

CAS JAMAICA

FOOD SAFETY NEWSLETTER



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A letter from the editor

While we are aware of the biological hazards associated with foods, at times we tend to overlook the chemical hazards that may be present within our foods. Chemical hazards may be naturally present within our foods such as hypoglycin A, a non proteinogenic amino acid present in immature ackees or cyanoglycosides in cassava. Some chemical hazards may however be unintentionally present within our foods. Produce can become contaminated with pesticides which are applied during their growth. It is important that produce is harvested at the proper time after the application of pesticides.



As the name suggests, pesticides protect produce from pests. Pesticides may be classified based on the targeted pest, their mode of action or chemical structure. Classification based on the targeted pest is most commonly utilized. Pesticides exert their effect either by penetrating plant tissue (systemic) or is directly toxic to the pest (non-systemic). The main chemical classification of pesticides are carbamates, pyrethroids, organochlorine and organophosphates. Organochlorine pesticides tend to persist in the environment for long periods of time. Organophosphate pesticides have faster rates of degradation and have been used as a substitute for organochlorine pesticides. The toxicity of organophosphate pesticides is however higher than that of organochlorine pesticides.

In July 2022, there was a global recall of Vanilla Häagen-Dazs ice cream. This was due to the detection of trace levels of ethylene oxide a carcinogenic pesticide that has been banned in Europe since 1991. Ethylene oxide is however still utilized in countries such as India and Turkey. Supply chain programmes and verification activities are therefore very important to ensure the safety of our foods.

The source of ethylene oxide in Häagen-Dazs ice cream was vanilla extract, an ingredient utilized in the product. Due to the detection of this pesticide, General Mills conducted a voluntary and preventive recall of the batches of ice cream that were implicated. Subsequently the recall was expanded to other ice cream products as a degradation product of ethylene oxide was detected in other flavours of Häagen-Dazs ice cream. Ethylene oxide has also been detected in other food products such as sesame oil, pastry and salad toppings.

Pesticides can have a negative impact on health. It is therefore imperative that caution is exercised when they are utilized. Only approved pesticides should be applied. Pesticides should be utilized at the correct concentration and crops harvested at the proper time.

Various analytical techniques can be utilized in the detection of pesticide residues. These include gas chromatography, liquid chromatography and tandem analytical techniques such as Gas Chromatography Mass Spectrometry, (GC-MS) and Gas Chromatography Electron Capture Detector (GC-ECD). The Quick, Easy, Cheap, Effective, Rugged, and Safe (QuEChERS) method is a new analytical technique which does not require the use of chlorinated solvents. The use of sensor techniques which is rapid, more cost effective and does not require the use of sophisticated instrumentation is also being explored.

The need for rapid detection of pesticides is critical to prevent the release of contaminated products to consumers. Simpler and more cost -effective analytical tools can also empower our farmers who can test their produce before they are released on the market. Let's practice food safety from farm to fork.



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HERBAL TEA HAZARDS

By Rajeve Brooks

The consumption of herbal tea is deeply entrenched in Jamaican culture for many generations (CulinaryDelight, 2022). Traditionally tea is any hot beverage made by steeping leaves of the *Camellia sinensis* plant. However, in Jamaica the term 'tea' is used to refer to both herbal infusions and the traditional tea. Jamaicans make their teas from different parts of herbal plants such as leaf, fruit, root, or bark (Perishables Jamaica, 2022). The variety of herbal teas consumed in Jamaica is abundant, and includes peppermint (*Mentha piperita*), ginger (*Zingiber officinale*), turmeric (*Curcuma longa*), soursop leaf (*Annona muricata*), cerasse (*Momordica charantia*), lime leaf (*Citrus aurantiifolia*) and lemongrass (*Cymbopogon citratus*) (CulinaryDelight, 2022). These herbal teas form a major part of the first meal consumed daily by many Jamaicans. Herbal tea is widely used as medicinal treatment for numerous ailments like belly pain and cardiovascular diseases (Mashour et al., 1998). Though studies have warned of the potential medical effects of consuming too much herbal tea, it has not reduced its consumption (Mantiega et al., 1997). Existing studies on the teas consumed in Jamaica have mainly focused on the positive medical aspect of the tea and the presence of heavy metal. However, no Jamaican studies have been found that assess the potential hazard in teas like aflatoxin which has been found to be prevalent in nations like: Iran, Turkey, China, and India (Klingelhofer et al., 2018). Aflatoxin is a mycotoxin produced by two moulds: *Aspergillus flavus* and *Aspergillus parasiticus* (Bedoya-Serna et al., 2019). There are several types of aflatoxins, namely: B1, B2, G1 and G2, and they differ due to variations within their chemical structures. The most common, potent, and widely studied type is Aflatoxin B1 (Bedoya-Serna et al., 2019). Mycotoxins are compounds produced as secondary metabolites by these moulds, and they are very heat resistant; aflatoxin has been detected in samples subjected to temperatures as high as 150 °C (Raters and Matissek, 2008).



