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**Seminar on Industry Expectations for  
 Food Science Graduates**

*2<sup>nd</sup> August 2019, at Mihilaka Medura, BMICH,  
 Colombo from 8.30 a.m. to 12.00 noon*

Undergraduates reading for food science degrees are important future stakeholders of the food industry. In addition to the theoretical knowledge and the laboratory experience mainly obtained through university education, the other personal qualities and capabilities expected by the food industrialists from the university graduates determine their readiness to join the food industry successfully. The objective of this seminar is to share the experiences and the expectations of the food industry employers, to develop the qualities of food science undergraduates in fitting the industry soon after graduation. Dr. Sujeewa Gunarathne, Senior Manager (Nutritional Regulatory), Smithkline Beecham (Pvt) Ltd, Mr. Delano Dias, CEO Cargills PLC and Ms. Nikeshala Marasinghe, a graduate from Sabaragamuwa University of Sri Lanka will share the views at the seminar.

**Seminar on Environment Friendly Agriculture &  
 Food Processing: The Need of the Hour**

*2<sup>nd</sup> August 2019, at Mihilaka Medura, BMICH,  
 Colombo from 1.30p.m. - 5.00 p.m.*

The environment, until recently considered an unlimited resource with zero cost, is today more and more perceived as a limited and precious resource which requires appropriate consideration. Each step in the food industry system including the production of agriculture produce, processing, transportation, storage, distribution and marketing has some impact on the environment. Conservation of resources, recycling and reuse of materials, utilization of by-products and bioconversion of waste materials, together with reduction of environmental loadings may all contribute to the sustainability of the environment. This seminar will make the public aware on timely need of attending to environment friendly agriculture and food processing and open up a dialogue among the interested groups. Following titles will be presented at the seminar.

- Importance of consuming safe foods produced through environment friendly food processing
- Energy conservation in food sector: issues, consequences and remedies
- Eco-innovation in the agri-food sector in Sri Lanka

- Environmental pollution caused by agricultural and food processing industry and its mitigation and regulatory framework
- Contribution of organic certifications for environment friendly agriculture and food processing
- Organic agriculture and food processing for sustainable wellbeing
- Panel discussion with speakers and other invited stakeholders

**FoodTechno 2019: Innovations for  
 Sustainable Future**

*3<sup>rd</sup> August 2019, at Mihilaka Medura, BMICH,  
 Colombo from 8.30 a.m. to 4.30 p.m.*



The IFSTSL is going to hold its Annual Research Session, FoodTechno for the 05<sup>th</sup> consecutive time as the scientific and educational segment of the country's largest food expo, Profood Propack & Agbiz Processed Food Exhibition 2019. Fourteen selected research studies carried out at universities, research stations and food industries will be presented at the research session under the theme of innovations for sustainable future. FoodTechno has attracted the interest of a wider audience as an ideal platform to share the scientific findings of the researchers and the expectations and current issues of the food industry, seeking developments and solutions.

**3<sup>rd</sup> Inter University  
 Food Science Quiz Competition 2019**

*4<sup>th</sup> August 2019, at Mihilaka Medura, BMICH,  
 Colombo from 1.45 p.m. to 4.30 p.m.*

For the purpose of developing the interest and awareness on food science education, IFSTSL started a quiz competition in the year 2017 among the undergraduates representing the universities offering food science degrees and food science majoring modules. In this year, the quiz competition will be held on 4<sup>th</sup> August at Mihilaka Medura, BMICH with the participation of teams representing University of Peradeniya, University of Sri Jayewardenepura, Wayamba University of Sri Lanka, Sabaragamuwa University of Sri Lanka and Rajarata University of Sri Lanka. IFSTSL invites all those who are interested in joining the audience.



ifstsl Colombo

## 7<sup>th</sup> Annual General Meeting

The 07<sup>th</sup> Annual General Meeting of the IFSTSL was held at Sinhalese Sports Club (SSC), Colombo on 28<sup>th</sup> September 2018. At the meeting Dr. Sujeewa Gunaratne, the president of the year 2018 was reappointed as the president for the year 2019 and Dr. Niranjala Perera was appointed as the president elect. Members discussed about future directions and the activities of the IFSTSL.



## EXECUTIVE COMMITTEE - 2019

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## A Seminar on Industry Expectations and Career Aspirations for Food Science Graduates

A seminar on Industry Expectations and Career Aspirations for Food Science Graduates was held for the undergraduates of Wayamba University of Sri Lanka, on 21<sup>st</sup> of November 2018 at the auditorium of the Department of Food Science and Technology. Dr. Sharmila Jayatilake, Head of Department of Food Science and Technology, and many other academic staff members attended the inauguration ceremony. Food science undergraduates of the Department of Food Science and Technology and the Department of Food and Nutrition, together with their academic staff participated at this seminar. The Society of Food Science and Technology of Wayamba University of Sri Lanka supported organizing of the seminar. Presentations were made by Mr. Dhammika Gunasekara, Managing Director of Tropical Life (Pvt) Ltd, and Dr. Sujeewa Gunaratne, President of IFSTSL, based on the theme "Industry Expectations and Career Aspirations". The students made use of this rare opportunity to clarify many aspects regarding working in food the industry.



