

OBE

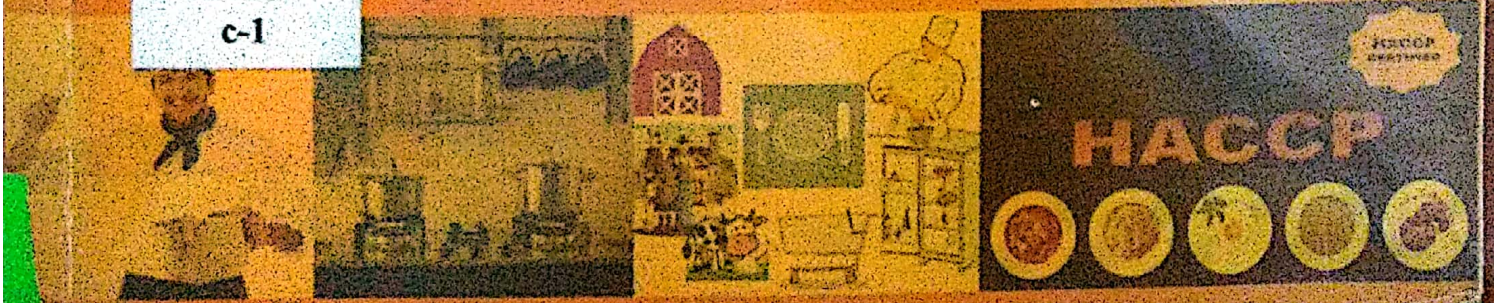
Principles of

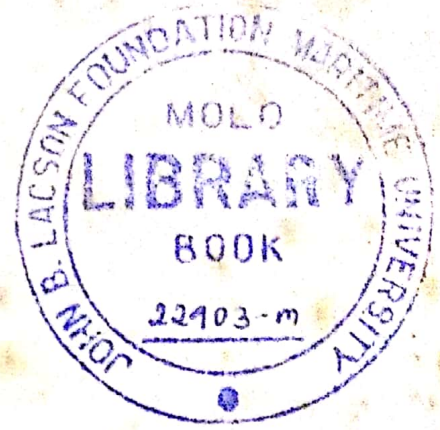
FOOD SAFETY, SANITATION and HYGIENE



Fil
363.7296
So697
2016
c-1

Ana Marie M. Somoray, RND





PRINCIPLES OF FOOD SAFETY, SANITATION & HYGIENE

Ana Marie M. Somoray, RND

PRINCIPLES OF FOOD SAFETY, SANITATION & HYGIENE

COPYRIGHT 2016

Ana Marie M. Somoray, RND

ISBN: 978-971-9654-53-7

ALL RIGHTS RESERVED. No part of this work covered by the copyright thereon may be reproduced, used in any form or by any means-graphic, electronic or mechanical, including photocopying, recording or information storage and retrieval systems - without written permission from the author.

Published by: UNLIMITED BOOKS LIBRARY SERVICES AND PUBLISHING INC.

Room 215 Intramuros Corporate Plaza Bldg.

Cabildo corner Recoletos Street, Intramuros, Manila

Tel. No.: (02) 502-20-17

Telefax: (02) 525-16-49

email: unlimitedbooks2014@yahoo.com

Layout Design by: Marie Steffany Rulloda Rodriguez

Cover Design by: Merlina Asis Cortez

TABLE OF CONTENTS

PREFACE	v
INTRODUCTION	1
CHAPTER 1	
WHY FOOD SAFETY MATTERS?	4
Cost of Food-borne Illness	
People at Risk for Food-borne Illness	
Global Trends and Future Food Safety	
CHAPTER 2	
THE FOOD CONTAMINANTS	13
Biological Contaminants	
Chemical Contaminants	
Physical Contaminants	
Potentially Hazardous Food	
CHAPTER 3	
OUR INVISIBLE ENEMIES	37
Bacteria	
Viruses	
Parasites?	
Fungi	
CHAPTER 4	
FOOD-BORNE ILLNESS	63
Food-borne Illness Caused by Bacteria	
Food-borne Illness Caused by Viruses	
Food-borne Illness Caused by Parasites	
Food-borne Illness Caused by Naturally Occuring Food Toxins	
CHAPTER 5	
PERSONAL HYGIENE & GOOD GROOMING	99