Aflatoxin has been linked to acute toxic responses in animals and humans (mycotoxicosis) following ingestion of contaminated food commodities (Sedova et al., 2018). In addition to mycotoxicosis, Aflatoxin is classified as a group 1 carcinogen by the International Agency for Research on Cancer (Bedoya-Serna et al., 2019; Turcotte et al., 2013). Due to the toxicity of aflatoxin, it is reported at maximum limits of ppb units.

The presence of aflatoxin is uniquely unavoidable in tropical countries such as Jamaica, due to the suitability of the climate which encourages mould growth and the production of secondary metabolites (Sedova et al., 2018). Moulds are ubiquitous eukaryotic organisms that are often found in food products (Sedova et al., 2018). Moulds such as: *Aspergillus*, *Penicillium*, *Mucor*, *Rhizopus*, *Absidia*, *Alternaria* and *Fusarium* are commonly found in teas (Skrinjar et al., 2011). They are naturally present in the fields where these plants grow and are a part of the normal microflora. Commercial food products like herbal teas are processed before being sold to consumers which results in the reduction, but not total elimination of the organisms in the final product. Moulds can grow in a wide range of environmental conditions such as low or high moisture conditions, and highly acidic conditions (Skrinjar et al., 2011). Studies have revealed the presence of mycotoxins and moulds in agricultural commodities.

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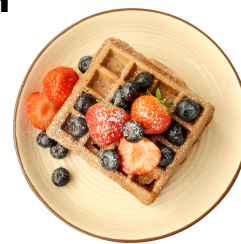
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EVALUATION OF DUTCH VERDUIJIN'S WAFFLES AND CHEESE BISCUIT RECALL MINERAL OILS – MOSH AND MOAH

By Shamoya Facey



Abstract

According to the European Rapid Alert System for Food and Feed (RASFF), mineral oil aromatic hydrocarbons (MOAH) were found in waffles at up to 190 ppm and mineral oil saturated hydrocarbons (MOSH) at concentrations exceeding 1,000 ppm. Currently, the regulatory standards set by organizations located in Europe such as the Belgian Food Safety Authority and the European Food Safety Authority have limits of 20 mg of MOHs/kg of food. The Dutch waffles and biscuits far exceed the recommended amount of MOHs that should be present within the product. Information regarding the dangers of MOHs is lacking. Further research needs to be conducted to determine if there are any potential harm associated with the consumption of these organic compounds.

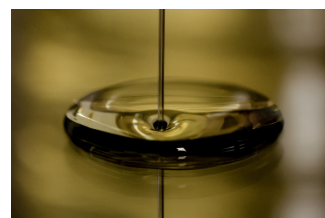
Introduction

Mineral Oil Hydrocarbons (MOH) is a term used to describe a mixture of hydrocarbons of varying sizes and structures that are obtained from crude oil but are also artificially made from coal, biomass, and natural gases (European Food Safety Authority). Their concentrations are found highest in crude oil. They are found in many everyday items such as adhesives, lubricants, recycled paper, inks, jute bags and food additives (Institut für Produktqualität). Many of these everyday items are used by companies and businesses within the food industry whether during collection of raw materials, processing, storage as well as during packaging. Mineral oils mainly consist of two fractions; mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH). Their structures vary from chains, generally having fewer than 25 carbon atoms to branched chains to ring shaped compounds ranging from 1-5 aromatic systems (Gar Agribusiness and Food; EPEA).

Leaching of these compounds into food especially those that are packaged has been linked to various processes utilized when preparing packaged products. This includes the machinery, storage spaces, during transportation, and most significantly during production and packaging (Gar Agribusiness and Food). Unfortunately, these MOHs, especially the MOAHs, have been suspected of being carcinogenic and dangerous to DNA (FoodWatch).

MOSHs are known to accumulate in the liver and lymphoid system which then causes inflammation (Gar Agribusiness and Food). On the other hand, limited information is available as to whether these compounds can lead to health concerns.

MOHs can be analyzed via gravimetric and photometric methods, followed by confirmatory tests using various chromatography techniques. In chromatography MOHs typically elute together. The use of Nuclear Magnetic Resonance is being explored in order to separate and identify more efficiently the various structures (Weber et al., 2018). These tests have led to the detection of high levels of MOHs resulting in the formation of basic regulations to control the amount of MOHs present in packaged food. This therefore means that manufacturing plants will need to examine all their unit operations to ensure they are within the standard levels of MOHs.



Discussion

Within the food industry there are a variety of processes and unit operations that take place to produce final food items that can either be used immediately or stored for long periods of time. It is however imperative that throughout the entire process whatever is used, removed, or added is free of all macro and micro contamination. It is also very and highly possible for known and unknown contaminants to be present in the final product even after extensive analysis and testing is done. The most dangerous contaminants are ideally those that are “under disguise” as typical items. This is especially highlighted when looking at the mineral oils; MOSH and MOAH. The sources of these two types of mineral oils in the food industry can be derived from any aspect of processing that has connections with products made for Crude oil. This can include a vast majority of everyday items which are direct products of crude oil or are manufactured within factories that use products made from crude oil which in turn affects the products produced there.

