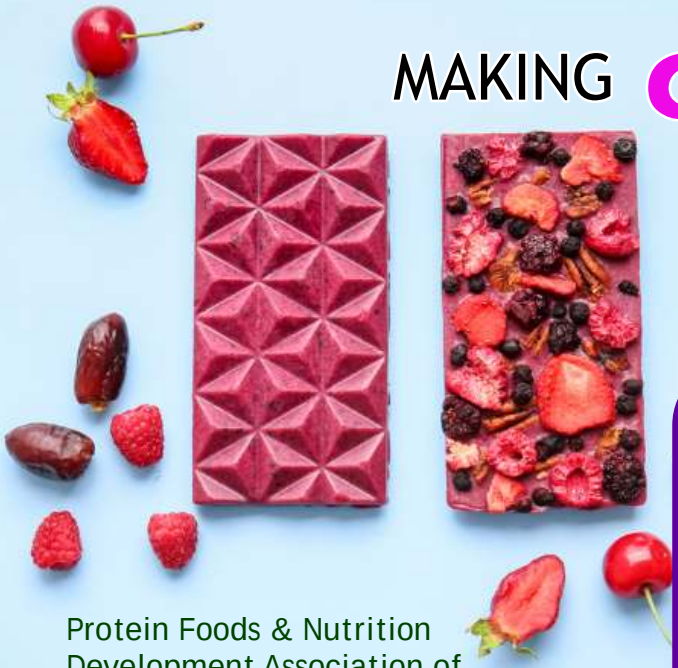
WEBINAR REPORT: MAKING CONFECTIONERY HEALTHY YET TASTY



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Protein Foods & Nutrition Development Association of India (PFNDAI) in association with Avinashilingam Institute for Home Science and Higher education for Women Coimbatore organized a webinar under the Nutritional Awareness Activity (NAA) on the topic "Making Confectionary Tasty Yet Healthy" on 29th July 2022 via Zoom Platform. The NAA was sponsored by Mother Dairy, Hershey India, Hexagon Nutrition, and Mondelez International.

Dr Jagadish Pai

Dr. J. S. Pai, Executive Director, PFNDAI welcome the participants and speakers. The NAA convenor Ms. Dolly Soni, Manager-Marketing & Projects, PFNDAI, introduced all the speakers before the speakers addressed different aspects of Confectionery.

Mr. Mayank Kumar, Deputy General Manager- R&D at Mother Dairy gave presentation on "Difficulties & Solutions in making Ice Cream Healthier." He spoke about how ice cream is made. He said ice cream is a dispersion of air bubbles, ice crystals, and fat in a freeze-concentrated solution of sugars, proteins, and minerals. He defined various types with different fat percentages, total solids, and milk protein, etc. Milk fat in ice cream is not less than 10%, however, lower fat products may have less.

Mr Mayank Kumar

Mega Drivers for ice cream include pleasure and indulgence followed by health and convenience.

Ice cream is a seasonal product where peak demand is between April to June and lean demand is during winters. Since ice creams contain milk solids, sugars, stabilizers, emulsifiers, flavouring, and colouring. The need for healthier ice creams arises due to the rising prevalence of Type 2 diabetes.People are becoming health conscious. Further, food items with the incorporation of healthy and natural ingredients are trending. Natural ingredients such as fruits, no additives, no added colour, and flavour along with higher protein and dietary fibres can enhance the nutritional value of ice creams. Need-based ice creams can also be designed as low fat, no added sugar, lactose-free, and probiotic ice creams. However, there lies its own set of challenges in replacing ingredients like the proper combination of alternative ingredients, freezing point depression adjustment, hydrocolloid selection, and flavour adjustment.

Many carbohydrate fat replacers like cellulose products, starches, dextrins, and maltodextrins are used to limit ice crystal growth while replacing fat. Decreasing fat content in ice creams decreases the creamy sensation and increases the intensities of flavours of skim milk powder and corn syrup. It is thus important to mask the flavour of alternative ingredients. Similarly, challenges in no sugar ice creams exist like imbalance in freezing point depression, and chances of having laxative effects. Also, the ice cream obtained is a very hard and very cold kind of icy product without sugar incorporation which leads to a weak body and poor keeping quality. Fructo-oligosaccharides, polyols, and polydextrose are used as bulking agents to serve as sugar alternatives.

