

AMB18 FOOD BIOLOGY

UNIT-1 HISTORICAL BACKGROUND

History of Microorganisms in food, Historical Developments.

UNIT-2 TAXONOMY

Role and significance of microorganisms in foods. Intrinsic and Extrinsic Parameters of Foods that affect microbial growth.

UNIT-3 MICROORGANISMS

In fresh meats and poultry, processed meats, seafood's, fermented and fermented dairy products and miscellaneous food products.

UNIT-4 STARTER CULTURES

Cheeses, beer, wine and distilled spirits, SCP, medical foods, probiotics and health benefits of fermented milk and foods products.

UNIT-5 BREWING

Malting, mashing, hops, primary & secondary fermentation: Biotechnological improvements: catabolic repression, High gravity brewing, B-glucan problem, getting rid of diacetyl. Beer, wine and distilled spirits.

UNIT-6 NUTRITIONAL BOOSTS AND FLAVOR ENHANCERS

Emerging processing and preservation technologies for milk and dairy products.

UNIT-7 MICROBIOLOGICAL EXAMINATION

Of surfaces, Air Sampling, Metabolically Injured Organisms, Enumeration and Detection of Food-borne Organisms. Bioassay and related Methods

UNIT-8 FOOD PRESERVATION

Food Preservation Using Irradiation, Characteristics of Radiations of Interest in Food Preservation. Principles Underlying the Destruction of Microorganisms by Irradiation, Processing of Foods for Irradiation, Application of Radiation, Radappertization, Radicidation, and Radurization of Foods Legal Status of Food Irradiation, Effect of Irradiation of Food constituents.

UNIT-9 STORAGE

Stability Food Preservation with Low Temperatures, Food Preservation with High Temperatures, Preservation of Foods by Drying, Indicator and Food-borne Pathogens, Other Proven and Suspected Food-borne Pathogens.

UNIT-10 PSYCHROTROPHS

Thermophiles and Radiation-resistant Microorganisms, Characteristics and Growth of Thermophilic Microorganisms, Nature of Radiation Resistance in Microorganisms. Rheology of Food Production.

UNIT-11 CONSUMER PERSPECTIVE AND FUTURE OF FOOD BIOTECHNOLOGY.

Reference Books:

1. Modern Food Micro-Biology by James M. Jay, (2000), 6th edition, An Aspen Publication, Maryland, USA.
2. Food Microbiology: Fundamentals and frontiers by M.P. Doyle, L.R. Beuchat and Thoma J. Montville, (2001), 2nd edition, ASM press, USA.
3. Food Science and Food Biotechnology by G.F.G. Lopez & G.V.B. Canovas (2003), CRC Press, Florida, USA.