Food Contact Materials (FCMs) such as plastics, adhesives, rubber articles, jute fibers, wax paper and board as well as printing inks are all influenced by crude oil, the main source of mineral oils. Further addition of mineral oils comes during the production of food such as lubricants used for machinery, defoaming, cleaning and non-stick agents (Geueke, 2017). It is also sourced directly into the food through food additives used as glazing agents in confectionary and frozen meat, protective coatings in fruits and vegetables or antifoaming agents in wash water for sliced potato. Additionally motor oils and car exhausts, if present, is able to transfer some amount of MOHs into the final products. Although not listed here there are at least 4 other categories of sources of MOHs, this includes naturally occurring MOHs in biota, environmental contamination, pesticides and other uncategorized sources (European Food Safety Authority. 2012). Unfortunately, the identification of the exact point of contamination in any food product, including the recalled Dutch waffles and biscuits, comes with great uncertainty.

Although there is no known extensive research done to determine if MOHs are really a cause for concern in humans, actions have been taken to prevent any foodborne illness based on experiments done with animals. One such investigation involved the use of Fischer 344 rats being exposed to different mixtures of MOSH (Barp et al., 2017). The results highlighted that the dangers of these hydrocarbons lied within their accumulation in certain parts of body organs. This includes the lymph nodes, spleen, and liver. With their poor solubility and high melting points it is assumed that the elimination of these mineral oils would come with great difficulty (Barp et al., 2017). Further research is required to determine health risks that may be associated with these oils.

Much of the resources used within this report were obtained from European countries. Fewer countries around the world have made any efforts towards identification, elimination, or prevention of Mineral Oil Hydrocarbon contamination. Without solid evidence of the hypothesized effects of these oils no global regulatory standards will be set. However, based on an acknowledgement of findings by a European organization, Food Watch, both the World Health Organization and the European Union Commission have made small increment steps in mitigating possible risks of illness regarding MOHs. This primarily includes setting a limit on the amount of detectable mineral oils in certain food products.

There are a number of other European Food Authorities which have set limits based on the type of food or the number of carbons present in the MOH such as the German Federal Institute of Risk Assessment that recommends C10-C16 as 12 mg/kg and for C17-C20 be 4 mg/kg (Gar Agribusiness and Food).

Conclusion

Mineral Oil Hydrocarbons are complex mixtures made of hydrogens and carbons. They can be separated into two categories; Mineral Oil Aromatic Hydrocarbons (MOAH) and Mineral Oil Saturated Hydrocarbons (MOSH). They can contaminate packaged food items due to their close contact with items that are either made from crude oil such as food additives or has some relation to crude oil such as the machines used in the food industry that comes in close contact with lubricants.

Suspected symptoms of continuous ingestion of MOH includes possible carcinogenic developments as well as inflammation in the liver, spleen and lymph nodes. Due to a lack of solid evidence tying MOHs to these suspected symptoms much attention has not been given to preventative measures. Several packaged products including the Dutch Waffle and Biscuits have faced recalls due to the excessive amounts of MOHs present in the final products.

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FOODBORNE ILLNESS

By Darrion Anderson

Introduction

Foodborne illnesses are caused by pathogenic microbes such as bacteria, parasites, and viruses as well as chemical contaminants that may be present, on or within the food we consume. These contaminants can result in life-altering illnesses that can have lasting effects, exponentially reducing an individual's quality of life. Some foodborne contaminants/chemicals are carcinogenic and may lead to cancer and death. Food safety has long been a major concern throughout human history and has been responsible for major disease outbreaks. One such outbreak that attracted the world's attention was the *Listeria monocytogenes* outbreaks, which occurred at several points in history, the most recent being the 2022 Brie and Camembert Cheeses outbreak (CDC 2022). The FDA reported an estimated 48 million food poisoning cases annually. The need to monitor the food we consume for pathogenic microbes and chemicals has never been more critical, with the rising population and an increase in the demand for fast-food, mass food production/farming, and the wide distribution network of food. Due to the increased risk of food-borne diseases/poisons, caused by the rapid development of societies, measures are needed to reduce the risk of food poisoning. Typhoid fever and paratyphoid fever are life threatening illnesses that have waged war on human health, plaguing populations throughout history. All is not a loss, however, as precautionary measures can be implemented, such as cleaning, cooking, and preserving by chilling and separating, that will aid in the fight against food poisoning.



