



## Book review

### Purity-impurity Distractions of Food and Lighthouse of Nutrition: Book Review

Mithun Borkatullah<sup>1</sup> and Tamanna Basher<sup>2\*</sup>

<sup>1</sup> Department of Child and Family Development, San Diego state University, San Diego, CA 92182, USA

<sup>2</sup>Rajshahi city Hospital, Rajshahi City Corporation, Rajshahi-6100, Bangladesh

Food is very important for human survival. Consuming nutritious and safe food is essential for leading a healthy life. However, in the effort to meet the food demands for overpopulated population, food security often remains overlooked. Different media also spread half-truths and false information about food, which confuses the general public. In this book, the author, drawing from a long professional career, has presented factual, scientific, and evidence-based information to refute common misconceptions and propaganda. The author aims to dispel public misunderstandings about food by providing research-backed data sourced from reliable scientific journals, articles, papers, and online portals in an accessible manner. As a result, the book serves as both a reference for researchers and a comprehensive resource for the mass people. The book features thirteen chapters addressing topics such as adulterated food and its realities, processed foods, rice, pulses, seeds, nuts, fruits, vegetables, fish, meat, eggs, milk, the use and harmful effects of plastic products, food and calories, non-nutrients, the cycle of malnutrition, women's health, and nutrition.

This book is particularly helpful for researchers who are engaged in food safety and nutrition studies. While it is designed for readers of all backgrounds, two specific groups will benefit the most. Firstly, students of food and nutrition science can use this book as an academic resource, gaining significant insights for their current or future research. Secondly, research-focused individuals and groups who strive to

raise awareness about food quality, nutrition, and adulteration will find it invaluable. Moreover, the book can serve as a useful addition to academic libraries in schools, colleges, and universities, enabling students to better understand the social realities of food and nutrition.

#### Chapter 1: Adulterated food products and consumer confusion: Reality

Living a healthy life requires a safe, balanced, and nutrient-rich diet. Due to the increase in population, the amount of cultivable land is decreasing, but the demand for food is increasing for the increased population. In Bangladesh, various methods are employed at the producer, wholesaler, or retailer levels to preserve food products for extended periods (Maniruzzaman et al. 2024). Perishable products, such as vegetables, fish, meat, milk, and milk-processed foods, decay quickly if not stored properly (Haque et al. 2022). In addition to using various legitimate preservation methods to protect perishable food from spoilage, some unscrupulous producers and businesses add prohibited and harmful chemicals, artificial colors, and additives to food products (Sen 2021). These practices pose significant health risks to consumers. However, when chemical substances that are authorized by the government for ripening or preservation are used within permissible limits, they typically have no adverse impact on human health or the environment. Despite this, only due to ignorance, a large section of the public suffers from various misco-

\*Corresponding author

E-mail address: [tamannaruthy@gmail.com](mailto:tamannaruthy@gmail.com) (Tamanna Basher)

nceptions about the daily essential food items available in the market. In this chapter, the author addresses these concerns using data from his professional research experience. The chapter seeks to dispel common falsehoods, misinformation, and gaps in knowledge surrounding substances such as formalin, ethylene, carbides, preservatives, pesticides, and heavy metals. The chapter presents laboratory data on various topics, including processed foods, street foods, adulterants in sugar, adulterated milk, boiler feed, edible oils, formalin in food, and the quality of bottled water. This information aims to help consumers become more health-conscious. Additionally, the chapter outlines and summarizes important methods for detecting food adulteration. It includes a list of key government laboratories in the country, offering valuable resources for the general public and researchers in nutrition and food science.