Personal Hygiene & Cleanliness
Components of Personal Hygiene
Good Personal Hygiene on Food Safety
Practices
Good Grooming Hygiene on Food Safety
Practices
Controlling Diseases

CHAPTER 6

SANITARY FACILITIES & PEST MANAGEMENT 111

Defining Cleaning and Sanitizing
Types of Cleaning Agents
Sanitizing Equipment
Guidelines for Food Safe Facilities
Pest & Pest Control

CHAPTER 7

**ENSURING SAFETY AT ALL LEVELS IN THE
FOOD SERVICE CHAIN 129**

Guidelines for Purchasing & Delivery
Guidelines for Receiving
Guidelines for Storage
Guidelines for Preparing Food
Guidelines for Pre-Preparation & Cooking
Guidelines for Holding & Serving
Guidelines for Cooling & Re-heating

CHAPTER 8

HAZARD ANALYSIS CRITICAL CONTROL POINT 147

History of HACCP
Pre-requisite Programs
Developing HACCP Plan?
HACCP Principles

GLOSSARY 165

REFERENCES 171

GLOSSARY

A

Acidity – the amount of acid in a substance. Having a pH lower than 7

Acidophiles – organisms that grows and reproduce under highly acidic conditions

Aerobic bacterium – a bacterium that depend on oxygen to sustain life

Aflatoxin – a natural occurring toxin in a certain fungi (usually mold) that cause cancer

Alkaline – a substance having pH level above seven

Anaerobic bacterium – a bacterium that does not require oxygen to live and multiply.

B

Bacteria – a single cell microorganism that cause many diseases

Binary fission – a form of asexual reproduction by which a single cell divides into two equal parts

Biological contaminant – hazard cause by microorganism

C

Calibrate – to adjust or mark of a measuring device for accurate measurement

Chemical contaminant- presence of chemical substance to make water, food , air unfit for consumption

Chlorine – a chemical used as bleach and disinfectant in water purification and sanitizing environment and equipment

Clean – a method in removing visible dirt

Cocci – round or spherical shaped bacteria

Concentration - a measure of the amount of dissolved substance contained per unit of volume.

Contamination – to pollute or make impure to cause harm or risk

Control – to eliminate or prevent the spread of something

Corrosive – to cause damage on solid materials

Critical limit - is a control measure or tool used to distinguish between safe and unsafe operating conditions at HACCP

Cross-contamination – transfer of microorganism from one surface to another

D

Dehydration – loss of water in the body caused by an illness

Detergent – water soluble cleaning agent

Diarrhea – gastro intestinal disorder characterized by uncontrolled fecal withdrawal

Dinoflagellates – marine organism common in fresh water habitat

DNA - Deoxyribonucleic acid, is a hereditary genes or material of all organisms

F

Facultative anaerobic bacteria – bacteria can grow with or without free oxygen but have a preference

FATTOM – Acronym for Food, Acidity, Temperature, Time, Oxygen, Moisture the conditions bacteria needed to survive and reproduce

Food Infection – a condition when a person ingested food or beverage containing harmful bacteria that cause illness

Food Intoxication – an illness resulted from ingesting food or beverage containing harmful toxin caused by a chemical or bacteria carrying toxin

Food-borne illness – disease or illness caused by ingesting contaminated food caused by biological, chemical or physical contaminants

Fumigate – to apply fumes of chemicals to eliminate pests

Fungi – a simple aerobic organism that grows at any conditions, they depend their nourishment from decaying organic matter.

G

Gastroenteritis – is a condition of the body when the stomach and

intestines become inflamed resulted from bacterial toxin or viral infection caused by eating contaminated food or drinking contaminated water.

