



# Mini-Review: Viral Food Safety against Foodborne Viral Diseases

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### Mini Review

Volume 8 Issue 2

Received Date: May 15, 2024

Published Date: June 07, 2024

DOI: 10.23880/vij-16000347

## Abstract

A wide variety of viruses may be foodborne transmitted. These viruses belong to numerous different families and the diseases associated with their infection may range from mild diarrhea to severe neural diseases. Viruses are responsible for the greatest number of illnesses from outbreaks caused by food and water, since a significant increase in viral foodborne outbreaks have occurred over the past 20 years. This mini-review will be focused on the viruses most commonly found as food contaminants, noroviruses (NoV); the virus causing the most abundant type of hepatitis, hepatitis A virus (HAV); and on another hepatitis virus that represents an emerging foodborne threat, hepatitis E virus (HEV). Viruses may contaminate a wide variety of food products at pre-harvest or post-harvest stages. It is evident that the adoption of strict hygienic food processing measures from farm to table is required to prevent viruses from contaminating our foods. Although, and recently many plants have demonstrated potent antiviral activity against many kind of viruses and these findings suggest that these plants may have potential as therapeutic and/or food- additives agents to yield newer drugs or functional foods.

## Introduction

Viruses are responsible for the greatest number of illnesses from outbreaks caused by food and water concern. It is well founded, since a significant increase in viral foodborne outbreaks has occurred over the past 20 years [1]. The major common viruses associated with water or foodborne illness outbreaks are Norovirus, hepatitis A and E viruses, rotavirus, astrovirus, adenovirus, and sapovirus [2]. It is well known that enteric viruses are represented by those genera that invade and replicate in the mucosa or epithelial cell lining of the small intestine [3]. Also, the first and second mean of transmission applies to viruses that are transmitted by the faecal & food-oral routes; after ingestion, followed by invasion of cells in the gut epithelium, and subsequent replication in the same site or elsewhere in the body. Despite food is nowadays safer than ever, foodborne viral and bacterial diseases are still an important cause of morbidity and mortality, although the actual global burden of unsafe food consumption remains hard to estimate and

most commonly associated with foodborne outbreaks [4].

## Discussion

The contamination of food with viruses may be managed either by inactivation or by preventing viral occurrence [5]. Effective antiviral measures involve: implementing specific controls for food production; adopting Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) ,food-handling education; effective sanitation measures; and adequate hand hygiene [6]. Moreover, recent preservation technologies including irradiation, pulsed electric field, high pressure processing, ultra violet (UV) light, and cold plasma can be used to inactivate viruses in foods [7]. Additionally, several recent investigations demonstrated that some plant extracts have potent antiviral activity against viral infection and these findings suggest that these extracts may have potential as therapeutic or food- additives agents in the treatment or prevent viral infections. Although medicinal plants have been widely regarded as a constant source of safe



and effective medicines with potential to yield newer drugs or functional foods [8,9].

## Conclusion

Generally, food with viruses issue may be managed either by inactivation or by preventing viral occurrence. Effective antiviral measures involve: implementing specific controls; adopting appropriate food safety management systems (GAP) and Good (GMP), effective sanitation measures; and adequate hand hygiene along with workers.

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