# Conference on Food Safety Hot Topics in Sri Lanka: What's done and what's to be done



## Registration of Food Premises Regulations: Industry Readiness & Gaps

**Dr. L.T. Gamlath**  
Deputy Director  
General (EOH & Food Safety),  
Ministry of Health

The Institute of Food Science & Technology Sri Lanka (IFSTSL), organized and conducted a full day Conference on Food Safety Hot Topics in Sri Lanka: What's done and what's to be done on 5<sup>th</sup> April 2019 at Global Towers Hotel Colombo. The objectives of the IFSTSL in organizing this conference were to support the stakeholders of the food industry, by providing an opportunity for capacity development in selected food safety hot topics, and to discuss with regulatory senior officials on the process of implementation of proposed new food regulations. The keynote speech of the event was delivered by Mr. Ravi Jayawardena, the group CEO of Maliban Biscuit Manufactories (Pvt) Ltd.

The topics discussed at the conference were Registration of Food Premises Regulations, A Global Review of Colour Coding as an Effective Consumer Behaviour Change Mechanism, Food Adulteration in Sri Lanka, Nematode Parasites in Imported Canned Fish, Street Food of Sri Lanka: Food Safety Issues and Control Measures, Zero Sugar Beverages.

A large number of participants from various food industries, universities and government line agencies attended the conference. The IFSTSL also launched a book authored by Emeritus Prof. Upali Samarajeewa and published by IFSTSL, titled 'Food Sampling Guide' at this conference. IFSTSL wishes to thank all the expert resource persons, participants, invitees and the sponsor Maliban Biscuit Manufactories (Pvt) Ltd. for the support extended to complete the conference successfully.

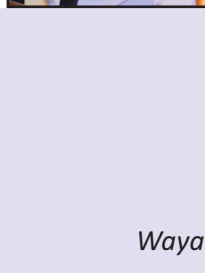
## A Global Review of Colour Coding as an Effective Consumer Behaviour Change Mechanism

**Dr. Renuka Jayatissa**  
Head of Nutrition Division  
Medical Research Institute



## Food Adulteration in Sri Lanka: Statistics, Detection, Prevention

**Dr. Gamini Rajanayake**  
City Analyst - Colombo



## Nematode Parasites in Imported Canned Fish

**Prof. Gamini Fonseka**  
Emeritus Prof.  
Wayamba University of Sri Lanka



## Street Food of Sri Lanka: Food Safety Issues & Control Measures

**Dr. Niranjan Rajapakse**  
Head, Department of Food Science & Technology, University of Peradeniya



## Zero Sugar Beverages: The Need Perceptions and Future

**Dr. Sujeewa Gunaratne**  
President IFSTSL

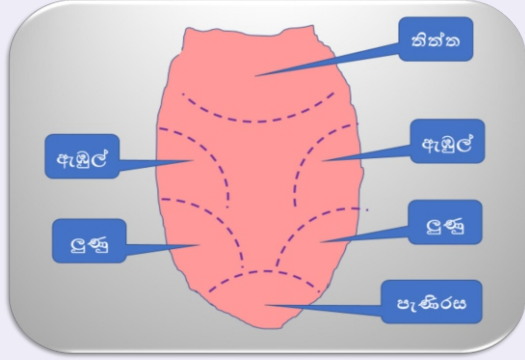


# රසය, ස්වාදය හා නව ආහාර තාක්ෂණය



සම්මානිත මහාචාර්ය උපාලි සමරසිව

ආහාරයක සංවේදී ගති ලක්ෂණ අතුරින් රසය නැවත නැවතත් පාරිභෝගිකයා එකම ආහාර වෙතට ආකර්ශනය කෙරේ. ආහාර කර්මාන්තයේ නොයෙකුත් බීම වර්ග හා පළතුරු ආශ්‍රිත නම්වලින් නිපදවෙන ආහාර මේ අතර පළමු තැන ගනී. සිංහලෙන් අපි රසය (taste) ලෙස හඳුන්වන ලක්ෂණය ආහාර විද්‍යාවේදී හැඳින්වෙන්නේ වෙනත් ආකාරයකටය. මෙහිදී වචන දෙකක අරුතෙහි වෙනස පැහැදිලිකර හඳුනා ගැනීම අවශ්‍යය. එම වචන දෙක රසය (taste) හා ස්වාදය (flavour) යි. රසය නමින් හැඳින්වෙන්නේ දිවට දැනෙන සංඥා මොළය මගින් තෝරාදෙන ආකාරයයි. රසය සම්බන්ධ මෙම සංඥාවන් පැණි රස, තිත්ත, ඇඹුල් හා ලුණු රස ලෙස හැඳින්වේ. මෙම සිව්වර්ගයන් හඳුනාගන්නේ දිවෙහි ඇති ඒ සඳහා විශේෂිත රස පොහොට්ටු මගිනි. පැණි රස දිවෙහි ඉදිරිපස තුඩ අවටත්, ලුණු රස දිවෙහි ඉදිරිපස දෙසට දෙපැත්තෙහුත්, ඇඹුල් රස දිවෙහි පසුපස දෙපැත්තෙහුත්, තිත්ත දිවෙහි පිටිපසින් පිහිටා ඇති විශේෂිත රස පොහොට්ටු මගින් හඳුනා ගැනේ (රූපය 1).



