

ASSESSMENT THE QUALITY AND SAFETY SYSTEM OF KIDNEY PATIENTS MEALS

By

HALA KAMEL GOMAA AHMED

B. Sc. Agric. Sc. (Food Science and Technology), Ain Shams University, 1992

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This thesis for M. Sc. degree has been approved by:

Dr. Abd El-Rahman Mohamed Khalf-allah

Prof. Emeritus of Food Science and Technology, Faculty of
Agriculture, Cairo University

Dr. Nagwa Mousa Hassan Rasmy

Prof. Emeritus of Food Science and Technology, Faculty of
Agriculture, Ain Shams University

Dr. El-Sayed Ibrahim Yousif Abou El-Seoud

Prof. of Food Science and Technology, Faculty of Agriculture, Ain
Shams University

Date of Examination 15/9/ 2013

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B. Sc. Agric. Sc. (Food Science and Technology), Ain Shams University, 1992

Under the Supervision of:

Dr. El-Sayed Ibrahim Yousif Abou El-Seoud

Prof. of Food Science and Technology, Department of Food Science,
Faculty of Agriculture, Ain Shams University (Principal Supervisor)

Dr. Ihab Salah Abd el-Hamid Ashoush

Associate Prof. of Food Science and Technology, Department of Food
Science, Faculty of Agriculture, Ain Shams University

Dr. Ashraf Abd el-Majid Donia

Prof. of Nephrology and Transplantation. National Institute of
Nephrology, Cairo, Egypt

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LIST OF ABBREVIATIONS

CM	MacConkey Agar
CCPs	critical control points
CAC	Codex Alimentarius Commission
CCP	Critical Control Point
°C	Centigrade degree
CDA	Conjugated diene
cfu	Colony forming unit
Cm ³	Cubic centimetre(s)
CTA	Conjugated triene
FAO	Food and Agriculture Organization of the United Nations
FDA	Food and Drug Administration (USA)
GAP	Good Agriculture Practices
GHP	Good Hygienic Practices
GMP	Good Manufacturing Practices
GTP	Good Transport Practices
GSP	Good Transport Practices
HACCP	hazard analysis critical control point
ICMSF	International Commission for Microbiology Specification of Food
ISO	International Organization for Standardisation
IDS	Total Dissolved Solids
Meq/kg	Milliequivalents of peroxide per kilogram of oil
NACMCF	National Advisory Committee on Microbiological Criteria for Foods
PDA	Potato dextrose agar
PRP	Prerequisite Programme
RTE	Ready to eat foods
SOP	Standard Operating Procedures
SSOP	Sanitation Standard Operational Procedures
WHO	World Health Organization
WTO	World Trade Organization

ABSTRACT

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There are many concerns about the sanitation practices used in the preparation of the foods and the occurrence of the gastrointestinal illness affecting mainly peoples who eating in hospital. Therefore, the purpose of this study was to determine the microbiological quality of meals preparing during summer and winter season in the hospital kitchen of the National Institute of Urology & Nephrology. Flow diagrams and microbiological testing of samples collected along the production line and swabs from surfaces, swabs hand of workers, utensils and equipments were used as indicator to meals safety in this work.

The results showed that, 50% of work surfaces were not cleaned between uses, 50%also utensils and equipment were not cleaned between uses (50%), 52% of Kitchen garbage cans in kitchen were not cleaned and kept covered of record daily checklist.

About the knowledge's of cross contamination it could be reported that, around 20% of chefs were used wooden cutting boards to cutting raw chicken only and plastic board to cutting vegetables and fruits. In the other hand, 30% of chefs were used only plastic cutting boards to cutting raw chicken, vegetables and fruits. A 25% used cutting boards after washed them with detergent and hot water, while about 5% of chefs wash different boards by hot water only.

The total aerobic colony counts in tap water sample obtained from hospital kitchen were 2.89 and 1.95 log cfu/ml in summer and winter, respectively. While coliforms, *E. coli*, *S.aureus* and *Salmonella* cells were not detected in the examined tap water samples. On the other hand, total aerobic colony counts in air samples obtained from room storage in

hospital kitchen were 2.11 and 2.02 log cfu/cm³ in summer and winter, respectively in room storage.

The results of the swabs taken from the work surfaces (tables, blastic cutting and wooden cutting) showed a total aerobic bacteria colony count, yeast and mold, *E. coli*, coliform and *S. aureus* of (3.67, 4.30 and 6.76) , (2.63, 2.95 and 3.13) , (1.01, 1.25 and 1.24), (1.53, 1.67 and 1.79) and (2.02, 2.89 and 3.32 log cfu/cm²) respectively in summer season, while less counts of microorganisms were observed in winter season.

Spore forming bacteria counts were 2.45 and 1.53 log cfu/g in cucumber and tomatoes raw material, respectively in winter, while, it was 2.64 and 2.08 log cfu/g in flour and spices raw material, respectively. *E. coli* was detected in the range of 1.0 to 1.4 log cfu/g for both frozen chicken and cucumber raw materials during processing in kitchen in winter season, while, it was in 1.0 to 1.9 log cfu/g in summer season.

The aerobic colony counts were recorded 3.62, 2.89, 2.43, 2.91, 3.71, 2.69 and 2.87 log cfu/g for rice with thin-pasta , chicken roasted, chicken pane, macaroni roasted, vegetable salad, vegetable beans and fruits, respectively, in summer season ready to eat (RTE) food, whereas aerobic colony count in fresh vegetable salad (Cucumber) was increased from 6.56 log cfu/g to 6.82 log cfu/g in kitchen in winter season, and from 6.67 log cfu/g to 6.95 log cfu/g in kitchen in summer season. Salmonella was not detected in any tested samples in kitchen during winter season but detected in summer. Fresh samples in kitchen at were reported *E. coli* count 1.54 and 1.64 log cfu/g , coliform 2.43 and 2.98 log cfu/g and *S. aureus* count were 1.21 and 2.62 log cfu/g in kitchen during winter and summer seasons respectively.

The counts of Coliform bacteria were found in thin-pasta and rice after cooking, were 1.37 and 1.14 log cfu/g in kitchen in winter season.

A documented training in personal hygiene, good manufacturing practices (GMPs), cleaning and sanitation procedures and personal safety in addition to the rearrangement in the infrastructure of this hospital kitchen could improve yet more the microbial quality of the meals served.

Keywords: Food safety, HACCP, Microbiological food quality, Hospital kitchen, ready to eat (RTE) foods, cross-contamination, risk of (Biological, Chemical and physical).

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