These alternative sweeteners match the freezing curves of conventional formulations due to their freezing point depression characteristics.

Ms. Ritika Mathur, Scientific Affairs & Regulatory Affairs Manager in Mondelez India presented on the topic "Health Benefits of Dark Chocolate". She defined Dark chocolates as containing no less than 35% total cocoa solids, not less than 18% cocoa butter, and not less than 14% fat-free cocoa solids. It could include optional components such as emulsifiers and flavours.

Ms Ritika Mathur

Talking about the nutritional profile of cocoa bean, it contains 54% cocoa butter, 31% carbohydrates, 11% proteins, 3% polyphenols, and <1% minerals. Cocoa fat/butter contains stearic acid, oleic acid, and palmitic acid.Cocoa beans contain starch in the form of amylose and amylopectin. The cocoa bean is also a rich source of dietary fibre, with possible evidence of being therapeutic in many CVD diseases.Cocoa beans are a rich source of polyphenols like flavonoids: catechin and epicatechin, procyanidins, anthocyanins, cyanidin glycosides, and flavonols-quercetin glycosides. They exert an anti-platelet effect, anti-inflammatory, and antioxidant activity.

Dark chocolate contains best polyphenols content (1617 mg/100 g) compared to its othercounterparts like semisweet chocolate (1483 mg/100g), milk chocolate (515 mg/100g) , red wine(241 mg/100 ml) andinstant coffee (133 mg/100g), Green tea (85 mg/ 100 ml) and Drinking chocolate (60 mg/100 g) . Hence, dark chocolate is a balancing act between sweetness and bitterness, which impacts the benefits of cocoa. Dark chocolate is used as a medium to deliver propositions of all natural/vegan/Single origin, which by its design becomes expensive and inaccessible to certain sections of consumers.


Ms Rachna Negi

Ms. Rachna Negi, Senior Executive NPD Nutritionist, Hershey India presented on Making chocolates healthier through fruits, nuts, & other ingredients. She discussed the rising awareness among consumers post-Covid and their mindful choices with foods including indulgence foods like confectionery. There is a growing focus on functional confectionery, featuring ingredients like protein, dietary fibre, vitamins, and minerals that deliver health benefits in a tasty and appealing manner. A survey amongst consumers showed the choice in chocolate confectioneries with the highest influential factor being familiar taste and tasty nutrition.

Other factors like Texture and comforting taste also ranked high. Nuts and Fruits have been the top ingredients in chocolates. The top 10 inclusions in chocolate were dominated by hazelnuts and almonds in chocolates in the past 2 years. Chocolates are also available in different formats like bars, chocolate coated and filled bars. Proteins and dietary fibres are the leading functional ingredients and vegan chocolate variants are also becoming prevalent. Almonds, Hazelnuts, and super seeds like flaxseeds and chia seeds offer several nutritional benefits. Almonds are a rich source of Mg which helps in reducing bad LDL cholesterol, Hazelnuts are rich in flavonoids and vitamin E and have been shown to increase antioxidant protection. Omega 3,6 and 9 help in maintaining a healthy lipid profileand are hence essential for heart health. Raisins are a source of natural sugars, antioxidants, iron, magnesium, and potassium. It is one of the best sources of iron for vegan diet individuals. They are rich in soluble dietary fibre and essential for gut health. Cranberries are highest in phenols and anthocyanins and are a rich source of bioactive compounds like A-type pro-anthocyanins, which may help prevent UTIs.

Chocolates are being fortified with proteins from several sources like soy protein, pea protein, wheat protein, rice protein, chickpea protein, hemp protein, milk protein, and others like egg protein, collagen, and insect protein. Proteins offer benefits in immune health, and weight management besides offering energy. High dietary fibre chocolates also offer numeral advantages like lowering of LDL cholesterol, weight management, and reduced blood transit time besides offering prebiotic benefits.