Discussion

The CDC estimates that *Salmonella* bacteria are responsible for over 1.3 million infections yearly within the United States alone. These microbes are responsible for a multitude of illnesses, such as Typhoid fever and paratyphoid fever which are caused by the *Salmonella* serotype Typhi and *Salmonella* serotype Paratyphi, respectively. Typhoid fever is a food poisoning illness that occurs when *Salmonella enterica* is consumed. These gut microbes are exclusively human pathogens that are normally found contaminating food products that were introduced to water, fertilizers are surface/hand contact contaminated with salmonella present in feces of infected life forms. These bacteria produce chemicals, both endotoxin, and exotoxins. These toxins bind to terminally sialylated glycans on surface glycoproteins within human cells. *S. typhi* toxins are toxic to cells expressing the glycans terminated in Neu5Ac (Deng 2014). This infection leads to the development of symptoms that may be detrimental to victims of infection, especially if contaminant enters the bloodstream from the G.I tract.

Since infection route is by the mouth, the foods we consume are to be monitored to ensure that contaminants are not present. Due to the mass food production and transportation network, complex strategies are put in place to reduce the risk of contamination that would cause widespread infection. The implementation of critical control points throughout the food production and processing procedures have significantly reduced the risk of outbreaks. Cleaning is a method that significantly reduces exposure to pathogens. Frequent washing of vegetables and fruits before consumption; reduce the biotic toxin load that is present on these foods. Vinegar is a good cleaning agent, which acidic nature kills most microbial pathogens including *Salmonella*.

Surface and hand contact are major sources of contamination and the cleaning of surface and hands before and after food prep are vital in reducing exposures. The washing of utensils, cutting boards, dishes, and surfaces with hot, soapy water that have been in contact with raw or undercooked eggs, poultry, seafood is important. Liquid chlorine is a good chemical agent that can be used to sterilize the kitchen area.

The separation of food products is a vital step in reducing infections. Raw meat, seafood, eggs and poultry are to be kept separated from other groceries. Raw meats are to be separated from ready to eat foods. The use of separate utensils, and cutting board for raw meats, poultry and vegetable during food preparation significantly reduce pathogenic spread.

Cooking is one of the most effective methods for killing microbes responsible for typhoid fever. Cooking food at the recommended temperature for the required time, damages the enzymatic functions of the bacteria, thus resulting in the defect of the cell, this prevents infection.

Food storage is another critical control point in food safety. Perishable foods should not be left outside refrigerator. At low temperature, thermophile activity will be reduced and may become damaged, significantly reducing the bacterial reproduction and population. Foods such as meat are to be frozen and used within 2 weeks.

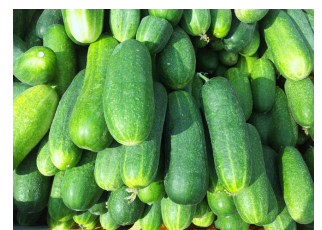
The Mexican cucumber outbreak of Salmonella that occurred in 2015 was a relatively recent outbreak in which imported cucumber from Mexico infected 907 people within 40 American states. The outbreak resulted in the hospitalization of over 200 individuals and six deaths. The company had to issue several recalls.

Conclusion

Salmonella outbreaks are one of the leading causes of food poisoning within society from days of old and current. Salmonella and the toxin they produce are responsible for the symptoms that accompany typhoid fever, which are deadly if untreated. The threat of typhoid fever is one which can be greatly reduced or eliminated by practicing sanitary food handling techniques and the proper treatment of water and raw food before consumption. The proper disposal of waste material will also drastically reduce exposure.

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PEANUT BUTTER RECALL

by Donneil Cameron



Abstract

Peanut butter is a common, tasty, accompaniment to many meals worldwide. Enjoyed by many, its demand increases annually across the global market. Therefore, food safety risks associated with this product will have huge effects on the population. Contamination by *Salmonella* spp., is one of the major risks associated with peanut butter production because of the specific composition of peanuts and the manufacturing process of peanut butter that is fit for consumption. This paper aims to assess the symptoms, associative risks, precautionary measures and causative factors of a recent Jif peanut butter recall in May 2022. Implementing excellent manufacturing and hygienic techniques farm to table is one way in which food safety risks associated with peanut butter can be minimized. Usually, contaminated peanut butter must be treated with thermal treatment, radiofrequency, microwave and high-pressure processing procedures. The main purpose of this paper is to highlight and assess the nature of food safety risks with peanut butter to combat foodborne illnesses.

Introduction

According to a National Peanut Board (2011), An average person will eat almost 3,000 peanut butter and jelly sandwiches in their lifetime. Food safety is essential in ensuring that food is processed, packaged and consumed in a safe and healthy way. In the United States of America (USA) alone, approximately 87.9 million people were recorded for consuming at least one jar of peanut butter within a month. Peanut butter must be no less than 90% peanuts for it to be labelled as such without the addition of artificial flavorings or preservatives. An excellent source of protein, fats and vitamins, peanut butter generally does not support bacterial growth due to its low moisture and high oil content.

However, as a result of improper storage or manufacturing errors, *Salmonella* spp., contamination has been an increasing and challenging issue within the food safety industry.

