



# Food Safety During and After the Era of COVID-19 Pandemic

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The coronavirus disease 2019 (COVID-19) is a clinical syndrome caused by severe acute respiratory syndrome corona virus-2 (SARS-CoV-2). COVID-19 was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 due to its rapid and extensive spread among many countries through its very contagious nature and its high mortality among the elderly and infirm. Recently, data on the survival of SARS-CoV-2 on contact surfaces has been reported, but there is none on the survival of COVID-19 on food surfaces and packages. The potential survival and transmission of SARS-CoV-2 on/via food and packages are discussed based on data available for other respiratory viruses such as SARS-CoV and MERS-CoV. However, studies are needed to explore its transmission via food and survival on food packaging materials. The implementation of food safety management systems such as Hazard Analysis and Critical Control Points (HACCP), and Good Manufacturing Practices (GMP) are important to reduce the risk of COVID-19 infection. Cleaning, sanitation, good hygienic practices, and active packaging are also needed from farm to fork.

**Keywords:** coronavirus, COVID-19, SARS-CoV-2, food safety, food package, sanitation, transmission, active packaging

## INTRODUCTION

In December 2019, SARS-CoV-2 was initially detected in patients who suffered from unusual viral pneumonia in Wuhan, Hubei, China (Kaul, 2020; Naserghandi et al., 2020; Petrosillo et al., 2020). The virus was first named 2019 novel coronavirus (2019-nCoV) by the WHO and later, when it was found that 86.9% of the novel virus genome was similar to the SARS-CoV genome, the virus was renamed SARS-CoV-2 (Chang et al., 2020; The Lancet Infectious Diseases, 2020). COVID-19 is the clinical syndrome caused by SARS-CoV-2 infection which is characterized by a respiratory disease with symptoms ranging from mild influenza (flu-like) to severe pneumonia and acute respiratory distress syndrome (Petrosillo et al., 2020). The clinical manifestations of COVID-19 are non-specific and variable among patients, and between countries. Generally, COVID-19 symptoms involve fever, sore throat, runny or stuffy nose, dry cough, headache, myalgia or fatigue, sputum production, dyspnea, chest pain or pressure, joint pain, chills, loss of taste or smell, and a rash on the skin or discoloration of toes or fingers. Abdominal pain, dizziness, diarrhea, nausea, and vomiting are less common symptoms (Kaul, 2020; Naserghandi et al., 2020; Petrosillo et al., 2020). Borges do Nascimento et al. (2020) found that COVID-19-related symptoms among 59,254 patients in 61 studies were: fever (82%), cough (61%), muscle aches and/or fatigue (36%), dyspnea (26%), headache (12%), sore throat (10%), and gastrointestinal symptoms (9%). On average, the