



UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

**DEGREE IN ENVIRONMENTAL HEALTH WITH FOOD
SANITATION AND TECHNOLOGY**

MAIN EXAMINATION PAPER 2013

- TITLE OF PAPER** : FERMENTED FOODS
- COURSE CODE** : EHS 505
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** :
- : READ THE QUESTIONS & INSTRUCTIONS CAREFULLY
 - : ANSWER ANY FOUR (4) QUESTIONS
 - : EACH QUESTION CARRIES 25 MARKS.
 - : WRITE NEATLY & CLEARLY
 - :
 - : BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS
GRANTED BY THE INVIGILATOR.**

Question 1

Write short notes on any five (5) major ingredients that are used in manufacture of fermented sausages. [25 Marks]

Question 2

How does the use of starter culture bring about the following attributes in fermented foods?

- (i) Enhanced preservation
- (ii) Reduced food safety risks
- (iii) Improved nutritional or health value
- (iv) Enhanced sensory qualities
- (v) Increased economic value

[25 Marks]

Question 3

(a) What is the effect of using high brine (> 5%) concentration during the process of fermentation of pickles? [5 Marks]

(b) Give some reasons why pseudomonas, fungi and other microorganisms that are initially present in the raw material fail to grow once the fermentation of vegetables begins. [5 Marks]

(c) Briefly account for why *Enterococcus* sp are rarely used in fermented foods. [5 Marks]

(d) The manufacture of Sauerkraut involves stages like mixing, fermentation, end product, packaging and processing. Give a detailed description of the aspects involved during the stages of fermentation of sauerkraut. [10 Marks]

Question 4

(a) Write short accounts of any five (5) listed ingredients/components in bread making,

- (i) Sugars [2 Marks]
- (ii) Enzymes [2 Marks]
- (iii) Fat [2 Marks]
- (iv) Yeast nutrients [2 Marks]
- (v) Vitamins [2 Marks]
- (vi) Dough improvers [2 Marks]
- (vii) Biological preservatives [2 Marks]
- (viii) Emulsifiers [2 Marks]
- (ix) Gluten [2 Marks]

(b) What are the factors that influence growth of *Sacharomyces cerevisiae* during fermentation of bread? [5 Marks]

(c) What are the major differences between Staling and Biological spoilage in bread? [10 Marks]

Questions 5

- (a) The four distinct stages of manufacture of beer are Malting, Mashing, Fermentation and Post-Fermentation. Discuss the role of these stages with respect to their contribution to the quality of the end product (beer). **[20 Marks]**
- (b) What are the main differences between an ale and lager beer? **[5 Marks]**