## **Chapter 2: Pros and Cons of Processed Food and E-Codes in Food**

With the changing lifestyles, the demand for processed and packaged foods is rapidly increasing (Baker & Friel 2014). While these foods are often unhealthy, their taste and convenience make them popular, especially among busy working individuals seeking to avoid the hassle of cooking. Studies reveal that chemicals from packaging materials, such as bottles and packets, can mix into food, sometimes making the food not only unhealthy but also toxic in certain areas. Additionally, microbiological and enzymatic reactions may reduce the quality of packaged foods (Cutter 2002). This chapter discusses the advantages and disadvantages of various processed and packaged foods and explains the E-codes used in these products. Packaged foods imported from abroad often contain animal proteins and fats, which are considered unacceptable in Muslim communities. Regular consumption of processed foods has been linked to several health risks, including cancer, asthma, heart disease, mental health disorders, diabetes, hormonal imbalances, reproductive issues, and high blood pressure. Popular beverages like soft drinks and energy drinks, despite their appeal, pose additional dangers. These include increased blood insulin levels, liver fat accumulation, and brain overstimulation due to elevated dopamine, disrupted metabolism, nutritional imbalances, esophageal damage, reduced digestive efficiency, gastric issues, and food poisoning. The

book also explores the health impacts of excessive sugar and salt consumption, highlighting their benefits and drawbacks to encourage moderation.

Pickles, or *achar*, are a beloved food item in many households. Homemade pickles, prepared using traditional methods, are often more healthful (Behera et al. 2020). This chapter highlights the benefits of naturally preserved pickles and their preparation techniques. However, commercially produced pickles sold in markets are often unhealthy, as they contain preservatives and additives such as sodium nitrate, sodium nitrite, BHA, BHT, sodium sulfite, aspartame, high-fructose corn syrup, sulfur dioxide, monosodium glutamate, trans fats, food dyes, potassium bromate, and olestra. These substances are extremely harmful to health. Pig fat, a common source of animal fat, is widely used in food products, cosmetics, and pharmaceuticals globally due to its low cost and availability. However, concerns within Muslim communities led to the adoption of E-codes to discreetly indicate the presence of pig-derived ingredients. This section provides a list of E-codes derived from pork fat, helping devout Muslims avoid products containing these components.

## **Chapter 3: Fermented Foods and the Keto Diet**

Fermented foods are plant- or commercially-derived products that undergo lacto-fermentation. In this process, sugars are broken down by microorganisms, such as yeast or bacteria, and converted into alcohol or organic acids, which enhances the bioavailability of nutrients, making them easier for the body to absorb. This chapter explores the benefits of various fermented foods and provides a comparison of their nutritional content with regular foods. Fermented foods have been shown to play an effective role in weight management. The chapter also delves into the keto diet, a popular weight-loss method among young individuals. The keto diet significantly reduces carbohydrate intake to near-zero levels. While this can temporarily benefit individuals with diabetes, it may lead to adverse effects in the long term. The high-fat content of the keto diet often results in side effects such as diarrhea, constipation, kidney and gallstones, heart disease, thyroid dysfunction, hair loss, and digestive issues. Although some proponents believe the keto diet may help combat cancer, medical experts caution that it can exacerbate rather than alleviate certain health conditions.

## **Chapter 4: Cosmetics and Plastic Products: Health Risks**

Globally, cosmetic products widely use a variety of chemicals. In the subcontinent, some unscrupulous traders incorporate harmful chemicals into cosmetics, posing significant health risks. This chapter explores the hazardous ingredients commonly found in cosmetics. People often add harmful chemicals like phenylenediamine and sodium picramate to henna (*Lawsonia inermis*), a popular cosmetic product, to enhance its color. Historically used in explosives production, these substances can cause severe health complications such as rashes, itching, and blistering. Therefore, it is crucial to exercise caution, especially when using instant henna. Moreover, products like lipsticks, oil-free powders, and shampoos frequently contain harmful substances such as micro beads and synthetic dyes. Prolonged exposure to these chemicals can lead to severe health issues, including asthma, autism, hormonal imbalances, miscarriages, and even cancer. Plastic use not only poses risks to public health but also disrupts the ecological balance. This chapter delves into the advantages and disadvantages of different types of plastics, with a specific focus on their health implications. It aims to raise public awareness about the dangers associated with these chemicals and plastic products.

