Human norovirus is a major contributor to gastroenteritis (vomiting and diarrhea) globally; in Canada, it causes 300-400 foodborne outbreaks annually. Currently, there is no available vaccine for human norovirus; however, decontaminating non-processed foods such as raw fruits, vegetables, and seafood can reduce the spread of infection by consumption. Previous studies show thyme to have antimicrobial properties, however none have tested its capabilities on noroviruses. In this study thyme (Thymus vulgaris) extract will be tested for antiviral activity against a human norovirus surrogate, feline calicivirus (FCV), as norovirus is difficult to culture in tissue cells and animal models. The assay will be executed with various concentrations of thyme extract below the maximum nontoxic concentration (<0.2%) as well as with the undiluted extract. The viruses are to be treated with the water and aqueous extract solutions of varying concentrations. Transmission electron microscopy, TEM, will be used to analyze the structural integrity of the capsid of FCV to determine if RNA is exposed rendering it non-infection. It is expected that undiluted thyme extract will be found effective in decreasing the concentration of FCV to undetectable levels after a 1 hour treatment. Under TEM, the typical icosahedral symmetry of FCV is predicted to no longer be apparent alongside anticipated structural changes indicating a damaged capsid. The anticipated results are that thyme extract will potentially have antiviral activity against FCV. This could lead to decontamination of human norovirus and shows promise to prevent many infections.

Themes:

Check (highlight) the most applicable theme according to the abstract.

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Comments:

It may be beneficial to also comment on the results of treating FCV with other concentrations of thyme extract other than the undiluted extract? What would you anticipate?