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Perspective

Prominent Research Themes for Retrospect and Prospect of Food Safety and Security

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DESCRIPTION

The earth would be confronted with sustaining an estimated 10 billion people until 2050. The Web of Science bibliographical and citation database for the most cited publications in this research area to address the scientific evidence supporting food safety. Food-borne diseases and toxins, together with emerging genetic studies and new means of visualizing poisons on surfaces, had the largest impact on the scientific community, as measured by their annual rate of citations during the last decade. Epidemiological and survey studies showed that a systematic effort was made to document, quickly detect, and prevent epidemic illness spread, and that these methods reduced the threat to food safety in industrialized countries, but that there is still much scope for improvement. The possible molecular targets to reduce toxic build up in grain were among the research topics significant to developing countries. The human aspect appears to be the most crucial factor in food safety, as it is in other fields of research and life.

The WHO's five keys to food keeping clean, separating raw and cooked foods, cooking thoroughly, keeping food at safe temperatures, and using safe water and raw materials are thus still highly relevant for both rich and developing countries. Food safety is a significant health, societal, and economic concern. Food borne and water borne diarrheal infections kill an estimated 3.2 million people each year, 1.5 million of whom are children, according to the World Health Organization (WHO). Food safety, nutrition, and food security are among WHO's twelve strategic objectives since unsafe food can cause or contribute to a variety of ailments, ranging from diarrhea to various malignancies. Food safety may also have an impact on at least four of the United Nations' eight millennium development objectives for 2015: eliminating extreme poverty and hunger, reducing child mortality, improving maternal health, and ensuring environmental stability. To promote healthful foods, WHO developed 'Five Keys to Safer Food' training materials, which promote simple health measures based on scientific evidence for use by food handlers, including consumers, in order to reduce the burden of foodborne infections.

Food and its safety are becoming a focus of increased research efforts around the world, particularly in light of the world's growing population. The scientific community's interest in food safety was demonstrated in a study that looked at how science may help solve the problem of feeding the predicted 10 billion people that will inhabit the Earth by 2050. The subject sparked a lively debate on the journal's printed and web pages. The 2011 nuclear power plant issue in Japan following the earthquake, as well as the discovery of radiation in particular food samples, contributed to concerns about the safety of food from that region. The recent epidemic of a deadly hemolytic-uremic syndrome in Germany, which was caused by bacterial poisoning of vegetable sprouts, also brought food safety to the forefront. I was interested in the scientific evidence supporting food safety because of the scientific community's interest in the matter. The web of science, a bibliographical database that also uses citations to published research as a metric of impact on the research community, to analyses research published in the recent decade. There are four key areas where food safety challenges exist which included:

Food is biological in nature. It has the ability to support the growth of microbial that could cause foodborne illness. Although viruses are responsible for the majority of foodborne illnesses, bacterial agents are responsible for hospitalizations and deaths related with foodborne infections. The disorders range from simple gastroenteritis to neurologic, hepatic, and renal syndromes, all of which are caused by the disease-causing microbes toxins. Bacterial agents found in food are the leading cause of serious and fatal food borne illnesses. Over 90% of food poisoning infections are caused by *Staphylococcus*, *Salmonella*, *Clostridium*, *Campylobacter*, *Listeria*, *Vibrio*, *Bacillus*, and *E. coli*. For example, *Salmonella* was the most common cause of bacterial food borne disease in the United States and France in the last decade of the 20th century,

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accounting for 5000 to 10,000 cases, followed by *Campylobacter* (2500 to 3600 cases) and *Listeria* (345 cases).

Chemical protection of foods have been found to include non food grade chemical additions such as colorants and preservatives, as well as pollutants such as pesticide residues. Heavy metals like lead, cadmium, arsenic, mercury, and copper were found in higher concentrations in some food samples than in others, indicating possible utensil leaching and poor food hygiene.

Personal hygiene really plays aimportant for the food workers to maintain their personal hygiene, if not it may definitely cause public's health at risk. Many food borne infections can be avoided with simple behaviors like thorough hand washing and proper washing facilities.

Hygiene of the environment leads to accumulation of expired and infected food is caused by insufficient recycling and waste disposal equipment and facilities. As a result, pest and bug populations grow, posing a danger of food contamination and spoiling. Poor sanitary conditions in the processing and preparation areas contribute to poor food storage and transportation, as well as the sale of unsanitary food.