


Poster

# BEYOND BACTERIAL INDICATORS: ENTERIC VIRUSES IN LIVE BIVALVE MOLLUSCS OF THE APULIA REGION

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**Aim.** Live bivalve molluscs (LBMs), commonly consumed raw or undercooked, are recognized as an important vehicle for the transmission of enteric viruses. However, current European legislation establishes microbiological criteria for the marketing of LBMs based exclusively on bacterial indicators of fecal contamination, while virological criteria are still lacking. The aim of this study was to investigate the occurrence of Human Astrovirus (HAstV), Norovirus genogroups I (GI) and II (GII), Hepatitis A virus (HAV), and Hepatitis E virus (HEV) in LBMs marketed in the Apulia region (Southern Italy) during 2023–2024, in order to provide data supporting the monitoring of enteric viruses in shellfish and the assessment of the potential public health risks associated with their consumption.

**Methods.** A total of 65 LBM batches collected from large-scale retail outlets in Bari and the surrounding area (Southern Italy) between 2023 and 2024 were analyzed, including Mytilus galloprovincialis, Mytilus edulis, Crassostrea gigas, Modiolus barbatus, Ruditapes philippinarum, and Chamelea gallina. Viral RNA was extracted from the digestive tissue (hepatopancreas) according to UNI EN ISO 15216-2:2019 using the NucliSENS® Magnetic Extraction Reagents kit (bioMérieux). Samples were screened for HAstV, NoV GI, NoV GII, HAV, and HEV by one-step RT-PCR followed by nested or hemi-nested PCR, and amplification products were visualized by agarose gel electrophoresis.

**Results.** Overall, at least one enteric virus was detected in 53.9% (35/65) of the analyzed samples. HAstV was the most frequently identified virus, occurring in 41.5% (27/65) of the tested LBMs, followed by NoV GII, detected in 16.9% (11/65). NoV GI was not detected in any of the examined samples. HAV and HEV were rarely identified, each occurring in a single LBM (1.5%). Co-occurrence of HAstV and NoV GII was observed in 7.7% (5/65) of the LBMs analyzed.

**Conclusions.** The results obtained in this study demonstrate the widespread occurrence of enteric viruses in LBMs marketed in the Apulia region and further highlight the limitations of current European legislation, which relies solely on bacterial indicators of fecal contamination. The high prevalence of HAstV and NoV GII, together with the sporadic detection of HAV and HEV, underscores the potential exposure of consumers to viral hazards through the consumption of raw or undercooked shellfish. The data generated in this scientific work contribute to the understanding of enteric virus circulation in shellfish and highlight the need for more comprehensive surveillance strategies, the evaluation of the effectiveness of current depuration processes against enteric viruses, the development of innovative depuration approaches capable of effectively inactivating enteric viruses in LBMs, and the inclusion of virological criteria in European legislation for the marketing of LBMs.