## **Chapter 5: Nutritional Properties and Health Benefits of Various Vegetables**

Vegetables play a vital role in boosting the human body's immune system. This chapter explores the nutritional values and health benefits of both raw and cooked vegetables. While cooking may lead to some nutrient loss, it also enhances the bioavailability of certain nutrients, making them easier for the body to absorb. Raw vegetables, on the other hand, retain higher mineral content compared to cooked ones. Therefore, it is important to include both raw and cooked vegetables in a balanced diet. The chapter concludes by outlining various methods to minimize nutrient loss during cooking, offering practical strategies for incorporating more nutrient-rich foods into daily meals. These methods aim to optimize the dietary value of vegetables and contribute to a healthier lifestyle.

## **Chapter 6: Nutritional Properties and Health Benefits of Fruits**

This chapter delves into the nutritional properties of various local and international fruits, debunking common misconceptions associated with them. Topics include the effects of consuming pineapple with milk, the suitability of sweet fruits for diabetic patients, the risks of eating litchis on an empty stomach, and the potential harm to kidney patients caused by eating Carambola (*Averrhoa carambola*). The nutritional quality of fruits varies based on their color, and this chapter provides an overview of the benefits associated with different colored fruits. There is significant debate in society about the best time to consume fruits. Eating fruits on an empty stomach in the morning is believed to enhance nutrient absorption. While some people avoid this practice due to concerns about acidity, consuming fruits on an empty stomach does not increase acidity. Instead, it helps improve the efficiency of the digestive system. Furthermore, the chapter highlights the often-overlooked benefits of fruit peels, which are highly beneficial for the body. The nutritional advantages of peels from fruits and vegetables like apples, cucumbers, watermelons, eggplants, gourds, pumpkins, oranges, lemons, and potatoes are also discussed in detail. This information emphasizes the importance of utilizing fruit peels to maximize dietary benefits.

## **Chapter 7: Nutritional Properties and Benefits of Various Pulses, Seeds, Spices, and Rice**

Nuts are highly nutritious and beneficial for the human body. They are rich in protein, vitamins, and micronutrients that help fulfill essential nutritional needs. Additionally, nuts improve skin and hair health, regulate hemoglobin levels in the blood, and strengthen bones. This chapter discusses the benefits and drawbacks of nuts, various types of seeds such as pumpkin, papaya, flaxseed (*Linum usitatissimum*), watermelon, jackfruit, bean, basil, sunflower, kidney bean (*Phaseolus vulgaris*), chia, and *Psyllium*, pulses including mung, black gram, red lentil, chickpea, soybean, pigeon pea, and lentils, and spices like *Chui jhal* (*Piper chaba*), Turmeric, Ginger, Garlic, Cumin, Black cumin, Cardamom, Cinnamon, Black pepper, Raisins, Haritaki, Bahera, Saffron, Bay leaves, and Asafoetida). Author also highlights the potential for cultivating Perilla (*Perilla frutescens*), an economically profitable oilseed crop. Most people in the country rely heavily on rice. In the chapter describes the pros and cons of various types of rice

available in the market. There is a common belief that diabetic patients should replace rice with wheat-based bread (*roti*). However, the author discusses the harmful aspects of wheat flour compared to rice, providing readers with insights to make more informed dietary choices.

### **Chapter 8: Advantages and Disadvantages of Different Types of Oils**

Every type of oil has a specific smoking point—the temperature at which the oil begins to evaporate and emit smoke. At this point, a toxic chemical known as HNI is produced. Repeatedly heating oil reduces its smoking point by 10 to 15 degrees Celsius, increasing the production of free radicals, which are extremely harmful to the body. This chapter provides various warnings regarding the proper use of edible oils and offers a detailed discussion of the types of fatty acids present in different oils.

