

# The Role of Microbiological Contamination in Fish

Sven Frahm\*

Department of Natural Resources, Agricultural Research Organization, Bet Dagan, Israel

\*Corresponding author: Sven Frahm, Department of Natural Resources, Agricultural Research Organization, Bet Dagan, Israel, E-mail: frahm\_s@gmail.com

**Received date:** November 11, 2022, Manuscript No. IPJARN-22-15440; **Editor assigned date:** November 13, 2022, PreQC No. IPJARN-22-15440 (PQ); **Reviewed date:** November 24, 2022, QC No. IPJARN-22-15440; **Revised date:** December 04, 2022, Manuscript No. IPJARN-22-15440 (R); **Published date:** December 11, 2022, DOI: 10.36648/2572-5459.7.12.060

**Citation:** Frahm S (2022) The Role of Microbiological Contamination in Fish. J Anim Res Nutr Vol. 7 No12: 060

## Description

Microbiological contamination in fish origin foods is the leading risk for public health. Among the range of pathogenic bacterial species that cause fish food borne diseases is *Escherichia coli*. The pathogenic strains of *Escherichia coli* cause diarrhea by producing and releasing toxins and can also be the cause of food spoilage in fish.

## Antimicrobial Agents

The use of antimicrobial agents in the treatment of *Escherichia coli* infection causes the emergence of antibiotic resistant bacteria, and their resistance genes have turned into a serious, growing issue in current medication. *Escherichia coli* resistance to antimicrobials is creating trouble for the healthcare system worldwide. Hence, monitoring of bacterial load and the antibiotic resistance pattern of bacteria, and surveying hygienic practice in fish are of paramount importance in providing useful data regarding the public health risk profile of fish and fish products. The results of these studies will assist planning the right management strategies against fish foodborne diseases. Therefore, the objective of this study was to evaluate bacterial load and antimicrobial resistance patterns of *Escherichia coli* from fish value chain in the upper Blue Nile watershed.

Hence, it could be wise to advise the fish harvesters, fish traders, hotels and restaurants about fish food safety practices from harvesting to consumption to improve fish food safety practices and quality standards of fish harvested and sold in northwest Ethiopia.

## Fish and Fishery Products

Fish and fishery products are the most necessary nutritious meals all over the world, which represent about 15-20% of all animal protein on a world basis. Fish constitutes 19% of animal protein consumption in Africans and performs a special role in supplying a range of micronutrients and especially essential fatty acids. Africa's fish consumption.

The health benefits of fish consumption have been properly demonstrated by numerous studies. These are due to the presence of proteins, minerals and vitamins; and peptides, amino acids, selenium and long-chain n-3 polyunsaturated fatty

acids. In addition to nutritional value, the health benefits of fish food consumption have especially been related to protection against cardiovascular disease; to extend fetal and child development and to really helpful results in protecting various different illnesses and clinical conditions. The health-promoting effects have mainly been attributed to the LC n-3 PUFAs, eicosapentanoic acid and docosahexaenoic acid. However, alongside the advantages there are associated risks, such as bacterial contamination and other biological, chemical and physical contaminations. Among the risks, microbiological contamination is the leading risk in fish foods. As a result, fish food is a common source of food poisoning, causing illnesses with various levels of severity, ranging from mild indisposition to persistent or life-threatening illness. Microbial contamination, in addition to the negative health effects, causes loss of food. Of the fish captured, 30% is lost via microbial activity alone.

Foodborne diseases are recognized to regularly take place in developing countries, probably due to poor food handling and hygiene, a lack of implementation of safety measures, weak regulatory systems, a lack of economic assets to procure safety tools and a lack of education and/or training for different food handlers. In Ethiopia, animal and fish origin meals are main sources of foodborne ailments due to poor handling conditions and sanitation practices, inadequate food safety laws, weak regulatory structures and lack of training for food handlers. This low food safety and quality practice in developing countries aggravates fish food spoilage and contamination.

Among the range of pathogenic bacterial species that cause fish food borne diseases is *Escherichia coli*. The pathogenic strains of *Escherichia coli* may cause diarrhea by producing and releasing toxins and can also be the cause of food spoilage in fish. Currently, six categories of diarrheagenic *Escherichia coli* have been acknowledged: Enter toxigenic *E. coli*, Enteropathogenic *Escherichia coli* (EPEC), Enter Invasive *Escherichia coli* (EIEC), enterohemorrhagic *Escherichia coli*, enteroaggregative *Escherichia coli* and Diffusely Adherent *Escherichia coli* (DAEC). Some strains such as Shiga toxin-producing *Escherichia coli* (STEC) can cause severe foodborne disease. It is transmitted to humans primarily through consumption of contaminated foods, such as raw or undercooked ground meat products, raw milk, and contaminated raw vegetables. Different strains *Escherichia coli* cause diseases in gastrointestinal, urinary, or central nervous systems.

The occurrence of this bacterium in food is directly related to fecal contamination. This bacterium is the most abundant facultative anaerobe of the human intestinal micro flora. Furthermore, Escherichia coli is broadly present in the intestinal tracts of warm-blooded animals. The presence of Escherichia coli in ready-to-eat foods is undesirable because it suggests poor hygienic conditions that lead to contamination or inadequate

heat treatment. Ideally, Escherichia coli should not be detected, and as such, a level of <20 cfu/gram has been given as the quality criteria for this organism. In fish origin foods and other foods, levels between 20 and 100 cfu/g are border-line or intermediate, and levels exceeding 100 cfu/g are unacceptable and indicate a stage of contamination.