CASE STUDY

Optimization and Implementation of the Virus Extraction Method for Hepatitis E Virus Detection from Raw Pork Liver

Reference/Citation: Zhao, M.Y., Li, D. Optimization and Implementation of the Virus Extraction Method for Hepatitis E Virus Detection from Raw Pork Liver. Food Environ Virol 13, 74–83 (2021).
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Keywords

Hepatitis Virus, Pork liver, RT-PCR, Virus detection, Virus extraction, FastPrep™ 24-5G

Aim of Study

To optimize the virus extraction method for detecting Hepatitis E virus (HEV) from raw pork liver.

Samples

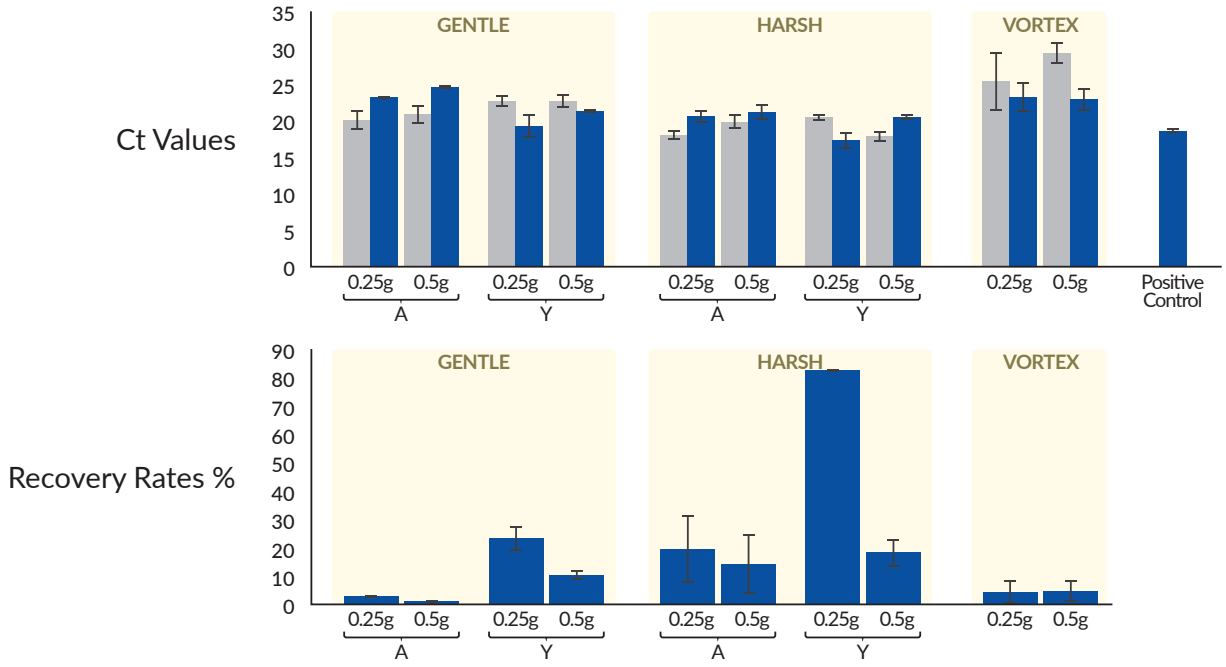
Raw pork liver

Materials

RT-PCR, FastPrep™ 24-5G, Lysing Matrix Y

Results

Results suggest that a harsh homogenization (40 s/cycle, for 5 cycles with 300 s pause time) with selected lysing matrix (Lysing Matrix Y with yttria-stabilized zircondium oxide beads) is necessary for sufficient tissue disruption and virus release. Both of the tested sample sizes (0.25 g and 0.5 g) could be disrupted sufficiently.



Ten virus extraction protocols were compared, involving different homogenization forces, lysing matrices, and sample sizes. Mechanical homogenization using FastPrep™ 24-5G was found to be more efficient than vortex, and harsh treatment with Lysing Matrix Y showed better results than gentle treatment or the use of Lysing Matrix A. The 0.25 g sample size exhibited higher virus recovery rates compared to 0.5 g, likely due to fewer PCR inhibitory substances.

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