### **Chapter 9: Types of Eggs and the Nutritional Benefits of Dairy Products**

Eggs, milk, and dairy products provide maximum essential nutrients required by the human body (Miranda et al. 2015). In this book, the author narrates the nutritional values of five types of eggs produced locally, along with their various cooking methods. While milk and dairy products are beneficial for health, excessive consumption can have adverse effects on the body (Thorning et al. 2016). For optimal health, it is recommended to consume butter, ghee, and oil in a daily ratio of 2:2:1. This means consuming 2 tablespoons of butter or ghee along with 1 tablespoon of oil daily is considered healthy for the body.

### **Chapter 10: Nutritional Properties and Benefits of Meat, Fish, and Seaweed**

Meat is a primary source of protein for the human body. In addition to protein, it provides essential nutrients such as potassium, magnesium, sodium, zinc chloride, bicarbonates, and phosphates (Nabrzyski 2006). Fish serves as another vital source of dietary protein, particularly rich in lysine and sulfur-containing amino acids essential for the body. This chapter explores the nutritional benefits and precautions associated with consuming various types of meat (beef, goat, lamb, camel, chicken, duck, quail, and pigeon), fish (both marine and freshwater), and the promising potential of seaweed. Artificial meat has

gained significant attention globally and may become a key source of protein in the future (Zhang et al. 2012). Seaweed, an economically valuable marine food, grows naturally along the country's coastal regions (Cai et al. 2021). Cultivating seaweed in these areas with the participation of local communities could not only create employment opportunities but also contribute significantly to the growth of the tourism industry.

### **Chapter 11: Food, Nutrition, Production Functions, and Specific Nutritional Needs**

This chapter covers the necessity of various nutrients, the significance of essential nutrients, and the concept of precision nutrition. It addresses key questions about food and nutrition, exploring the benefits of specific food items in managing various health issues, such as promoting height growth, thyroid problems (hypothyroidism and hyperthyroidism), reducing uric acid levels, and identifying foods liable to indigestion. In this part also discusses the role of different foods in controlling high blood pressure, along with their benefits and potential drawbacks. These insights aim to enhance public awareness and understanding of food and nutrition for better health management.

### **Chapter 12: Malnutrition and Nutritional Challenges for Women**

Malnutrition remains a significant social and health issue in Bangladesh. A malnourished woman is more likely to give birth to a malnourished child, perpetuating a cycle of poor nutrition in society (Merchant & Kurz 2014). Although the overall nutritional deficiencies of Bangladesh have improved recently, most adolescent girls still lack access to adequate nutritious food. Additionally, irregular eating habits often lead to weight imbalances, causing various physical problems for women. This chapter explores the nutritional challenges faced by women in depth. It includes a list of recommended and avoidable foods for pregnant women, offering guidance for a well-balanced and nutritious diet during pregnancy. While menstrual cycles typically occur every 28 days, slight variations are normal. However, cycles exceeding this range are classified as irregular (Schmalenberger et al. 2021). Abdominal pain is a common complaint during menstruation. The author provides dietary suggestions to alleviate period-related issues and addresses

prevalent misconceptions and superstitions surrounding menstruation and food choices.

### Chapter 13: The Importance of Cooking Utensils in Healthy Eating

Cooking utensils play a crucial role in ensuring the healthiness of food. Despite modern advancements in cookware design, the materials used in many modern utensils may not always be safe for health (Alabi & Adeoluwa 2020). The benefits and drawbacks of various materials used in the production of cooking utensils described in this chapter. Clay pot cooking has been a traditional practice in Southeast Asia for centuries (Descantes 2001). While the use of earthenware has declined with modern innovations, it remains a safer and healthier option for food preparation. The chapter highlights the benefits of cooking with clay pots, emphasizing their role in preserving the natural flavor and nutritional value of food.