රූපය 1. දිවෙහි විවිධ රසයන් හඳුනාගන්නා ස්ථාන

මෙහිදී පැණි රස හඳුනාගන්නා පොහොට්ටු කැපවී ඇත්තේ කාබෝහයිඩ්‍රේට් හා සීනි වර්ග හඳුනාගැනීමට ය. දිවෙහි ඉදිරි දෙපස ඇති ලුණු වර්ග හඳුනාගන්නා පොහොට්ටු මූලිකව ආහාරයට යොදන ලුණු වල සෝඩියම් ද පොටෑසියම් අයනද හඳුනාගනී. දිවෙහි පසුපස දෙපසෙහි ඇති පොහොට්ටු ඇඹුල් රස ඇති අම්ල වර්ග, ගොරකා, සියඹලා, දොඩම් යුෂ ආදිය හඳුනා ගනී. දිව පිටුපස කොනෙහි පිහිටි ඇති තිත්ත හඳුනාගන්නා පොහොට්ටු මගින් කෝපි, කොකෝවා හා දෙහි ලෙලි වලට ප්‍රතිචාර කෙරේ.

විද්‍යාත්මකව ස්ථාපිත කොට ඇති මෙම රසයන් හතරට අමතරව උමාම් ලෙස හඳුන්වන වෙනත් රසයක් පිළිබඳ අදහසක් පසු කලෙක මතු වී තිබේ. එය ගොඩනැගුණේ මොනොසෝඩියම් ග්ලූටමේට් හෙවත් ග්ලූටමික් අම්ලය නිසා ඇතිවන රස ආශ්‍රිත ප්‍රතික්‍රියාව මුල්කොට ගෙනය. පසුකලෙක ග්ලූටමික් අම්ලය ක්‍රියාත්මක වන්නේ රස උද්දීපකයක් ලෙස පමණක් බව පෙන්වුම් කෙරින. ග්ලූටමික් අම්ලය අන්තර්ගත වීස් හා තක්කාලි මෙලෙස අනිකුත් ආහාරයන්හි රසය වැඩිකිරීමට යොදාගන්නා බව නොරහසකි. ග්ලූටමික් අම්ලය ආශ්‍රිත සංඥා ලබාගන්නා විශේෂිත ස්ථානයක් දිව මත මෙතෙක් කල් හඳුනාගෙන නොමැත. ග්ලූටමික් අම්ලයට සම්බන්ධ රසය පිළිබඳ මතයන් දෙඅකාරයකි. මෙම සංයෝගය රසකාරකයක් ලෙස සමහර විද්‍යාඥයෝ සලකන අතර එය රස උද්දීපකයක් පමණක් ලෙස අනිකුත් විද්‍යාඥයෝ විස්තර කරති.

මෙම මූලික රසයන්ට අමතරව කහට හා දිව හාරවන හෝ කටදන රසයන් අපට හුරුපුරුදුය. කහට රසය මුල්වී ඇත්තේ වැනිත් සංයෝග සහිත තේ, රතු වයින් වැනි බීම හෝ නොඉදුණු පළතුරු සමගය. කට දන රසය ගොඩනැගී ඇත්තේ මිරිස්වල සංඝටකයක් වන කැප්සිසින්, ගම්මිරිස්වල පිපරින්, ඉඟුරු වල පින්පරෝල් හෝ රාඩු වල අයිසෝනියෝසයන්ට් වැනි සංයෝග සමගය. මින් ඔබ්බට ගියකළ පෙපර්මින්ට්, මෙන්තෝල්

හා ඊතයිල් මද්‍යසාරය තුලද මුඛය සිසිල් කිරීමේ හැකියාවක් ඇත.

ස්වාදය (flavour) ලෙස හඳුන්වන්නේ ඉහත දැක්වූ රසයන් සමග එක්වන, දිවට අමතරව නාසයට ආහාරයන්ගෙන් ලැබෙන සංඥාවන් ගේ එකතුවකි. නැවුම් දොඩම් යුෂ විදුරුවකින් හෝ, උසස් ගණයේ තේකොළ යොදා සැකසෙන උණුසුම් තේ කෝප්පයක රසයෙන් ඔබ්බට ගිය ස්වාදයක් විඳීමට පුළුවන. ආහාර විද්‍යාවේදී ස්වාදය පාරිභෝගික සංවේදී ලක්ෂණයක් ලෙස බහුලව භාවිතාවේ. නවීන ආහාර තාක්ෂණය මගින් නිපදවෙන බොහෝ ආහාර, ස්වාදය දෙසට තදින් නැඹුරුවේ. සම්ප්‍රදායික තේ වෙනුවට පළතුරු රසයන් ලැබෙන තේ සඳහා යුරෝපා රටවල වැඩි ඉල්ලුමක් ලැබෙන්නේ අලුත් ස්වාදයන්ට නැඹුරුවීමක් ලෙසිනි.

