

A03M International and Tropical Food Microbiology and Hygiene

Module	International and Tropical Food Microbiology and Hygiene							
Code	A03M							
Coordinator	Prof. Dr. Dr. C.-P. Czerny							
Language	English							
Stud. workload	180h (56h contact time)							
Credits	6 ECTS							
Frequency (WS/SS)	SS							
Instructor	Prof. Dr. Dr. C.-P. Czerny							
Contents	<p>Infectious and toxic pathogens cause most of the food-borne impacts on human health all over the world. Global markets require an international surveillance system together with standardized food hygiene regulations. This module will give a generalized view of currently and internationally relevant food-borne zoonotic diseases, epidemics and food hygiene programs together with a specialized view to the conditions in subtropical and tropical countries. The biology of infectious agents (parasites, fungi, yeasts, bacteria, viruses, prions, together with their toxins) responsible for contaminations and intoxications of human food of animal origin will be discussed in detail. Some of these germs cause severe zoonotic diseases with a lethal potential for humans or certain age groups. Special characteristics of germ resistance in the food matrices meat, milk, eggs, and in the corresponding products are elucidated along to the complete manufacturing processes from stable to table. Deterioration and spoilage of foodstuffs by microorganisms will be discussed as well. Diagnostic methods presently available for the detection of contaminated or spoiled nourishments and new biotechnological approaches in future assay designs will be analysed. The adaptation of practical hygiene and standardized quality management adjustment factors to various animal production systems (ruminants, pigs, poultry) as well as to the subsequent production processes will be explained together with the corresponding management measurements. This includes food conservation procedures, germ depletion and eradication techniques (cleaning, disinfection, autoclaving, sterilization). Beside negative microbial effects influencing food quality, positive effects especially of bacteria and fungi in food production will also be presented. Biotechnological aspects of genetic engineering of foodstuff supplements or directed genetic germ design will be discussed.</p> <p>In a laboratory course on food microbiology, this module will also communicate well-established techniques of microbiological and parasitological diagnostics in food matrices. Students will be practically trained in classical methods and in modern biochemical, immunological, biotechnological and molecular biological techniques for the detection of food-borne infectious agents, toxins and noxious substances.</p>							
Objectives	<p>Based on a scientific and practical up-to-date level, students know to evaluate and develop modern and effective food hygiene concepts and to integrate them into complex quality management programs. Graduates are competent to implement and to communicate their knowledge in a multidisciplinary occupational area establishing epizootic control programs in food microbiology and hygiene. They are able to understand international experts of public health authorities and collaborate in international and multidisciplinary platforms including control, monitoring, and research.</p>							
Literature	Lecture based materials.							
Study system usability	Economy		Organic			Tropical		
	-		E			M		
Entrance requirements	Basic knowledge (B.Sc. level) of soil, plant and animal sciences							
Instruction type	Lecture		Seminar	Excursion	Practice	Tutorial	Project	
Duration [contact h]	56				28 (optional)			
Examination type	Oral test	Written test	Homework	Presentation	Protocol	Work report	Proj. report	Proj. pres.
	x							
Grade composition	100% oral test							