In several instances, the book lacks inline citations. Providing references for important information would enhance its usability for researchers. Additionally, the book does not adhere to the conventional spelling rules set by Bangla Academy. Repeated use of nouns instead of pronouns often interrupts the flow of reading. There is also significant public speculation in the country about fish such as tilapia (*Oreochromis niloticus*), pangas (*Pangasius pangasius*), magur (*Clarias batrachus*), suckerfish (*Hypostomus plecostomus*), and piranha (*Pygocentrus sp.*). Including a scientific discussion on the benefits, drawbacks, potential, and harmful aspects of these fish in the next edition would greatly benefit the general audience. As a reference book, the text would benefit from further refinement in sentence structure and language. This book holds the potential to be an outstanding source of information on food, nutrition, and health protection. We, like the author, believe that by enhancing the quality of the book over time, it can effectively address the academic, familial, and personal needs for nutrition security and safe food choices.

### References

Alabi OA & Adeoluwa YM (2020). Production usage, and potential public health effects of aluminum cookware: a review. *Annals of Science and Technology*, 5(1), 20-30.

- Baker P & Friel S (2014). Processed foods and the nutrition transition: evidence from Asia. *Obesity reviews*, 15(7), 564-577.
- Behera SS, El Sheikha AF, Hammami R & Kumar A (2020). Traditionally fermented pickles: How the microbial diversity associated with their nutritional and health benefits? *Journal of Functional Foods*, 70, 103971.
- Cai J, Lovatelli A, Aguilar-Manjarrez J, Cornish L, Dabbadie L, Desrochers A, ... & Yuan X (2021). Seaweeds and microalgae: an overview for unlocking their potential in global aquaculture development. *FAO Fisheries and Aquaculture Circular No. 1229*. FAO, Rome. <https://doi.org/10.4060/cb5670en>
- Cutter CN (2002). Microbial control by packaging: a review. *Critical Reviews in Food Science and Nutrition*, 42(2), 151-161.
- Descantes C (2001). Contained identities: the demise of Yapeese clay pots. *Asian Perspectives*, 40(2), 227-243.
- Haque MK, Zaman MRU, Rahman MA, Hossain MY, Shurid TI, Rimi TA, ... & Rabbany MG (2022). A review on impacts of COVID-19 on global agricultural system and Scope for Bangladesh after pandemic. *Environmental Science and Pollution Research*, 29(36), 54060-54071.
- Maniruzzaman M, Haque MK, Rokonzaman M, Hasan MM, Biswas R, Rahman MM & Hossain MY (2024). Agribusiness prospects and challenges in developing countries: Contribution to overcoming world food crisis in the post-pandemic period. *Sarhad Journal of Agriculture*, 40(2), 578-587.
- Merchant KM & Kurz K (2014). Women's Nutrition through the life cycle. In: Stromquist NP (Ed) *Women in the Third World: An Encyclopedia of Contemporary Issues*. Routledge, England & Wales, 165-175 pp.
- Miranda JM, Anton X, Redondo-Valbuena C, Roca-Saavedra P, Rodriguez JA, Lamas A, ... & Cepeda A (2015). Egg and egg-derived foods: effects on human health and use as functional foods. *Nutrients*, 7(1), 706-729.
- Nabrzyski M (2006). Functional role of some minerals in foods. In: *Mineral components in foods*. CRC Press, 123-161 pp.
- Schmalenberger KM, Tauseef HA, Barone JC, Owens SA, Lieberman L, Jarczok MN, ... &

- Eisenlohr-Moul TA (2021). How to study the menstrual cycle: Practical tools and recommendations. *Psychoneuroendocrinology*, 123, 104895.
- Sen M (2021). Food chemistry: role of additives, preservatives, and adulteration. In: *Food Chemistry: The role of additives, preservatives and adulteration*. Wiley, New York, 01-42 pp.
- Thorning TK, Raben A, Tholstrup T, Soedamah-Muthu SS, Givens I & Astrup A (2016). Milk and dairy products: good or bad for human health? An assessment of the totality of scientific evidence. *Food & Nutrition Research*, 60(1), 32527.

- Zhang L, Hu Y, Badar IH, Xia X, Kong B & Chen Q (2021). Prospects of artificial meat: Opportunities and challenges around consumer acceptance. *Trends in Food Science & Technology*, 116, 434-444.