In May 2022, the Center of Disease Control (CDC) investigated an outbreak of *Salmonella* that was linked to the Jif brand peanut butter. More than 21 people fell ill due to this contamination and the product had to be recalled. The purpose of this paper is to discuss the causative factors for *Salmonella* sp., contamination in this recent case, the symptoms associated with this risk and precautionary measures that can be taken to minimize foodborne illnesses. The Grocery Manufacturers Association Guidelines, Hazard Analysis of Critical Control Points and the International Organization of Standardization are guidelines that are adopted by manufactures to ensure food quality assurance within the industry.

Discussion

According to the Center of Disease Control (CDC, 2020), *Salmonella* contamination is formed from *Salmonella* bacterium that lives in the intestinal tracts of animals including birds that are passed on through fecal matter. Currently, there are approximately 2,500 different strains of *Salmonella* worldwide. This infection is a type of gastroenteritis, and a laboratory test can be done to detect this from someone's stool, body tissue or fluids. Usually consuming raw or undercooked meat, nut butters, leafy greens, pets, poultry, eggs and pasteurized milk can cause a *Salmonella* infection. In many cases, sauces that contain raw eggs such as mayonnaise are high risks causes. However, infections can spread from poor hygienic practices when handling raw meat.

Lutter (2015), estimates that about 79,000 cases of foodborne illness in the USA are as a result of eggs containing Salmonella. Proper hand hygiene is encouraged when handling pets as bacteria can spread very quickly through contact with toys, clothes and furniture. This includes keeping the surfaces of the kitchen clean and frequent handwashing during food preparation and after changing a baby's diapers.

Salmonella is a most frequently reported food-related illness in the United States, with numbers reflecting approximately 1.35 million infections, 26,500 hospitalizations and 420 deaths per year (Center of Disease Control, 2020). Symptoms associated with Salmonella usually include diarrhea, fever, vomiting, nausea, headache and stomach cramps. Additionally, symptoms are usually observed in six hours to six days after a possible infection and lasts four to seven days in most cases. Further symptoms may also include signs of dehydration, blood in stool, chills, joint pain and additional infections to the nervous system. If a pregnant woman develops a Salmonella infection, this may result in additional risks for the mother and baby due to dehydration and lack of nutrients from the infection. Without treatment, gastroenteritis can disappear after 4-7 days. Moreover, treatment plans may include fluids for dehydration, antibiotic and antispasmodic drugs to reduce cramping and stop diarrhea. Laboratory tests are usually conducted using samples of the patient's stool, body tissue or fluids (Crump et al. 2015). The drinking of extra fluids should be implemented especially if the patient experiences diarrhea. For prolonged symptoms, medical advice should be provided immediately especially for high risks groups. In rare cases, infections can be spread to the bloodstream through the intestines and may cause death if left untreated. The J.M Smucker company assessed that the Salmonella outbreak may have originated from its manufacturing grounds in May 2022.

High risks groups within the population include children under 5 years old, senior citizens (65 years and older), pregnant women and people with weak immune systems from certain conditions such as diabetes, liver or kidney disease. For this reason, it is often advised that children do not handle reptiles or young birds. A wide variety of reptiles carry Salmonella, and this bacterium moves through their host through the flagella. During the summer months, Salmonella infections are very common as compared to the winter season. Frequent handwashing after using the rest room, touching pets, changing a baby's diaper can minimize the spread of this infection.

Bacteria that might be found on the hands after these activities may be used to handle food. Once consumed, this bacterium infects a new system.

Washing fruits and vegetables thoroughly before eating, separating raw foods from cooked ones during storage and replacing dishcloths regularly are ways in which efforts can be made to prevent bacterial growth. International travel to places with poor sanitation, inflammatory bowel disease and taking some cancer drugs can weaken the immune system. This will increase someone's chances of being infected by this illness as their immune system will not be strong enough to fight the bacteria. Regular toilet cleaning is encouraged along with keeping dairy products at its appropriate temperature, so it does not facilitate growth of bacteria. Additionally, bedding, towels, utensils and clothes should be washed in warm water using detergent especially if the infection develops in a household (Basler et al., 2016).

Conclusion

Salmonella remains a major food safety risk worldwide. The main source is our food and poor hygienic practices. Practicing proper sanitization, making reports of illnesses while protecting our high risk and weak immune system groups are efforts which can be made to provide safe food from farm to table.

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Food Safety & Quality Control Manager

Tijule Company Ltd, Jamaica

Mr Ricardo Johnson, a Food Safety and Quality Control Manager at Tijule Company Limited, has a passion for chemistry, food safety and food security. With humble beginnings, he attended Glenmuir High School where he attained an Associate Degree in Natural Sciences while being a part of the high school choir and basketball team. He then matriculated to The University of the West Indies and attained a Bachelors of Science degree in Applied Chemistry and Food Processing. Whilst at University, Ricardo lived on Chancellor Hall, Block Dynamite in particular, where he was involved in many extracurricular activities one of which was External Affairs Chairperson for the Block. He played for the Block Dynamite and Commuter's basketball team. Ricardo served as President for the Mona Campus Male Chorale for the entire time the choir was in existence, performing various concerts at King's House and at The UWI. For his professional life, Ricardo started his first job in the industry at JAMALCO Bauxite Plant as a lab technician. He has had experiences across multiple industries including cement, paint, baking, ice cream and water testing. He has gone through all positions in the industry; lab technician, lab analyst, quality control technician, quality control officer and chemist.

