

Control and Asepsis

Chapter 5

1. Introduction (Pages 118 - 119; 122 - 134)

- Sepsis
- Asepsis

A. Nosocomial infections

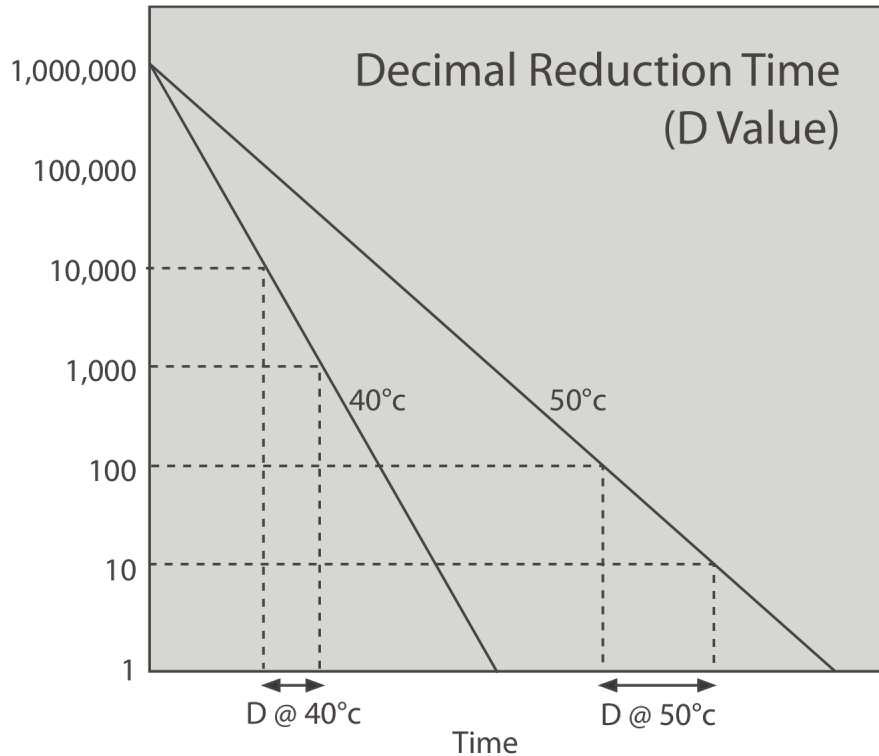
i. Why they occur

- a. Sick people are concentrated in the hospital
- b. Susceptibility of the patients
 - Host immune system is impaired
 - Bypass anatomical barriers
 - Physically implantation
 - Competitive bacteria removed
 - * *Candida albicans*
 - * *Escherichia coli*

B. Terms (Pages 119)

- i. Sterilization
- ii. Disinfection
- iii. Bacteriostatic

2. Decimal Reduction Time (D Value) (Page 122)



A. Variables

3. Physical Methods for Control (pp. 185 - 189)

A. Heat

- *Clostridium botulinum*
- *Clostridium tetani*

i. Boiling Water (Page 123)

ii. Pasteurization (Page 123)

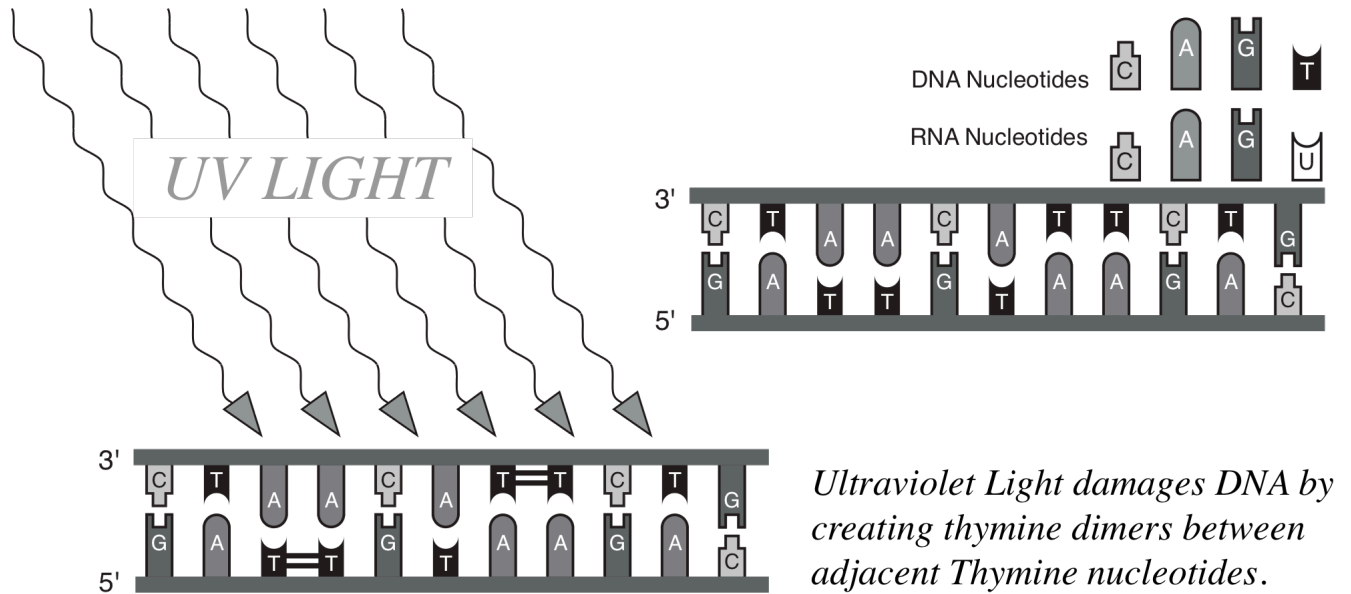
- Tuberculosis
- Brucellosis
- Typhoid Fever
- Diphtheria
- Scarlet Fever
- Q Fever

