SEMINAR ON

SAFETY OF PROCESSED FOOD PRODUCTS

By Ms. Siddhita Kadam, Food Scientist, PFNDAI

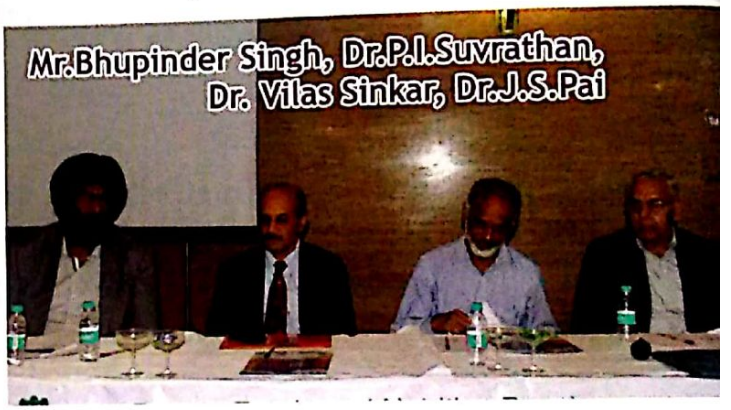
Food and people are travelling thousands of miles to different countries more than ever before as well as newer ingredients including ones that have benefits well beyond conventional nutrient roles and ones having been genetically manipulated are appearing in markets with many advantages including taste, flavour, appearance, colour, nutrient content and ability to reduce the risk of many diseases.

Safety evaluation of food is not an easy task. As food products are now prepared using a large number of ingredients and additives as well as processing aids, using complex machinery and processes, many ingredients coming from distant places and also in complex forms, and as recently some botanicals and herbs have been permitted to be used for their health benefits. Under such conditions ensuring safety becomes complex. Some of the ingredients may be novel and used for the first time, some may use novel process. There are also ingredients from GM foods and botanicals whose safety we need to evaluate.

So many processed food products available in Indian market, from manufacturing to the finished products every industry should be taking care that these food products do not cause any health problems and absolutely safe for consumption.

To create more awareness on safety of processed food and to discuss the problem existing as well as innovative solutions related to processed foods that we produce and consume, a one day conference was organized on 11th September 2015, about "Safety of Processed Food Products" at Hotel Orchid, Mumbai.

On this occasion the delegates were welcomed by Mr. Bhupinder Singh, Chairman, PFNDAI & CEO Vista Processed Foods. He talked about the changing commercial as well as regulatory scenario in food industry and how professionals must be aware of them in order to survive in today's competition. He said


Mr.Bhupinder Singh, Dr.P.I.Suvrathan, Dr. Vilas Sinkar, Dr.J.S.Pai

PFNDAI always organised these events wherein various aspects could be discussed thoroughly by experts to evolve a consensus.

Seminar inaugural address was delivered by Dr. P. I. Suvrathan, ex-Chairperson, FSSAI, wherein he stated that 'No regulation can ensure the food safety in one hand. It depends upon regulators, producers and government and also the consumers'. While talking about safety standards and regulations, he emphasized on 'Pesticides level increases in transporting foods e.g. eggs, fruits, vegetables, fish etc. 90% of sale of such foods occurs on street and that 75 -80% food samples are contaminated with E. coli. To developed safety standards good agricultural practice is used in agriculture for appropriate us of pesticides along with active consumer awareness is also required'.


Panelists and PFNDAI

Dr. Vilas Sinkar, ex-VP R&D, Unilever briefly introduced about 'How to Provide Safe Processed Foods'. He stated that provide safe process food Recognized as a National priority. Food Safety & Standards Authority of India (FSSAI) created science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. He also emphasized on Safety of processed foods provided by Better Farm Extension Programmes, Better organized Supply Chain, Greater investment in Agri and Foods R and D, Higher Consumer awareness of Quality and Safety, Simplified and Transparent Regulatory Environment, Availability of Skilled Manpower, process is transparent and accessible to the public.

Dr. Ramasubramanian

Mr. Ganesh Kamath, Director, Vital Nutraceuticals talked on "Safety & Regulation of Functional Foods, Supplements etc." while discussing on functional foods he stated that dietary supplements, nutraceuticals are identified under section 22, regulation passed by parliament. Only the Central government has power to make regulations in production of nutraceuticals. Product approval is not a legal system. Scientific committee and panel should work on limit of additives while manufacturing the supplements, which will be helpful in food safety. Manufacturing conditions are also important. Manufacturers should visit their plants regularly and observed procedure daily. This will be helpful in producing safe product.