විවිධ මද්‍යසාර පානයකිරීම සඳහා සැකසී ඇති විදුරු භාජනයන්හි හැඩය පරිභෝගිකයෝ ස්වාදය වෙත දක්වන ඇල්මට උදාහරණයකි. වයින් මගින් පිටවන සුවඳ විදුරුව තුල රැකගැනීමට විදුරුව ඉහතට කඩාකාරව සකසා ඇත. බීර විදුරුවක හැඩය සකසා ඇත්තේ ඉන් මතු වන වායුව ඉවත්වන ලෙසිනි. මෙම ලක්ෂණ දෙකම විස්කි පානයට යොදාගන්නා විදුරුවක නොමැත (රූපය 2).



රූපය 2. විවිධ බීම තුලින් බිහිවන ස්වාදයන් රැකගැනීමට හැඩගැසූ විදුරු

ගෝලීයකරණයන් සමග සිදුවූ ආහාර සංස්කෘතියන්ගේ මුහුණිම හරහා බටහිර රටවල පාරිභෝගිකයන් නව ස්වාදයන් හා කුළුබඩු ස්වාදයන් වෙත නැඹුරුවෙමින් පවතී. අද, පාරිභෝගිකයා ආහාර වෙත යොමුවන්නේ කෑමට පමණක් නොව අළුත් අත්දැකීම් විඳගැනීමක් ලෙසය. ආහාර පැසවීමේ සම්ප්‍රදායික කර්මාන්තයේ බලාපොරොත්තු වූ ගතිලක්ෂණ වෙනුවට, අලුත් ස්වාදයන් පරමාර්ථ කොටගත් ආහාර බිහිකිරීම වෙත පර්යේෂණ යොමුවෙමින් පවතී. මෙලෙස එක ආහාර වර්ගයක් පැසීම සඳහා සම්ප්‍රදායිකව යොදාගත් ක්ෂුද්‍රජීවී වර්ග, වෙනත් ආහාරයක් පැසවීම තුලින් අලුත් ස්වාදයන් බිහිකිරීම වෙත ඒ ආහාර තාක්ෂණය ගමන්කිරීමට උත්සාහයක් දරනු දැකිය හැකිය. සම්ප්‍රදායිකව බාර්ලි ශීස්ට් මගින් පැසවීම හා තිත්ත රසය සැපයීමට හොප් එකතුවීමත් බීර නිෂ්පාදනයේදී සිදු කෙරිණ. මේ හා සමාන්තරව යෝගට් නිෂ්පාදනයේදී විශේෂිත බැක්ටීරියා මගින් බිහිකළ ස්වාදයන් බිහිවේ. මෙම නිෂ්පාදන දෙකටම, විශේෂිත වූ ක්ෂුද්‍රජීවීන් යොදාගත් අතර වෙනත් ක්ෂුද්‍රජීවීන් යොදාගැනීම තාක්ෂණිකව අකැප විය. අද ආහාර පැසීමේ තාක්ෂණය ස්වාදය චල්ල කොටගත් වෙනත් පැසීමේ ක්‍රම වෙත යොමුවෙමින් පවතී.

කොපි ලෙස හැඳින්වෙන ක්ෂුද්‍රජීවී මිශ්‍රණ යොදාගෙන සහල් හා සෝයා බෝංචි පැසවීම මගින් ආහාර නිපදවීම පෙරදිග ලෝකයේ දිගුකාලීනව පවතින තාක්ෂණයකි. මෙම තාක්ෂණයේදී උමාම් රසය දෙන ග්ලූටමික් අම්ලය ආහාරය තුල නිපදවේ. කොපි ක්ෂුද්‍රජීවී මිශ්‍රණ රයි හා නිර්ඟු මිශ්‍රණ සඳහා යොදාගැනීම මගින් නව ස්වාදයන් සහිත ආහාර නිපදවීමට ඇමරිකානු ආහාර

කර්මාන්තය උනන්දුවක් දක්වයි. තේ වතුර කල්තබාගැනීමේදී ඒ මත බිහිවන කොම්බුවා නමින් හැඳින්වෙන ක්ෂුද්‍රජීවී සංකලනය වසර කිහිපයකට පෙර සිට ලංකාවේ ප්‍රචලිතව පවතින. කොම්බුවා පැසවීමේ තාක්ෂණය චීනයේ බහුලය. මෙම තාක්ෂණය වෙනත් විළුවළු පදනම් කොටගත් ආහාර වලට යොදාගැනීමට අද බටහිර ලෝකයේ උනන්දුවක් ඇත. මෙලෙස පැසීමට භාජනය වන ආහාරයන්හි සෞඛ්‍යමය හා ඖෂධීය වාසි පිළිබඳ විවිධ කරුණු ගැන නවීන ආහාර විද්‍යාව සාකච්ඡාවට භාජනය කෙරේ.

