q	в	Ζ	Ζ	0	F
С	Е	×	R	Е	Р	м	к	Ν	Υ	J	G	R	D	Е
С	\times	К	в	М	Е	\times	М	Е	S	С	F	G	\subset	J
М	Υ	U	в	н	J	к	R	R	А	F	F	Υ	н	R
×	А	С	Ν	U	Е	W	G	R	А	Ν	н	м	Р	М
R	W	Μ	0	С	Q	Ζ	Q	S	S	С	к	×	J	Ν

Anise	Basil	Cardamom
Cumin	Ginger	Nutmeg
Paprika	Pimento	Rosemary
Saffron	Sage	Turmeric

CAS CONFERENCE

The Caribbean Academy of Sciences 23rd Biennial Conference 2023, UWI St Augustine campus, Trinidad and Tobago, 24th-25th November, 2023 (Conference hashtag #CASConf23) Theme: "The Sustainability and Development Initiatives of the Caribbean"



Crossword Answer Key