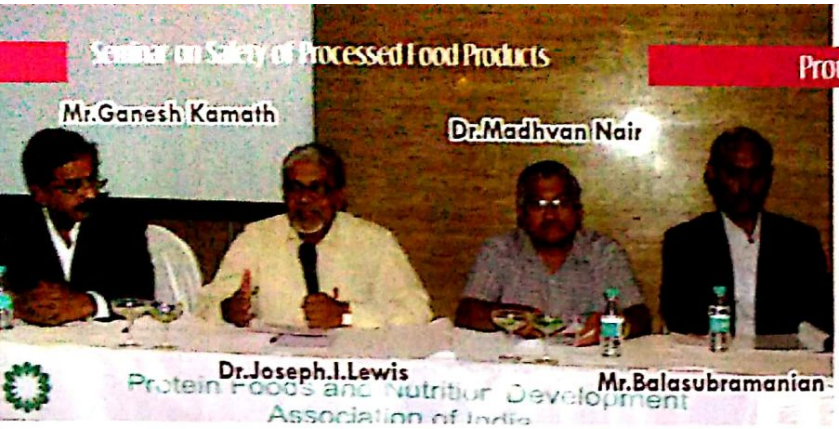
Dr. Madhavan Nair, Head, Micronutrient Res., NIN gave a presentation on Nutrients: Concept of RDA, UTL & NOAEL. He stated that Nutrients needs are variable and become population specific due to variations in genetic environment and socio-demographic characteristics of the population and within a population it varies among different physiological groups. He defined the Recommended Dietary Allowances (RDA) as the daily dietary intake level of a nutrient considered sufficient to meet the requirements of 97.5% of healthy individuals in each life-stage and gender group. RDA intake is based on Physical activity, Reference body weights, Habitual diet, Bioavailability and health status for all age groups and during pregnancy and lactation.

Approaches use to derived RDA for adult man average weight of 60 kg is iron (Fe) – 17 mg/d, Folic acid – 200 µg/d, vitamin B12 - 1 µg/day and vitamin C – 60 mg/d. he also stated that the safety of exceeding fat-soluble vitamins are notoriously dangerous in excess (Vitamin A), while excesses of most water-soluble vitamins are excreted with no apparent harmful effects, exception -- Vitamin B6 (pyridoxine) in excess causes irreversible neurological damage but excesses or imbalances of minerals are best avoided.

He highlighted on NOAEL (No observed adverse effect level) nutrients means highest continuing intake of a nutrient at which no adverse effects have been observed in the individuals or groups studied. He also explained the relation between NOAEL and UTL with definition such as upper tolerable limit (UTL) is meant to inform the public of risk of excess nutrient

intake is built upon no observed adverse effect level (NOAEL), Lowest-observed-adverse-effect level (LOAEL) and uncertainty factor (UF). UTL is not a recommended intake level.

On the topic of Safety Assessment of Botanicals and Botanical Preparations, Mr. K. Bala Subramanian, Head, Technical, Chennai Mettexlab had given the presentation. He stated World Health Organization (WHO) assists national regulatory authorities; Guidelines for assessing the quality of botanical materials mainly emphasize the need to ensure the quality of medicinal plant products by using modern techniques and applying suitable standards.



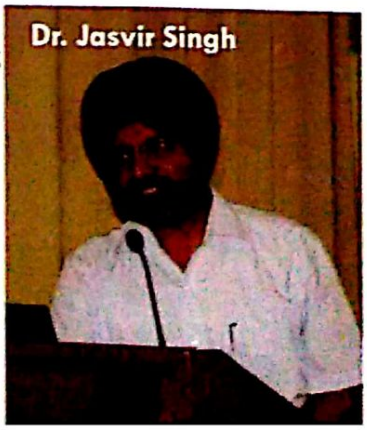
He also discussed uses of botanical ingredients in food products including food supplements, the maximum permissible level of Chemical, Biological contaminants (e.g. pesticides, mycotoxins, heavy metals), Technical Exposure and Toxicological nature required in proposed data for safety assessment. He also presented on qualified presumption safety which is based on four principles such as taxonomy, body of knowledge, toxicity and end use. He also mentioned that in India over 70% of the population relies on some form of traditional medicine, mainly Ayurveda, Unani, and Siddha for that safety of botanical products analyzed on Toxicokinetics including metabolism, Genotoxicity testing, Sub-chronic toxicity testing or further studies relevant to the products required.

Dr. JI Lewis, Advisor, FSSAI presented food safety issues. He presented on food safety issues which is cause by adulterants and that is mostly present in unsafe, sub standards and misbranded foods. These adulterants responsible for intrinsic risk (through pesticides residues, food additives, toxins, contaminants, high risk foods such as fish, eggs, meat, infant's food etc.) where as control risk occurred due to unsafe production. Food safety management system is required for managing both the control risk factors and intrinsic risk factors through HACCP, GHP-GMP-GLP, traceability, recall plan, self audit, performance and measurement. He also mentioned that food safety is a preventive system. It is neither an 'inspected attribute' and nor a 'single point control'.