සම්ප්‍රදායිකව සෝස් වර්ග බිහිවූයේ තක්කාලි, මිරිස් හා අඬ මුල්කොටගෙනය. නව ආහාර වෙත යොමුවීමේදී ඉන්දියානු හා අප්‍රිකානු සෝස් වෙතට බටහිර ලෝකය වැඩි උනන්දුවක් දක්වනු පෙනේ. මෙම ප්‍රවණතාවය ප්‍රයෝජනයට ගනිමින් ඉන්දියානු ආහාර තාක්ෂණය, කුළුබඩු මුල්කොටගත් සෝස් නිපදවීමට යොමුවී ඇත. කුළුබඩු අතර කුරුඳු වලට ලැබෙන්නේ වැදගත් තැනකි. ශ්‍රී ලංකාවේ කුරුඳු ඒ අතර විශේෂත්වයක් ගනී. ඖෂධීය ගුණයන් නිසා වැඩි වශයෙන් කුරුඳු භාවිතයට බටහිර රටවල් කැමැත්තක් දක්වති. කුරුඳු රසයට සුළු වශයෙන් නැඹුරුවන සෝස් වලට මෙහිදී වැදගත්කමක් ලැබෙනු ඇත. මෙවැනි ව්‍යාපෘතියක් ගැන සිතීමේදී ඉලක්ක කරගත යුත්තේ, කුරුඳු පොතු නොව, දැනට මිලක් ලබා ගැනීමට අසීරු කුරුඳු කොළ වෙතටය. කුරුඳු කොළ මුලාශ්‍රය කොටගත් සෝස් වර්ගයක් මග පාදන්නේ අපද්‍රව්‍යයකට වැඩි වෙළඳ වටිනාකමක් දීමක් ලෙසය. සාර්ථක ආහාර කර්මාන්ත තම සිතුවිලි ගොඩනැගිය යුත්තේ, මෙවැනි ආදායම් මාර්ග සඳහාය. විවැනි සෝස් වර්ගයකට බාබ්‍බ්‍රික් (BBQ) කල මස් සමග සාර්ථක ගමනක් යා හැකිය. නොඉඳුල් පොල්තෙල් තුල කුරුඳු රසය රඳවා සෝස් නිපදවීම තුලින් නව තාක්ෂණික හා ආර්ථික වාසි සැලසෙනු ඇත. අපගේ පැරණි තෙල් කර්මාන්තයටද නව මුහුණුවරකින් ආහාර තාක්ෂණය වෙත යොමුවිය හැකිය. පැරණි තෙල් මගින් නව ස්වාදයන් ගොඩ නැගූ තේ වර්ග හා විස්කෝතු වර්ග වෙළඳපොලට පැමිණ ඇත. මෙහිදී ස්වාදය විල්ලකොටගත් සංඝටකයක් ලෙස එක් කලයුතු පැරණි තෙල් ප්‍රමාණයන් ඉතාමත් ස්වල්පය. එය ආර්ථික වශයෙන් වඩාත් හොඳ අනාගතයකට මග පෙන්වනු ඇත.

අතිශයින් ජීර්ණීකරණය කළ සුක්‍රෝස් සීනි අත්හරින පාරිභෝගිකයෝ, විටෙක කෘත්‍රීම පැණිරස වෙත නැඹුරු විය. අද ඉන් ඔබ්බට ගොස් ස්වභාවිකව පවතින සීනි, ස්වාදකයක් ලෙස සැලකීමට පාරිභෝගිකයෝ පටන් ගෙන ඇත. ස්වාදකයක් ලෙස

මිපැණි වලට වැදගත් තැනක් හිමිවේ. පෞරාණික සමාජයේ අප ආදිවාසීන්, මිපැණි මස්වලට එක්කල ආකාරය පිළිබඳ තොරතුරු, පතපොත අපට පෙන්වා දෙයි. ශ්‍රී ලාංකික මිපැණි අද අමුද්‍රව්‍යයක් ලෙස භාවිත කරන්නේ පාරම්පරික වෙදකමට පමණි. ඒ හැරෙන්නට ඉතා ස්වල්ප ලෙස මිපැණි වෙළඳාම් කරන ස්ථාන මගතොටෙහි දකින හැකිය. සුවසාධන ආහාරයක් ලෙස සැලකෙන මිපැණි, නව ආහාර කර්මාන්තයේදී වැදගත් ව ඇත. බඳින ලද කුකුළු මස් වලට මිපැණි දැවට හෝ ආලේප කල ආහාර අද බටහිර ලෝකයේ පහසුයයි. මිපැණි හා කුළුබඩු එක්කොට නව පන්තියේ සෝස් දෙස යොමුවීමට ආහාර කර්මාන්තයට අවස්ථාව ඇත.

එක් එක් ආහාරයට විශේෂිතවූ ස්වාදයන්ගෙන් ඔබ්බට ගොස් ස්වාද මිශ්‍රණයන් දෙන ආහාර වෙත පරිභෝගිකයා නැඹුරුවීමත්, එයට සරිලන ලෙස ආහාර නිපදවීමත් ආහාර තාක්ෂණයේ තවත් නව නැමීමකි. බීර වලටම අදාල ලක්ෂණයන්ගෙන් ඔබ්බට ගොස්, පළතුරු රසයන් එක් කල බීර, කුළුබඩු රසයන් එක්කල බීර මෙන්ම, තේ හෝ පැණි බීම සමග පානය කරන අවස්ථාවේදී තම රුචියට අනුව මුසු කරගැනීම (shandy) බීර පානයේ නව ලක්ෂණයක් වෙමින් පවතී. බීර හෝ විස්කි එක් කල අයිස් ක්‍රීම්, බීර හෝ මද්‍යසාර රසයන් මුසුකල වොකලට් හා දොඩම් යුෂ මේ ආකාරයේ තවත් නව ස්වාදයන් වෙත යොමුවීමකි.