All of these positions have served as a base for Ricardo's knowledge and expertise that he currently has in working in an industrial environment. At Tijule Company, he serves in a managerial capacity where he has responsibility for ensuring adherence to the local and international food safety management systems in a fully audited and Intertek accredited 40 year old agro-processing facility that exports primarily to global markets.

Ricardo is self-motivated, always willing to assist as necessary in a medium-sized company and adaptable to external activities where Tijule's brands are promoted or requires representation with various external stakeholders. He has an enquiring mind, loves doing research and gaining more knowledge each day.

He plans to attain a master's degree in Agro Processing Technology and further his knowledge in the field of chemistry. After assisting friends/relatives with events in his spare time over the years, Ricardo started his own Event Management and Consultancy company, Johnson's Events and Consultancy Services Company Limited, in late 2022 to pursue his entrepreneurial spirit part-time, to monetize his coordination skills and leisure activities where there is a niche. He strongly believes this company will be a game-changer for the parish of Clarendon, Jamaica, its Diaspora and other overseas visitors in terms of the range of services being offered.



Mr Ricardo Johnson

Mr David Chung

Quality Assurance

Loblaws Company Limited, Canada

Mr David Chung knew that after completing his Bachelor of Science Degree and working full time for several years, that he would need to upgrade himself academically. This was always a personal and professional goal, of his to not only increase his knowledge but also give his career a boost. However, he would need to find the most suitable program in his discipline that would allow him to maintain some balance between work and school. The Food and Agro Processing Technology (FAPT) program was ideal as it provided him with all the necessary courses he needed to advance his career. The program design and flexibility allowed him to do his studies part-time while being exposed to the latest food technology best practices, knowledge and experienced lecturers.

The skills and experience gained from working in groups and the bonds formed between his peers made the journey a valuable one. The availability and support from the lecturers also contributed greatly to his success especially in the research course of the program. His exposure to different manufacturing sectors throughout the program allowed Mr Chung to put into practice what he learnt and excel in his job as well as, provided him with the opportunity to assist other manufacturers facing similar challenges. In retrospect, he has no regrets and is very grateful to the program, as it has played a major role in his professional growth and career.



Mr David Chung

CONGRATULATIONS

Congratulations to Dr Loron Pinnock Brown who recently completed doctoral studies in Animal Sciences at Texas Tech University. Her dissertation focused on Produce Safety (Leafy Green Value Chain). Dr Pinnock Brown was supervised by Assoc. Professor Marcos X Sanchez, Ph.D. Dr Pinnock Brown previously served as an adjunct lecturer in the Food and Agro Processing Technology Programme offered by the Department of Chemistry, The University of the West Indies, Jamaica.



Dr Loron Pinnock Brown

DENBIGH AGRICULTURAL SHOW HIGHLIGHTS

JULY 30 - AUGUST 1, 2022

The Denbigh Agricultural Show was first held in Jamaica in 1952. It is the oldest agricultural show in the English-Speaking Caribbean.



American Chemical Society Student Engagement Initiatives

Reynolds Pier, Ocho Rios, St Ann, Jamaica



LR: Kyra Taylor, Mikayla Miles, Dannielle Watt, Ricaldo Pryce, Shauntee Cotterell,
Romario Smith, Shenell Beroni, Kiara Shannan, Marcel Denny.

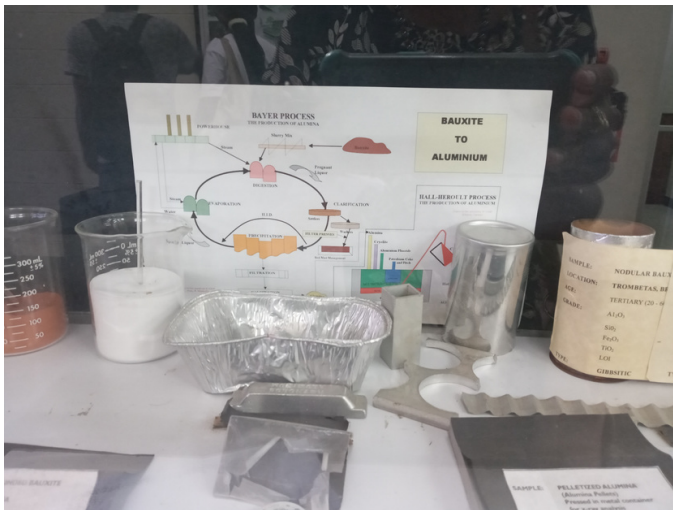
On August 10, 2022, students from The University of the West Indies got the opportunity to visit Reynolds Pier located in St Ann, Jamaica. The pier facilitates the shipment of sugar and limestone. During the tour students were exposed to aspects of sugar processing, a chlorination system for water was observed and the use of limestone in processing of other materials such as glass, paper. The students found the tour very informative and enjoyed the beautiful scenery.



