Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

CHAPTER 12

An overview of food safety and COVID-19 infection: nanotechnology and cold plasma applications, immune-boosting suggestions, hygienic precautions

Zafer Ceylan[1], Elvan Ocak[2], Yılmaz Uçar[3], Kadir Karakus[4], Turgay Cetinkaya[5]

[1]Van Yüzüncü Yıl University, Faculty of Tourism, Department of Gastronomy and Culinary Arts, Van, Turkey; [2]Van Yüzüncü Yıl University, Engineering Faculty, Food Engineering Department, Van, Turkey; [3]Fatsa Faculty of Marine Sciences, Ordu University, Ordu, Turkey; [4]Department of Animal Science, Faculty of Agriculture, Malatya Turgut Özal University, Malatya, Turkey; [5]Food Processing Department, Armutlu Vocational School, Yalova University, Yalova, Turkey

12.1 Introduction

Humankind struggles with many health matters, particularly those caused by bacteria and viruses. Bacteria-based illnesses have gained notoriety globally. Studies have mainly focused on pathogenic bacteria in food. In other words, other potential hazardous effects were mostly ignored. In this respect, today, humans are learning how to fight viruses.[1–3]

A typical virus has RNA or DNA and is mostly 300 nm in size. Unlike bacteria, viruses may not reproduce in a food environment because viruses are obligate intracellular parasites. In other words, they can only survive by moving their genetic material from one host cell to another. However, water and food may act as vectors for the transmission of viruses to humans via the fecal-oral route.[4–6] A virus can spread to food in several ways: (1) contamination during food processing through infected food personnel; (2) direct contamination of human feces without soil or water treatment; (3) ingestion of food animal origin with zoonotic viruses; and (4) inadequate treatment of wastewater.[7–11]

Ebola, avian influenzas, Nipah, MERS-CoV, SARS-CoV, and currently the most dangerous one, SARS-CoV-2, are the main zoonotic viruses that

Environmental Management of COVID-19
ISBN 978-0-323-85780-2
https://doi.org/10.1016/B978-0-323-85780-2.00004-4