වඩාත් නිරෝගී දිවියකට කැපවුණු ආහාර වෙත යොමුවීමේදී, සීනි හා මේද වර්ග වල ස්ථානය වෙනුවට වඩාත් සෞඛ්‍යමය හා ඖෂධීය වශයෙන් වැදගත් ආහාර වෙත ආහාර විද්‍යාව යොමු වී ඇත. මෙම ශතවර්ෂයෙහි උපත ලැබ, තාරුණ්‍යය වෙත හැරෙමින් පවතින අලුත් පරපුර විවිධත්වය හෙවත් නානාකරණය ප්‍රියකරන සමාජයකි. ඔවුන්ගේ ඉල්ලුම නව ආහාරයන්ය. නව ස්වාදයන්ය. සෞඛ්‍යයට අහිතකර ආහාරයන්ගෙන් ඉවත්වීමය.

මෙම පසුබිම තුල ශ්‍රී ලාංකික ආහාර කර්මාන්තයට වාසිදායක මංපෙත් දෙකක් මතු වෙමින් පවතී. පළමුවැන්න සම්ප්‍රදායික, ස්වභාවික සංඝටකයන් ගෙන් සමන්විත සුවසාධන ආහාර නිෂ්පාදනය ය. දෙවැන්න ලංකාවට පැමිණෙන සංචාරකයන් විල්ල කරගත් නවීන තාක්ෂණයෙන් සැකසුණු, විනමුත් සම්ප්‍රදායික හා සුවසාධන ආහාර පාන සැපයුම් කර්මාන්තයක් වෙතට නැඹුරු වීමය. මේ සඳහා ආහාර විද්‍යාව හා තාක්ෂණය සුපවේදය සමග අත්වැල් බැඳ ගැනීම අවශ්‍යය. එම සාමූහිකත්වය ගොඩනැගීමේ වගකීම ශ්‍රී ලංකා ආහාර සැකසුම් කරුවන් සතුය.

## Good Health Starts with a Healthy Gut

An article published in Brain Food: the official blog of IFT, in July 2019  
By Farida Mohamedshah

The human gut is home to more than 100 trillion microorganisms, including bacteria, parasites, viruses, and fungi. This vast ecosystem, known as the gut microbiome, is primarily composed of bacteria and contains the largest concentration of microbes in the human body. While every person's microbiome is unique, it is estimated that an individual has anywhere from 500 to 1,000 different species of bacteria in their gut. In addition to its role in digestion, the gut microbiome could play a role in immune health, metabolism, weight, sleep, and much more. Therefore, maintaining a healthy gut is critically important, and diversity of the gut microbiome is key. Having a wider array of microbes in the gut creates a healthier and more resilient environment, whereas symptoms of an unhealthy gut tend to present themselves when a lack of diversity exists. While genetics are a factor, research shows that diet has substantially more of an impact on the gut microbiome.

**What We Eat Matters:** Most nutrients are absorbed in the small intestine, including fats, carbohydrates, and proteins. However, nutrients that are partially digested or undigested, such as resistant starches, fiber, and some protein, can make their way to

the colon. Most of the microbiome resides in the colon, so nutrients that reach the colon become a food source for the bacteria. They have also been associated with a decreased risk of some autoimmune diseases, including inflammatory bowel disease, inflammatory arthritis, and multiple sclerosis. When the bacteria are at harmonious levels, the gut is in a healthy state. But when the symbiotic relationship is off balance, the bad bacteria can take over, producing metabolites that pass through the lining of the gut and into the bloodstream, spreading inflammation to other parts of the body.

**An Avenue to Personalized Nutrition:** Studies have suggested that people can be grouped into two or three different classifications based on the presence of certain bacteria. The first type is characterized by high levels of Bacteroides, whereas in the second type, Prevotella are more common. In addition, some studies have identified a third variable type. As more studies are conducted, scientists will be looking to fill in the gaps between these classifications, constructing a spectrum of microbial states that people fit into. These insights will enable more focused classifications based on functional profiles, which in turn opens the door for more personalized nutrition based on a person's microbiome.



## Food Safety Challenges in the Hotel Industry

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Food safety in general is important for every individual. It is an issue that we take into account in different aspects of our life. For instance, to ensure our personal protection we buy stun guns that we can bring with us anywhere. Moreover, we wear seat belts to keep us safe while we are driving. More importantly, we ensure that the food we eat is safe. How the food is prepared, is what we all consider. When we eat in restaurants or hotels, when we buy from a store and even when we cook our own food, we make sure that it is clean and safe to take into replenish the needs of our body.

Food safety has become an issue of special importance for the retail food industry. There are many instances that food contamination can occur between the process of production and consumption. Food can be contaminated at any point of the food chain including at the site of primary production; farm, ranch, orchard or in the sea. Contamination of food can even occur while it is processed at manufacturing establishments and while it is delivered to different retailers. Finally, food can be contaminated during the last stages of food preparation at retail establishments and by the consumers at their homes.