Microbiology Student Outline – Control and Asepsis

- a. High-Temperature Short Time
 - Milk - (72°c @ 15 seconds)
 - b. Ultra High-Temperature
 - Milk - (140°c @ “few” seconds)
 - iii. Autoclave (Page 124 - 125)
 - a. Water boils @ 100°c
 - b. Autoclave
 - @15 psi (→ 121°c)
 - c. Canning
 - iv. Dry-Heat Sterilization (160°c - 170°c for 2 hours) (Page 125 - 126)
 - *Treponema pallidum* (→ syphilis)
 - v. Direct Flame
- B. Filtration (Page 126)
- i. Fluids
 - ii. High Efficiency Particulate Air (HEPA) Filters

C. Radiation (Page 127)

- i. Microwave Radiation
- ii. UV light (Nonionizing Radiation)



- iii. Ionizing Radiation

D. Desiccation

E. Osmotic Pressure

F. Low Temperatures

- *Clostridium botulinum*

4. Chemical Agents of Control (Pages 128 - 134)

A. Terminology

- i. Antiseptic
- ii. Disinfectant
- iii. Bacteriostatic agent
- iv. Bactericide
- v. Sporicide, Viricide, Fungicide

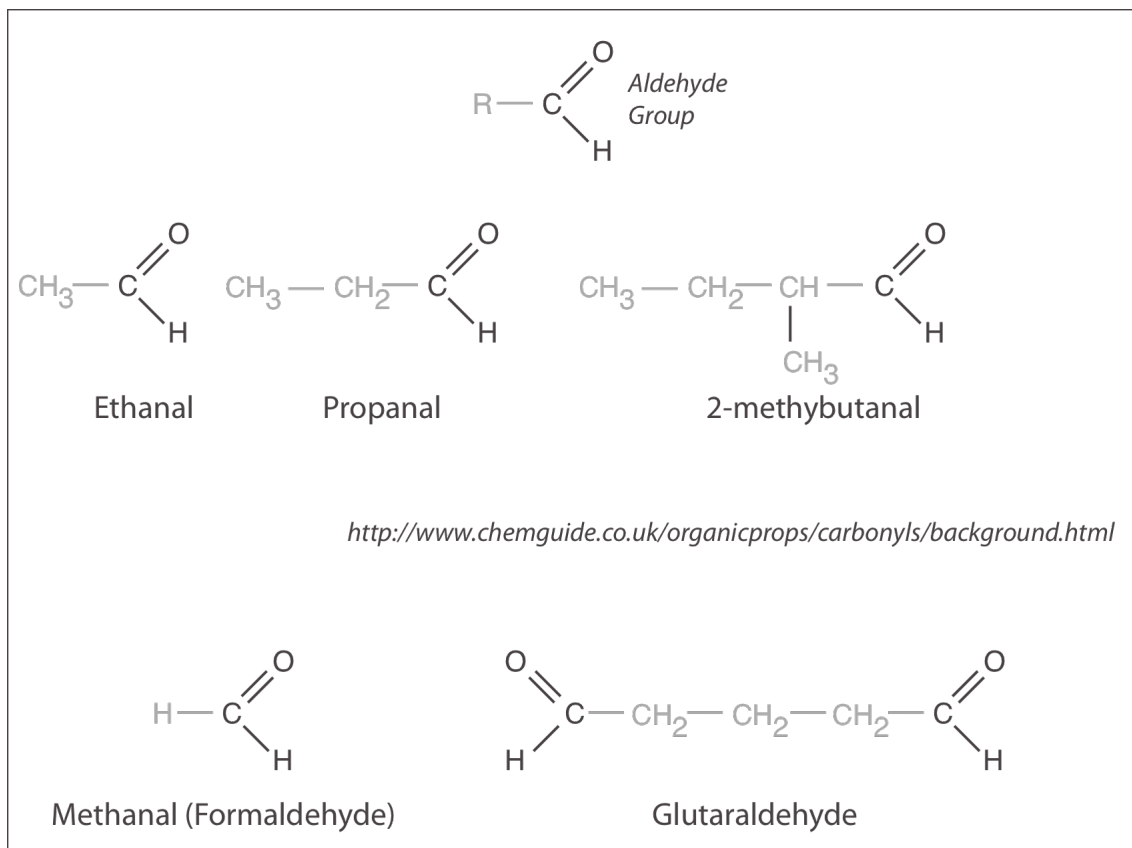
B. Variables

- i. Time
- ii. Concentration
- iii. Temperature
- iv. Medium

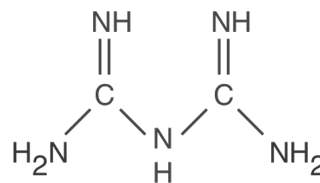
C. Agents

- i. Alcohols (Page 129)

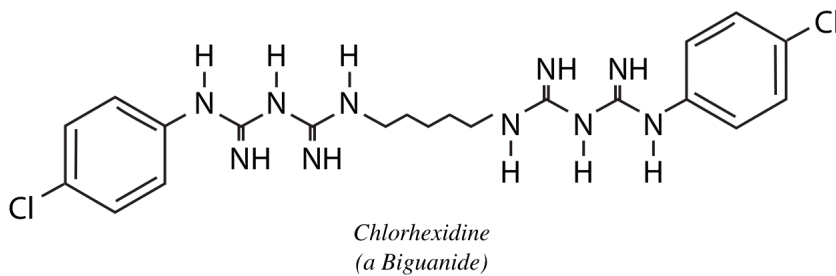
ii. Aldehydes (Page 129)