Gnaw – bite or chew mark from objects caused by rodents or other insects

Guidelines – a general rule to determine the course of action

H

Heat- to cause something warm or hot

Holding – a process by which the food stays on the line until it is ready to be served

Host – a living organism (human, animal, plant or bacteria) in which another microorganism lives, eat, excretes waste and multiply.

I

Insecticide – a chemical used to kills insects

M

Macroscopic – large enough to be seen by the naked eye

Mesophiles – a group of microorganism that grows best at moderate temperature (60°F and 113 °F)

Microaerophilic Organism – a group of microorganism that survives in a very little amount oxygen

Microorganism – microorganism that is too small to be seen by naked eye, they can only be seen by using a microscope

Minimum Internal Temperature – temperature requirement in food safety handling for cooking, storage and holding for preventing the growth of pathogenic microorganisms in food that may cause foodborne illness.

Mitosis – a process in cell division by which a nucleus divides

Moisture – dampness or wetness of something

Mold – a type of fungus that grows best at slightly warm and moist environment and undisturbed for a long period of time

Monitor – to inspect or safeguard a procedure for a period of time in order to attain its objective

Multi-cellular – an organism which consists of multiple cells

Mycelium – asexual reproduction of a fungus consisting of accumulated amount of thread-like hyphae that forms a mass of branches

N

Nausea – a feeling of gastrointestinal discomfort with an involuntary urge to vomit

P

Parasite – an organism that lives in expense of another organism called "host"

Parts Per Million – a percentage of a substance to another substance to make a solution

Pasteurize – is a process of heating a liquid such as dairy product or alcoholic beverages to a specific temperature to sufficiently reduce the number of harmful microorganisms.

Pathogen – disease causing microorganism (bacterium, virus or fungus)

Personal hygiene – related to one's own habits and practices to maintain the external parts of the body beyond clean to help maintain health, boost self-esteem and prevent diseases.

Pest Control – process of minimizing or exterminating insects and pest that brings diseases.

pH – stands for "Potential of Hydrogen". It is a numerical interpretation of acidity and alkalinity of a substance or a solution.

Potentially Hazardous Food – foods that are capable to cause harm or illness caused by Time Temperature Abuse

Preventing – to stop from occurring

Principle – determinant or rule

Procedure – a course of action

R

Radiation – emission of energy through the use of light, heat and sound

Reputable – can be trusted, considered to be good and acceptable

Risk – danger, hazard

RNA - (Ribonucleic Acid), its function is to act as messengers to carry instructions from DNA for controlling Protein synthesis.

S

Sanitize – a method or process of removing harmful microorganism in a surface or object by applying heat or chemical.

Serving – to give assistance

Sewage – a method of carrying away water waste and other human waste from a building passing through a pipes or passages

Shigella – a bacterium that cause gastro-intestinal disease caused by raw and contaminated meat.

Spirilla – spiral shaped bacteria

Spoil – to decompose or to rot that makes unsuitable for human consumption

Spore – protective shell

Spore-forming bacterium – capable to build a protective shell during adverse condition to protect themselves

Supplier – dealer or provider of something

T

Temperature Danger Zone – a temperature scale usually (41°F - 140°F), conducive for microorganism to thrive.

Thaw – to melt from a frozen state

Thermophiles – microorganism ability to survive in higher temperature

Time Temperature Abuse – it is a condition from which the food is exposed to Temperature Danger Zone for more than 5 hrs. That it becomes susceptible to the growth of pathogenic microorganism

Toxin – poison, pollutant or contaminant

U

Unicellular – single celled microorganism

UV light – Ultra Violet light , is a form of electro-magnetic radiation invisible to human eye

V

Vegetative Stage – growing or developing stage

Verify – to confirm or to validate

Virus – the tiniest of all the microorganisms that has no cell in which they engulf themselves inside the living host to reproduce

Vomiting – a series on involuntary movement of the stomach wherein it ejects its content through the mouth

W

Water Activity - as the ratio of the vapor pressure of water in a material