Food safety is especially critical in retail food establishment because this may be the last opportunity to control and eliminate the hazards that might contaminate food and cause food borne illnesses. Even when bought from already inspected and certified sources, ingredients may be contaminated when they arrive at the food establishment. It is important to know how to handle these ingredients safely and how to prepare food in such a manner that reduces the risk of contaminated food being served.

### Challenges in the industry

Since the catering industry is on the rise it poses extra responsibilities on the food business, operators to ensure food safety and provision of nutritious and wholesome food a number of concerns need attention. One of the main food safety challenges face by the hospitality service business includes availability of sub-standard or contaminated raw material with pesticide residues, veterinary drug residues, and other hazardous chemicals. In addition, the outlets located in high traffic zones such as bus stands, railway stations and roadside, etc. face the challenge to maintain safe and hygienic environment zones. Lack of infrastructure availability among the vendors and small food business operators such as refrigerators, hot cases, warm and running water and adequate kitchen space, etc. makes the food potentially unsafe. Street food vendors and kiosks, etc. use water provided by the municipal authorities and usually the quality of water is not potable making food prepared unsafe for consumption. Moreover, lack of knowledge on food hygiene and safety among the food handlers and unskilled catering staff can lead to food safety issued at the dining places. Some small-scale food service establishments face a difficulty in adapting the legal requirements since they cannot fulfill the requirements from a one-stop station and application procedures are complex and

cumbersome.

Among all cross contamination is one of the leading causes of foodborne illness in the catering industry and cutting boards are a major culprit. Keeping that chicken separate from vegetables is not only a good idea it could be a lifesaving one. Choosing the right board, knowing when to change it and how to properly clean it, could be overwhelming. The following can help you navigate:

### Not all boards are made equal

When purchasing cutting boards, you have to make sure to choose ones with rounded corners that will not break or chip. Boards made of very hard material can dull knives, however boards should be hard enough that knives cannot easily leave gashes, as gashes can harbor bacteria. A non-porous smooth hard surface that is easily cleanable is ideal to help prevent cross contamination.

### To replace or not

In time, all boards become damaged or gouged, making them difficult to clean and impossible to sanitize. Besides being a food safety hazard, gouged cutting boards are violations that can result in. The following are some ways you can tell if it's time to say farewell. Take a damp cotton swab, rub it gently over the surface of the board, if any fibers get stuck to the board, or if boards are permanently discolored and if you rub your hands over the board and it feels rough.

### Proper cleaning

The best way to prevent cross contamination is to designate separate boards for meat and foods that will not be cooked before serving (vegetables/breads). Color coding is an excellent way to keep track. Even if you do color code and separate, properly cleaning and sanitizing boards is mandatory. After all food is scraped off, clean and sanitize, whether or not you are using separate boards make sure to clean and sanitize between uses. When washing by hand, do not use steel or wire, both can damage a board's finish. After cleaning, flood board with sanitizing solution (1 tablespoon unscented bleach per gallon of water) let stand for 5-10 minutes and rinse with fresh water. Let cutting boards dry completely, do not stack them together.

Food safety ultimately deals with the consumption stage, where the existence and level of the dangers caused by foods are of chief concerns. The observance of rigorous control procedures throughout the course of the food chain is a fundamental necessity, given that risks to food safety can surface in any stage of the chain. Therefore, all parties specially including catering sector involved in the food chain share the responsibility for ensuring food safety.

The food safety system of catering sector involves numerous factors. To begin with, minimum hygiene standards, food producers must apply food safety measures and procedures and official bodies must supervise and inspect catering sector to confirm that they are conducting their operations in a manner consistent with the regulations in force. Food poisoning cases that threaten public health globally occur as a result of the contamination of foods in any stage, from production to consumption. Although the factors jeopardizing food safety seem to be easy to control in theory, studies and current practices indicate that there is still a long way to go in practice.

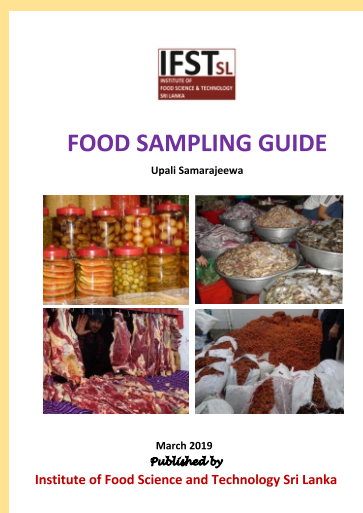
## Two-Day Residential Training Programs on Food Safety for Public Health Inspectors and Food Inspectors



Food safety and public health are becoming areas needing greater attention due to the increased demand for processed foods, new technologies used and waste generated during food production and processing. Public health inspectors (PHIs) as the responsible officials in ensuring food safety and public health of the country need to get updated their knowledge on the new developments in the above aspects. With the fanatical support of the Food and Agriculture Organization (FAO), IFSTSL planned and conducted a series of two-day in-service residential training program on food safety for PHIs and food inspectors (FIs) from 05<sup>th</sup> to 20<sup>th</sup> January 2019. Representing all administrative areas of Medical Officers of Health (MOH), 515 PHIs and FIs were trained offering six, two-day training programs both in Sinhala and Tamil mediums at Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), Colombo and In-service Training Institute, Department of Agriculture, Gannoruwa, Peradeniya. Drs. Eresha Mendis, Sujeewa Gunaratne, Niranjan Rajapakse and Mr. Harsha Abeywardana, served as the trainers of Sinhala medium and Mr. Kathirkamu Rasakanthan and Ms. Sarusha Santhiravel conducted the training in Tamil medium. The Ministry of Health, Nutrition and Indigenous Medicine collaborated with the IFSTSL in selecting the trainees and organizing the training programs.