Limestone

Our visit to the Jamaica Bauxite Institute

September 13, 2022



The bricks utilized to make this building were made from the waste generated from bauxite processing

We would like to thank Ms Kadesha Lewis (PR Manager), Mr Richard Hanson, (Director Analytical Services) and Mr Stevie Barnett (General Manager) for facilitating our visit to The Institute.

Ice Cream Workshop with Mrs Sonal Gupte

October 8, 2022



LR: Mr Miguel Thaxter & Mrs Sonal Gupte



Students enjoying a sweet treat with Dairy Technologist
Mrs Sonal Gupte

ST ANDREW HIGH SCHOOL FOR GIRLS SCIENCE FAIR

On November 11, 2022, St Andrew High School for Girls hosted the second installment of their Science Week Expo and Awareness Fair. Students were exposed to various Science experiments and demonstrations. Dr Joyann Marks, Dr Andrea Goldson-Barnaby and Mr Ricaldo Pryce were the representatives from the Department of Chemistry, The University of the West Indies.



Highly engaged students



Dr Joyann Marks

BUFF BAY HIGH SCHOOL



Students from Buff Bay High School visited The University of the West Indies on November 16, 2022, for the 20th GIS Day National Exhibition. A few students stopped by The Department of Chemistry.

The University of the West Indies and were shown some fun chemistry experiments.