They also offer mood and mental health benefits. Dietary fibres could be both soluble and insoluble. Soluble fibres include pectin, inulin, fructo-oligosaccharides, dextrin, psyllium, and beta-glucans. Insoluble fibres include bran, cellulose, hemicellulose, lignin, and Resistant Starch. Plant-based chocolates are lactose-free, clean-label, premium quality, and offer holistic health. They are prepared from vegan milk derived from powdered oats, almonds, rice, cashew,and coconut or milk-fat replacers. Many plant-based chocolates exist in the market like Oat made, Unreal, Plant Protein chocolate by Vedge& others.

Some of the key product trends to watch out for in the market for vegan chocolates includehealth claims, sugar-free, naturalness, and simplicity (claims like raw, organic), and offering plant extract formulations (fruit/vegetable concentrates, e.g. Ashwagandha). The future aspects include healthy yet indulgent chocolates, inclusion chocolates, protein claims chocolates, and vegan chocolates.

Ms Sukhada Bhatte

Ms. Sukhada Bhatte, AGM-Regulatory & Nutrition Affairs, Hexagon Nutrition spoke on Fortification of Food Products with a special emphasis on confectionery. Staple food like atta, oil, milk, and rice can be fortified with essential nutrients and helps combat micronutrient deficiencies. The success story of fortified salt is well known for fighting goitre. Sugar fortified with Vitamin A shot down Vitamin A deficiency in Central America. Hence staples are fortified with micronutrients to combat micronutrient deficiency which is a public health issue.

Fortification offers several advantages like they are proven to be simple and effective, and offering high stability during cooking and storage. They are safe, rapid, and practical. Choice of food matters in fortification in order to help utilize and reach the end consumer. Fortified Processed foods include staples that are already fortified, or they might have micronutrients that are added later in the food to increase their nutritional value. The Food Fortification Regulation, 2022 says that it should meet 15-20% of the RDA provided one consumes 600 kcal from processed foods.

Targeted Fortification is a solution that needs to be looked at compared to the generalized approach. Identifying nutrients for micronutrient deficiencies should be identified and it should not be a blanket premix for all the confectionery.

Healthier variants of the product could be looked. Standards and Regulations needs to be followed, also the levels of fortification need to be defined to prevent overdosing. Fortification should not be used as a marketing tool. Healthy confectionery idea has been catching up with the consumers with around 6000+ confectionaries being fortified globally and 300+ new fortified products developed annually. Dark chocolate has been fortified with vitamin D3. The use of iron-fortified candies exists to fight malnutrition in Jakarta, Indonesia. A decrease in anemia in children was noticed from 50% to 8.8% after a 12-week intervention. Hence, confectionery definitely has therapeutic benefits, which include lifestyle supplements, specialized beauty care, wellness, immunity, sleep, Digestive Health, beauty and care, nail and skin health, and others.

Ms Dolly Soni

Ms Prerana Patil

Ms. Dolly Soni, Manager-Marketing & Projects, PFNDAI and Ms. Prerana Patil, Food Technologist, PFNDAI presented jointly "Making Indian Traditional Sweet Healthier." Ms Dolly took several examples of Indian sweets and ways on improving their health benefits. Gulab Jamun for example is a good source of calcium, vitamin A, and proteins. Modaks containing ghee and coconut offer health benefits like prevention of constipation, healthy heart maintenance, provides essential minerals like iron, manganese, copper, and magnesium.

Kulfi is denser and creamier than ice cream and is a dense dessert. Laddoos are small ball-shapedsweets and several varieties like Gond laddoo are nutritious. Ayurvedic gond (gum) is good for boosting immunity, lubricating joints, and boosting strength.

Ms. Prerana continued the presentation and mentioned the health benefits of ghee like anti-inflammatory, combating obesity (due to conjugated linoleic acid), and is a good source of fat-soluble vitamins.

It will be unfair to categorize Indian sweets as just empty calories as they contain several other ingredients like nuts, seeds, pulses, cereals, milk, spices, ghee, sugar, and Jaggery. The inclusion of dietary fibre and proteins can help prevent a sharp rise in blood glucose.