Dr. Nimish Shah, Director, Safety & Environ. Assurance Centre, HUL presented on Science behind Food Safety. He highlighted on food analysis carry out by speed and sensitivity. PCR/ Antibody based tests allow detection of single/ very few numbers of pathogens in matter of minutes-hours. He floated an idea about allow technical talent (professionals from different fields) come together in preparation of food safety models. He also suggested that used Multi Criteria Decision Analysis (MCDA). He lastly mentioned that "Establishment of FSSAI is a key milestone for the country".

Mr. Sujit Nair, Sr. Food Assessor, LRQA gave brief presentation on Role of Accreditation and Certification in Ensuring Safety of Food Products. He explained difference between accreditation and certification. While talking about this, he defined accreditation is validation of a certification body about its infrastructure, resources and controls to assess conformity and verification of a CB's compliance to its processes whereas Certification is assurance and verification the facility maintains its control measures(Facility identifies risks, validates FSMS and processes, controls these risks). To remember this he simplified as Accreditation Bodies "accredit" certification bodies and Certification Bodies are 3rd party auditing companies. He also highlighted on the benefits of accreditation certification. If company has this certificate then that would be globally accepted (FSSC, BRC certified),overcomes the trade barrier issues, enhances confidence of the buyers, customers and consumers, ensures compliance to stakeholders requirements e.g. regulatory, statutory requirements, sector specific requirements, customer requirements, enhances the food safety culture in the organisation, assurance from a reputed, independent third party about compliance with global food safety standards and drives an effective regime of self governance.

Risk Analysis of Food Additives on this topic Dr. Sudershan Rao, Deputy Director, NIN, Hyderabad, he discussed that risk analysis of food additives can be carry out by identify food additives, perform toxicity test, determine NOVEL, select safety factor, calculate ADI, calculate exposure and last Compare the exposure and the ADI when exposure exceeds ADI, Risk mitigation is required. He also stated that Good Manufacturing Practices (GMP) is required for food additives by using lowest possible level necessary to accomplish its desired effect and the additive is prepared and handled in the same way as a food ingredient. To reduced risk about food additives a well functioning food safety system, support and participation of key stakeholders, i.e. Government, industry, academia, consumers are needed.



Dr. Jasvir Singh, Asso. VP & Head: Sci. & Regul. Affairs, Mondelez presented on Codex scientific

perspective on Food Additives Safety on behalf of Mr. Shaminder Pal Singh of Pepsico. He stated that Codex has developed global food standard for protect the health of consumers and Facilitate fair trade practices in the food trade and it's a global reference for consumers, Food Producers and Processors, National Food Control Agencies and International Food Trade. He also mentioned that codex is a voluntary standards but it gives significant benefits to enrich national legislations (esp. for developing world). He threw light on JECFA (joint expert committee of food additives) estimated the amount of a food additive, expressed on a body weight basis that can be ingested daily over a lifetime without appreciable health risk. JECFA performs a vital function in providing a reliable source of expert advice for countries that do not have the resources to perform their own risk assessments. Codex decision making process based on four principles such as Excellence, Independence, Transparency and Universality depends upon scientific basis of risk analysis.

Mr. Sailesh Venkatesan, Vice chairperson chaired the panel discussion and spoke of effectiveness of product approval system. He mentioned that Approval required for products specified under Section 22 (Novel, GM, FSDU, Food supplement, Proprietary food etc.) to ensure product safety / safety of the consumer. It is done by prescribing Standards; or by an approval mechanism. He highlighted on for product approval detailed information such as ingredients list, additives list, recipe, source of origin, labels, agreement with the supplier/ vendor/ test certificates/ shelf life etc… were required to be furnished to FSSAI. If any changes in its composition or % thereof in the product needed fresh approval – "combinatorial effect" vs. bio availability and country specific. Except the product itself companies were made to submit everything including manufacturing process etc. Rejection can be made on even label claim related issues.

Panellists: Dr. Vaibhav Kulkarni, Director, Regulatory Affairs, Abbott; Dr. Jasvir Singh, Asso. VP & Head: Sci. & Regul. Affairs, Mondelez; Dr. Shatadru Sengupta, Sr. Director: Legal & Company Secretary, Hardcastle Restaurants; Dr. Ramasubramanian, Director, VR Food Tech; Dr. Nilesh Amritkar, MD, Envirocare Labs, and Mr. Kiran Desai, Manager, Mead Johnson. Each panellist gave a critical appraisal of the regulatory scenario stating that concepts of food product safety are not yet fully agreed upon so how to evaluate it will be discussed for some more time. Dr. Shatadru Sengupta threw light on the gazette of India extraordinary, in that form VII A report of food analysis included opinions, interpretations and conclusions. The public analyst does not have right to do this. He has just right to perform the tests. Mr. Sailesh Venkatesan then gave concluding remarks and the seminar was concluded with the vote of thanks.