UNIVERSITÉ LAVAL | Faculty of Agriculture and Food Sciences

parera Food Risk Analysis and Regulatory Excellence Platform

Information Update

COVID-19 Disease and SARS-CoV-2 Virus - Food Safety Implications

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Please note that this document presents a consensus of the different guidelines available from regulatory bodies from Europe and North America, and from private companies

COVID-19 Disease and SARS-CoV-2 Virus

The coronavirus disease COVID-19, previously known as the 2019 Novel Coronavirus Disease, was named by the World Health Organization (WHO), in connection to infection with the virus SARS-CoV-2 or severe acute respiratory syndrome coronavirus 2. The clinical symptoms of COVID-19 patients include fever, cough, fatigue and in a small percentage of patients, gastrointestinal infection symptoms. Other serious respiratory symptoms can emerge as a result of the development of the disease.

COVID-19 /SARS-CoV-2 Virus and Food

No reported cases of COVID-19 have been linked to the consumption of contaminated food. The main risk of transmission is from close contact with infected people.
The virus is passed directly through contact with an infected person's secretions – for example droplets from coughing or sneezing – or indirectly, through contact with surfaces that an infected person has coughed or sneezed on[1].
This conclusion has been endorsed by the WHO, the United States Food and Drug Administration (US FDA) and the European Food Safety Authority (EFSA).
The potential presence of the virus on food packaging is not currently considered sufficient to cause infection[2].

SARS-CoV-2 Virus Survival on Surfaces and the Effect of Temperature

Current data suggests that **the virus could survive up to 72 hours (3 days)** on hard surfaces depending on the material. However, the viral load will be considerably reduced over that this period of time. Household disinfectants can kill the SARS-CoV-2 virus[1], and soapy water can also alter their structure and make the virus ineffective.
Current data indicates that:

- SARS-CoV-2 would be **more stable on plastic and stainless steel** compared to other surface like copper and cardboard[3]

[1] Communication by the Food Safety Authority of Ireland (FSAI) accessed on FSAI's website at: https://www.fsai.ie/faq/coronavirus.html on March 28th, 2020.

[2] Summary report of the joint Scientific Roundtable IUFoST and CIFST on "COVID-19 and Food Safety and its implication, challenges and solutions for the food industry"

[3] Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1, N Engl J Med. 2020. DOI: 10.1056/NEJMc2004973.

- Virus would remain viable after 72 hours (authors have noted a great reduction of the virus titer over time) on those surfaces, whereas no viable SARS-CoV-2 was detected on copper after 4 hours and 24 hours on cardboard[3]
- Studies made on human coronavirus MERS, SARS and HCoV indicate that these viruses would remain infectious on inanimate surfaces for up to 9 days. Disinfection with 0.1% sodium hypochlorite or 62-71% ethanol-based solutions and 1 minute of exposure would reduce the virus infectivity. It is expected that a similar effect would be seen if the same applications are used against SARS-CoV-2[4]
- The temperature can have an impact on the virus persistence on surface. A temperature of 30°C or more can reduce this persistence. On the other hand, a temperature of 4°C would preserve the Transmissible Gastroenteritis virus for up to 28 days. At the moment, there is no such data on SARS-CoV-2[4]

SARS-CoV-2 Virus and Survival on Food

There is limited to no data available on the survival of SARS-CoV-2 on food. **Information available to date suggests that food is not a vector of transmission of the SARS-CoV-2.**

One study[5] published on other types of CoV such as the bovine coronavirus (BCoV), used as a surrogate of the genus Betacoronavirus, which includes SARS-CoV, attempted to evaluate the stability of coronaviruses on lettuce surfaces under household refrigeration conditions. This study showed that the BCoV can remain on lettuce, with possible infectivity for least 14 days, which exceeds the shelf-life of the product. The study also showed that a cleaning procedure like rinsing was not efficient enough in removing the virus from the lettuce.

However, in another study, the recovery efficiencies of Ad2 and CoV229E (human respiratory viruses) from lettuce, strawberries, and raspberries were found to be low, with no virus recovered from strawberries and less that 20% recovered from lettuce during storage at 4°C. These results were comparable to other earlier findings which reported that coronaviruses die-off very rapidly in wastewater. A Cleaning procedure like elution was found efficient with CoV229E. The difference between study results may be due to the initial level of contamination of the food products[6].

Overall, most of the available information and scientific evidence reported by various food safety agencies continue however to consider SARS-CoV-2 as a non-foodborne virus. To maximize protection and ensure that this route of transmission is eliminated, it is imperative to prevent handling of produce as well as of any ready to eat "finger food" (fruit and vegetable) by sick operators.

SARS-CoV-2 Virus and Food

There is currently **no evidence to suggest that food is a likely source or route of transmission of the virus** and there are currently no reported cases of COVID 19 transmission through food. People are unlikely to be infected with the virus through food.

[4] Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents, J Hosp Infect. 2020; 4:246-251. DOI: 10.1016/j.jhin.2020.01.022.

[5] Stability of bovine coronavirus on lettuce surfaces under household refrigeration conditions, Food Microbiol. 2012; 30(1):180-186. DOI: 10.1016/j.fm.2011.12.009.

[6] Survival of Respiratory Viruses on Fresh Produce, Food Environ Virol. 2013; 5:150–156. DOI 10.1007/s12560-013-9114-4.

Scientists and food safety authorities around the world continue to monitor the spread of COVID-19 and update their assessments. Coronaviruses are killed by common cleaning and disinfection methods and by cooking food to safe internal temperatures.
An employee found to have the COVID-19 should be immediately isolated and sent home. There should be an assessment of the people he/she was in contact with. Any close contact should be sent home for 14 days. The surface the sick employee was in contact with should be cleaned with appropriate agent. The company should have a daily report of the health status of the employee sent home for quarantine.

According to FDA, no food recall should be initiated in case an employee was diagnosed with COVID-19.

According to epidemiological data, 50 to 70% of the people will get infected with the virus, hence, food industries should anticipate and plan for business disruption for the next 3 to 4 months. Food safety assurance should remain the high priority.

References from various food regulatory agencies and other sources

- US FDA Food Safety and COVID-19, here.
  - A temporary policy regarding preventive controls and food supplier verification program for food industry in the US, here.
  - And some FAQ about daily operations in food production, processing, retail settings, here.
  - https://www.fda.gov/media/136142/download

- Canada
  - https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/agriculture-pecheries-alimentation/publications-adm/Covid-19/GM_covid19_manipulateur_positif_MAPAQ.pdf?1585664595
  - https://www.inspection.gc.ca/covid-19/cfia-information-for-industry/eng/1584462704366/1584462704709

- Europe.
  - https://www.efsa.europa.eu/en/news/coronavirus-no-evidence-food-source-or-transmission-route
  - https://www.bfr.bund.de/cm/349/can-the-new-type-of-coronavirus-be-transmitted-via-food-and-objects.pdf
  - https://www.fsai.ie/faq/coronavirus.html

- Other resources:
  - https://www.foodchainid.com/about/covid-19-resources/covid-19-reports-webinars/ (Emerging issue digest: download)
  - https://securite-alimentaire.public.lu/fr/professionnel/Coronavirus-SARS-CoV-2-questions-reponses.html
  - https://mygfsi.com/news_updates/update-on-temporary-audit-measures-during-covid-19-pandemic