iii. Biguanides (Pages 129):



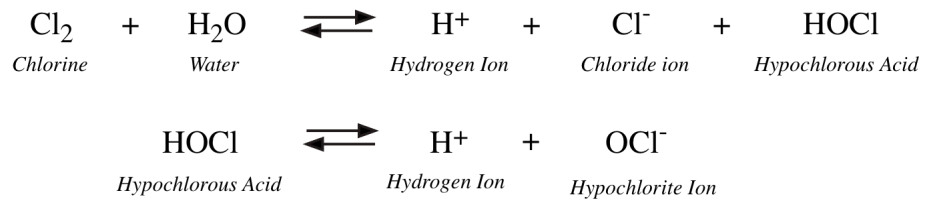
a. Chlorhexidine



iv. Halogens (Pages 130 - 131)

					Helium 2 He
Boron 11 B	Carbon 12 C	Nitrogen 14 N	Oxygen 16 O	Fluorine 19 F	Neon 20 Ne
Aluminum 27 Al	Silicon 28 Si	Phosphorus 31 P	Sulfur 32 S	Chlorine 35 Cl	Argon 40 Ar
Gallium 70 Ga	Germanium 73 Ge	Arsenic 75 As	Selenium 79 Se	Bromine 80 Br	Krypton 84 Kr
Indium 115 In	Tin 119 Sn	Antimony 122 Sb	Tellurium 128 Te	Iodine 127 I	Xenon 131 Xe
Titanium 204 Ti	Lead 207 Pb	Bismuth 209 Bi	Polonium 209 Po	Astatine 210 At	Radon 222 Rn

a. Chlorine



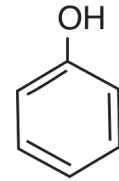
b. Iodine

- Tincture

c. Iodophores

- Betadine
- Isodine

v. Phenol (Carbolic Acid)

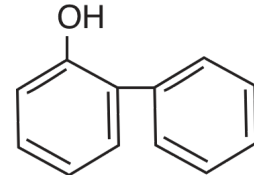


Phenol

a. Phenolics (Page 133)

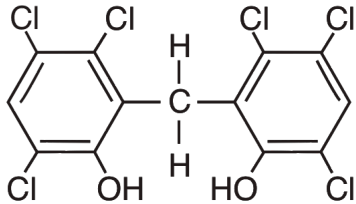
- Mycobacteria

b. Bisphenols



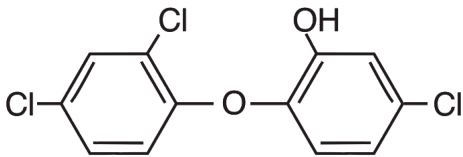
O-phenylphenol

a. Hexachlorophene



*Hexachlorophene
(a bisphenol)*

b. Triclosan



*Triclosan
(a bisphenol)*

vi. Heavy Metal Salts (Page 131)

a. Copper

b. Silver (in Silver Nitrate)

- *Neisseria gonorrhoea*
- Gonorrhoeal Ophthalmia Neonatorum

vii. Soaps and Detergents