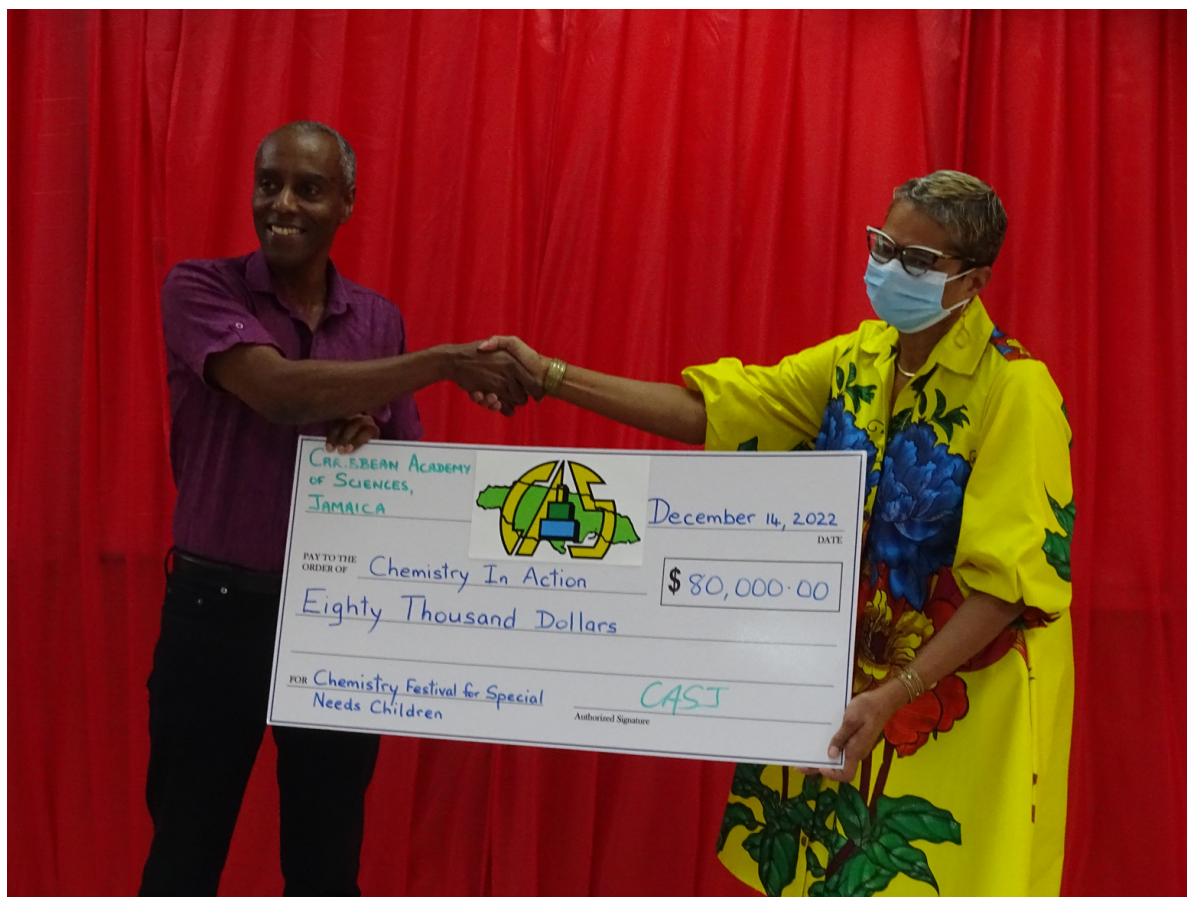


Student Feedback

Buff Bay High School

- This event has taught me a lot today and hopefully one day I can attend UWI and further my science education.
- It is fun and you get to explore new experiments. 
- It was very interesting and very fun and would like to visit again. I learn a lot of things today.
- I've learnt some interesting things although I'm not a science student. It is good to learn new things.
- I would like to visit again because I like it here. It is very interesting and I learn a lot.
- I would like to visit again to see more interesting experiments. 
- This event was very interesting and awesome.
- It is very interesting and I learn new things. I would love to go on another experiment like this.
- Today was very enjoyable especially when we used the shaving spray and the different food colouring, that was fantastic.
- Today was very enjoyable. I will like to come back and do another experiment, especially the one with the stamp. It is really nice here. Hope others will find it interesting as well.

CAS JAMAICA



LR: Dr Dwight Robinson; Dr Donna Minott Kates

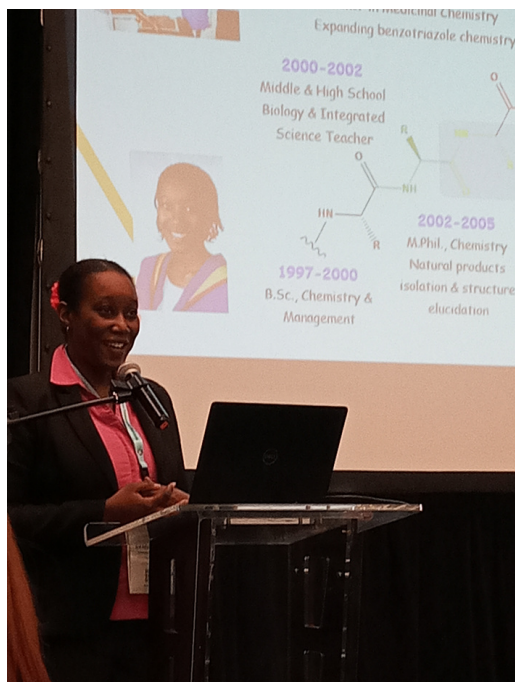
A special thanks to CAS Jamaica for their donation towards our next Chemistry Festival which will target Special Needs Children.

SOUTHEASTERN REGIONAL MEETING AMERICAN CHEMICAL SOCIETY HIGHLIGHTS OCTOBER 18 – OCTOBER 22, 2022 PUERTO RICO CONVENTION CENTER



Mr Ricaldo Pryce, a graduate student in the Department of Chemistry, The University of The West Indies presenting in the “La Historia de Pioneros y Descubridores en Química Symposium”.

“The lives, work and scientific contributions of famous Jamaican researchers.”



WCC Symposium: Crossing boundaries:
The Resilience of Women Chemists.
Dr Dannibelle Haase: “Learning Agility,
Career Resilience and Success in the
Chemical Enterprise.



Mr Ricaldo Pryce, Dr Kelling Donald, Mr Juan Diego

Word Search

Pesticide Residues in Foods

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

AGROCHEMICALS
RODENTICIDE
HERBICIDE
FUNGICIDE
SYSTEMIC
ACETONITRILE
FLORISIL
PYRETHROID
PESTICIDE
CHLORPYRIFOS
HALOGENATED
LINDANE
QUECHERS
BIOSENSORS
DETECTOR
NEMATOCIDE
INSECTICIDE
BUFFER

Play this puzzle online at : <https://thewordsearch.com/puzzle/3881969/>

Pesticide Residues in Foods II

I	D	C	R	E	F	F	E	C	T	S	G	A	A
C	I	O	Q	S	A	C	U	T	E	H	N	U	Y
U	E	N	U	N	C	O	M	M	O	D	I	T	Y
N	T	S	O	O	H	O	A	Y	C	Y	R	C	A
A	A	U	T	I	T	L	I	M	I	T	O	A	R
D	R	M	I	S	L	H	T	C	N	E	T	N	I
V	Y	E	E	L	A	A	U	M	O	F	I	C	S
E	N	R	N	U	E	Z	I	I	R	A	N	E	K
R	A	S	T	V	H	A	N	N	H	S	O	R	Y
S	U	R	Y	N	K	R	D	T	C	Y	M	S	S
E	S	E	F	O	O	D	E	A	Y	L	I	A	D
N	E	R	F	C	H	O	X	K	H	E	T	I	L
C	A	C	H	I	L	D	R	E	N	N	U	S	X
Y	E	R	E	S	I	D	U	E	C	S	E	E	T

QUOTIENT
ADVERSE
SAFETY
CONSUMERS
LIMIT
DAILY
COMMODITY
INTAKE
CANCERS
RESIDUE
RISK
NAUSEA
DIETARY
CHILDREN
CONVULSIONS
FOOD
MONITORING
HAZARD
HEALTH
INDEX
EFFECTS
ACUTE
CHRONIC

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