Acta Scientific Microbiology (ASMI)
ISSN: 2581-3226
DOI: 10.31080/ASMI.2019.S01.0008

Short Communication

Special Issue 1- 2019

Microbial Food Safety Management in Global Trade: Role of WTO-SPS Agreement

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Received: August 28, 2019
Published: September 16, 2019
ISSN: 2581-3226
DOI: 10.31080/ASMI.2019.S01.0008

Spoilage of food commodities especially perishable and processed foods during global trade has always been a serious issue. This spoilage may be occurred by various factors including chemical, physical and microorganisms. Food poisoning microorganisms including *Salmonella* and *Shigella* have been the main cause of this spoilage. Global food trade is the much intensive activity, involving more than 350 billion of USD$. Quarantine laws at entry point of each country vary and management of food safety, especially microbial safety of food commodities is an issue of international interest. A lot of national and international organizations are involved in management of microbial food safety. These organizations including world trade organizations (WTO) food and agriculture organization (FAO) and Codex Alimentarius Commission (CAC) and various other localized bodies of different countries. After the establishment of WTO on 1st January 1995, some questions were raised about the food safety management during global trade [1]. These questions stated that how can a country ensure the safety of imported food products, and their adverse health aspects on the consumers. There should be a framework to check and balance the safety and quality of food commodities during global trade. This concept raised the idea of and agreement for global trade, now known as WTO-SPS (world trade organization's sanitary and phyto-sanitary) agreement.

WTO-SPS agreement has brought a framework to regularize and manage the policies for global food trade. It allows the countries to prepare guidelines, rules and principles for their domestic trade as well as for imported commodities. But these principles should be prepared using sound scientific and technological bases, so discriminations can be minimized in global trade. Key features of this agreement includes; (i) the pro-active measures for the protection of human health, by applying some quality testing, (ii) these quality parameters should be prepared in a way that can be justified for the member nations, (iii) these should be scientifically approved, (iv) these can meet the international standards, (v) these should be adaptable to international environment, regarding the variations in climatic conditions and consumer interests, (vi) there should be a margin of risk assessment and traceability and (vii) there should be transparency in all the system [2,3].

On the guidelines of WTO-SPS agreement, microbial food safety can be managed in global trade using the implementation good hygiene practices (GHPs) and application of various international food safety and quality standards including Hazard Analyses Critical Control Points (HACCP) in food chain. Some kind of food safety standards have also been prepared by the International Organization for Standardization (ISO) e.g., ISO 22000:2008. These internationally recognized standards should be applied on food chain from pre-harvest stages to consumption, including their harvesting, pre-processing transportation, processing and packaging, post-processing transportation and distribution [4,5]. Efficacy of these standards can be enhanced by maintenance of traceability and record keeping.

In case of microbial food safety, some standard for maximal limits of microflora should be devised for each kind of products. Fermented foods should have different standard rather than non-fermented foods. These standards can be better formulated by the models of predictive microbiology, which can calculate the increment in microflora during transportation till final destination. Formulation of food safety objectives (FSOs) are necessary in this regard, which will target the different standards for different type of food commodities. For instance, level of *E. coli* or *Salmonella* will be different for milk and meat products. In same case, different standards should be set according to type of food. In the same ways, sanitary measures will also be different for each type of foods. Sani-

tary measures applicable to liquid foods can't be applied to solid foods and vice versa.

Moreover, risk management policies and decisions should be based on the certainty and equivalence. Importance of equivalence is worthy for both parties i.e., importers and exporters, having the equal right to examine the products, reducing the discrimination. Though, some developed countries have some reservations on the principles of equivalence on their entry points and they have some formal ports for their localized testing. But WTO-SPS agreement have strict guidelines to minimize the discrimination. Because this is basic theme of WTO-SPS agreement, that exporter parties/countries following the rules of Codex, HACCP or ISO have enough defensible evidences to prove themselves and their product's safety and quality.

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