## IFSTSL Launched a New Book on “Food Sampling Guide”



The IFSTSL launched a new text book titled 'Food Sampling Guide' which is authored by Emeritus Prof. Upali Samarajeewa of the University of Peradeniya, at a conference held on 5<sup>th</sup> April 2019 at Global Towers Hotel Colombo. Emeritus Prof. Samarajeewa who is a renowned scholar, has contributed in numerous ways to develop food science education and the food industry in Sri Lanka. He has published number of scientific documents and text books in the field of Food Science & Technology and has a long experience in serving as a national and international expert on food safety, laboratory development & laboratory accreditation for leading international organizations such as, FAO, WHO and UNIDO. In writing “Food Sampling Guide”, he has used his knowledge and vast experience in the field of food science, targeting individuals who engaged in food sample collection, preparation, testing and interpretation of test results and those who are interested in acquiring knowledge in food science. This book was published by IFSTSL.

### Preface of the Book

Decisions on quality and safety of large consignments of foods are based on a small sample tested qualitatively or quantitatively. A representative sample is essential to be tested to avoid wrongly accepting or wrongly rejecting a food consignment. Sampling is a part of examination of foods, which consist of a series of activities. The activities include physical collection of primary samples randomly, decisions on number of primary samples to be collected, methods for homogenization of a composite sample derived from primary samples, assuring homogeneity of the aliquot to be tested, testing, interpretation of test results against regulations and deciding on the acceptability of a consignment of food. Research has shown that the uncertainty arising from sample collection is much more than the uncertainty arising during testing. In accreditation of food testing laboratories against ISO 17025 International Standard, measures to reduce uncertainty in testing are addressed. Similar scientific systems are developed now to assess and minimize uncertainties arising in sampling.

In the area of food quality control and assessment of food safety, the sampling plans are not fully understood, especially the statistical background of sampling. Lack of sampling knowledge and inadequacies in sampling practices are major impediments to implementation of risk management approaches such as Hazard Analysis Critical Control Points (HACCP) in the food industry. This guide gives an overview of the background knowledge necessary to understand the principles and limitations associated with sample collection and sample preparation discussing means to provide a homogenous sample to the food analyst. Sampling plans depend on the types of food matrices, the nature of analytes and final objective of reaching pre-decided acceptance levels for a consignment. Acceptance levels vary with the physical, chemical or microbiological parameters that are examined to assess foods. The sampling plans required for the three situations and within each situation, differ from each other. Several internationally applied sampling plans, appropriate to food situations are introduced in this guide. The practical approaches necessary in reducing uncertainty of sampling is discussed providing guidance for field practices. The guide book is useful for the persons engaged in sample collection, sample preparation, testing and interpretation of test results. It also forms an important source material for those who are following degree programs in food science and technology.

### Possible Link Between Sugary Drinks and Cancer

*A study published by The BMJ (Biomedical journal) reports a possible association between higher consumption of sugary drinks and an increased risk of cancer.*

While cautious interpretation is needed, the findings add to a growing body of evidence indicating that limiting sugary drink consumption, together with taxation and marketing restrictions, might contribute to a reduction in cancer cases. So a team of researchers based in France set out to assess the associations between the consumption of sugary drinks (sugar sweetened beverages and 100% fruit juices), artificially sweetened (diet) beverages, and risk of overall cancer, as well as breast, prostate, and bowel (colorectal) cancers.

Daily consumption of sugary drinks (sugar sweetened beverages and 100% fruit juices) and artificially sweetened (diet) beverages were calculated and first cases of cancer reported by participants were validated by medical records and linked with health insurance national databases. The results show that a 100 mL per day increase in the consumption of sugary drinks was associated with an 18% increased risk of overall cancer and a 22% increased risk of breast cancer. When the group of sugary drinks was split into fruit

juices and other sugary drinks, the consumption of both beverage types was associated with a higher risk of overall cancer. No association was found for prostate and colorectal cancers, but numbers of cases were more limited for these cancer locations. Possible explanations for these results include the effect of the sugar contained in sugary drinks on visceral fat (stored around vital organs such as the liver and pancreas), blood sugar levels, and inflammatory markers, all of which are linked to increased cancer risk. These results need replication in other large scale studies, say the authors.

"These data support the relevance of existing nutritional recommendations to limit sugary drink consumption, including 100% fruit juice, as well as policy actions, such as taxation and marketing restrictions targeting sugary drinks, which might potentially contribute to the reduction of cancer incidence," they conclude.