Editorial
Volume 11:2, 2022

Molecular Biology: Open Access

ISSN: 2168-9547

Open Access

Molecular Biology in Reconstruction of Oral Cavity Cancer and Pathology

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Editorial

Food-borne pathogens are a problem for both public health and the food and dairy industry. So far, food quality inspections have been almost entirely based on traditional microbiological methods of isolating bacteria from food and counting them in a special microbiological medium. These methods are comprehensive, but they are laborious, time consuming, and often take days to produce results. Developments in the field of molecular biology offer the potential to develop fast, high-throughput tests that enable the food industry to timely assess the microbiological safety of foods. This article outlines the recent developments in molecular biology and its current and future uses for the detection and identification of existing and new food-borne pathogens.

Water is an essential element of the survival of all living things. However, various sources of water quality (microbiological, chemical, etc.) can harm the health of humans and animals and affect the integrity of the environment. All types of water, including surface water, groundwater, seawater, and even ice, are susceptible to microbial contamination. Pollution occurs in a variety of ways, many of which are related to human activity. Dispose of untreated wastewater, reuse poorly treated wastewater, and use animal excrement as manure. Many infectious pathogens excreted from an infected host (human or animal) can infect new hosts through water [1]. These pathogens can cause a variety of diseases known as water-borne diseases such as gastroenteritis, cholera, typhoid fever, and amebiasis. These infections are often transmitted by direct or indirect contact. These diseases are recognized as the leading cause of morbidity and mortality in humans worldwide and can sometimes lead to epidemics. Inadequate hygiene and personal hygiene standards increase the risk of developing water-borne infections. E. coli and enterococci are traditional indicators of water pollution by feces and allow an assessment of the potential presence of other human pathogens.

The presence of microorganisms in the water remains an important indicator of population and environmental health. In the laboratory, traditional and traditional analytical methods are often used for water quality control and monitoring [2]. However, these methods are too time consuming (estimation, confirmation test) and in some cases may be difficult to detect some microorganisms such as viruses or may not be present in sufficient water samples to detect. There is a sex. The use of quantitative polymerase chain reaction (qPCR) is an alternative to culture-based microbiological methods for the detection and quantification of microorganisms and is effective for detecting and quantifying microorganisms in water in hours. In contrast to most biological samples, where PCR analysis involves extraction followed by amplification and detection, water samples necessarily require an early stage of sample concentration [3].

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Received: 05 February, 2022, Manuscript No: MBL-22-50994; **Editor assigned:** 07 February, 2022, PreQC No: P-50994; **Reviewed:** 10 February, 2022, QC No: Q-50994; **Revised:** 15 February, 2022, Manuscript No: R-50994; **Published:** 20 February, 2022, DOI: 10.37421/2168-9547.2022.11.308

Microorganisms (bacteria, protozoa, viruses, etc.) have been found to be dispersed in the water matrix, and the presence of suspended solids and other elements causes problems during analysis, exploration and discovery [4]. There are various concentration protocols (eg membrane filtration, gauze pad filtration, centrifugation, etc.). Choosing the right protocol for a good recovery rate can be very difficult for analysts. Centrifugation and filtration using different carriers (membranes, gauze pads, etc.) is a common and conventional particle separation process in various areas of microbiology. Centrifugation involves the use of centrifugal force. This is the protocol used to separate particles in solution based on size, shape, density, average viscosity, and rotor speed. The main advantage of this technique is that it is a simple protocol that allows the separation of three or more cell types [5]. However, centrifugation is limited to a small amount of water.

In addition, the low purity of this technique can harm the cells of the centrifuged microorganisms. Membrane filtration has many advantages, including: This is a simple and fast protocol that can be adapted to any amount of non-turbid water. The size and structure of the filter media can influence the choice of microorganisms to be tested. It is inexpensive and can be used with different types of membranes (different composition and porosity) depending on the microorganisms tested. However, the main drawback of this technique is the risk of membrane clogging. Therefore, turbid water cannot be filtered. Also, high differential pressure is required for this protocol to work.

Conflict of Interest

None.

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How to cite this article: Guo, Ming. “Molecular Biology in Reconstruction of Oral Cavity Cancer and Pathology.” *Molbiol* 11 (2022): 308.