Sugar reduction in sweets with the use of honey/jaggery and by using polyols can help overcome the reduced sweetness. Honey has two main bioactive compounds flavonoids and polyphenols.

It is used in the treatment of conditions like diabetes, CVD, and nervous systems, and used in cancer treatment as well. Jaggery also has several health benefits like improvement in digestion, helps purify the blood, relieving constipation, boosting energy, is anti-toxic and anti-carcinogenic, and is used to treat bronchial and lung infections. Spices and nuts, seeds are addedto make sweets healthier. Botanicals like tulsi leaves can be added as well to prepare sweets like rasgulla. However, moderation is the key tothe consumption of any confectionery product.

The last segment of the webinar included a Q & A session with Mr. Mayank Kumar addressing the query on challenges in making no sugar ice cream formulation. He highlighted the role of sugar polyols in suppressing the freezing point as that of sugar. Additional sweetness is balanced by other non-nutritive sweeteners.

Ms. Rachna Negi answered the question, “Why is salt becoming a highlighted ingredient in the dark chocolate flavour category." She mentioned the WHO limit of salt to be set at 5g/day as high salt consumption leads to high blood pressure and the need to consume salt within the limit.

Ms. Ritika answered a question on the taste vs. health aspect of dark chocolates available in the market. It depends on the consumer's palatability to opt for a higher cocoa content chocolate (also offering better health benefits) as cocoa content also contributes to bitterness levels. The Indian consumers’ palates are still evolving to the high bitterness levels of dark chocolates.

Ms. Prerana answered the question of whether polyols are harmful. She mentioned that excess intake of polyols can have a laxative effect; hence, it is usually combined with other non-nutritive sweeteners like acesulfame-K.

Dr.M. Sylvia Subapriya (Professor & Head Dept of Food Science Nutrition, Avinashilingam Institute) then declared the results of the Recipe and Digital Poster competitions conducted under the nutrition awareness activity.


Dr Zubeda Tumbi


Dr Swati Shukla


Dr Rupali Sengupta


Ms Kajal Bhatia

A) Innovative recipes with dark chocolate as hero

The judges for the recipe competition were Dr Zubeda Tumbi, Founder, Health Watch Nutrition Clinic & Dr Swati Shukla, Innovation and Science,Amway.

The results were as follows-

1. Sanjana rani.R – Avinashilingam Institute for Home Science and Higher Education for Women – Chocolate Health Bar

2. Sanjitha lakshmi R – Avinashilingam Institute for Home Science and Higher Education for Women – Dark Chocolate Honey Tart

3. Candace Francena – Karunya Institute of Technology and Sciences – Gluten-Free Dark Chocolate Ragi Cookies

B) Digital Poster Contest - Balancing confectionery and Health

The judges for the poster competition were Dr Rupali Sengupta, Coordinator & Prof. M.Sc. Program, Dr. BMN College of Home Science & Ms. Kajal Bhatia, Nutritionist & Founder, Plant Power.

The results were as follows-

1. Helen Eldo - Karunya Institute of Technology and Sciences

2. Swethaa H K. - Avinashilingam Institute for Home Science and Higher Education for Women

3. Saranya - Avinashilingam Institute for Home Science and Higher Education for Women

Prof. Thyagarajan, Vice president of Avinashilingam University gave the presidential address and he thanked PFNDAI for the collaboration and sponsors for the support toward the Nutrition Awareness Activity Program.

Dr. S. Kowsalya, Registrar congratulated the organizers of the webinar and thanked the speakers for their value-added presentation which will help young students and professionals for making more valuable products.

Dr. PA. Raajeswari, Associate Professor, Dept of Food Science Nutrition, Avinashilingam Institute gave vote of thanks.


Making Confectionary Tasty Yet Healthy
Held on 29th July 2022; 3:00 PM
Mr. Mayank Kumar
Ms. Ritika Mathur
Ms. Rachna Negi
Ms. Sukhada Bhatte -Paralkar
Dr. Jagadish Pai
Ms. Dolly Soni
Ms. Prerana Patil