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Norovirus: A major challenge in the food chain

Tineke H. Jones
Agriculture and Agri-Food Canada, Canada

Abstract

Norovirus is estimated as the number one cause of domestically acquired foodborne illness in the US and Canada. The main route of transmission is person-person but recent estimates suggest that about 30% of cases of norovirus are transmitted through foods, especially produce and other ready-to-eat foods.While the detection and characterization methods for norovirusin clinical samples is fairly well developed, linking a norovirusoutbreak to foods is a major challenge because of low numbers of virus particles in foods andthe presence of inhibitors in foods.Even if norovirus is detected by molecular methods, it is impossible to determine if the virus was infectious because an effective cultivation method does not exist. Microbial intervention strategies are designed to control bacteria in the food chain but may not necessarily be effective against foodborne viruses, particularly norovirus, which is extremely resistant to environmental stress. The lack of an effective cultivation method makes it difficult to study the survival of norovirus in foods because cultivable surrogates may not behave in a similar manner. Although norovirus infectionsare considered mild and self-limiting, the burden of disease is quite significant. Efforts to design effective vaccines are challenged by the wide antigenic diversity of norovirus strains and a regular emergence of new pandemic strains.