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MICROBIOLOGICAL QUALITY OF SOME CHEESE VARIETIES SOLD IN MARKETS

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LIST OF ABBREVIATIONS

APHA	American Public Health Association
CFU	Cell Forming Unit
CHP	Center For Health Protection
CPS	Coagulase Positive Staphylococci
<i>E. coil</i>	<i>Escherichia coli</i>
ECDC	European Center for Disease Prevention and Control
EFSA	Egyptian Food Safety Authority
EOSQ	Egyptian Organization for Standardization and Quality Control
FAO	Food and Agriculture Organization of United Nations
FDA	Food and Drug Administration
FSIS/USDA	Food Safety and Inspection Service, United States Department of Agriculture
HACCP	Hazard Analysis of Critical Control Point
ICMSF	International Commission on Microbiological Specifications for Food
IDFA	International Dairy Food Association
ISO	International Organization for Standardization
LAB	Lactic Acid Bacteria
MPN	Most Probable Number
M.O	Micro Organism
SEs	Staphylococcal Enterotoxins
<i>Staph. aureus</i>	<i>Staphylococcus aureus</i>
WHO	World Health Organization

7. SUMMARY

A total of 180 samples of commercial locally manufactured cheese brand of different varieties 30 samples of each (raw Kareish cheese, pasteurized Kareish cheese, tetra pack Feta cheese, unpacked Feta cheese ,Mozzarella shreds and Mozzarella blocks) are collected for microbiological evaluation of samples for *Staphylococcus aureus*, coliform, E.coli, Salmonella, *Listeria monocytogenes*, mould and yeast the results summarized as follow:

7.1 Total *Staphylococcus aureus* count

The results revealed presence of *Staph. aureus* in raw Kareish , Feta unpack and Mozzarella shreds with incidence of 73.3, 16.7and 23.3% with mean \log_{10} count values 2.94 ± 0.16 , 1.57 ± 0.13 and $1.75 \pm 0.08 \log_{10}$ cfu/g, respectively. While, it has been failed to detect *Staph. aureus* in the examined samples of pasteurized Kareish, Feta tetra pack and Mozzarella blocks.

7.2. Total coliform count

Total coliform counts of the examined raw kareish samples recorded higher contamination with incidence 100% than pasteurized Kareish 10% while incidence in Feta tetra pack (6.7%), Feta unpack (23.3%), Mozzarella shreds (40%), with mean \log_{10} cfu/g count values of 3.93 ± 0.18 , 0.31 ± 0.05 , 1.24 ± 0.63 , 2.64 ± 0.35 , 1.79 ± 0.16 , respectively, but not detected in all examined samples of Mozzarella blocks.

5.3. Total *E.coli* count

Regarding to *E. coli* incidence in the examined cheese samples, raw kareish was the highest contaminated samples with incidence of (86.7%) followed by pasteurized Kareish (10%), then Feta unpack and mozzarella shreds have the same incidence (16.6%). The mean *E. coli* count values for raw Kareish, pasteurized Kareish, Feta unpack and

Mozzarella shreds results were 2.87 ± 0.15 , 0.30 ± 0.07 , 1.20 ± 0.06 and 0.53 ± 0.15 \log_{10} cfu/g, respectively.

5.4. Total mould and yeast count

Raw kareish samples were the highest contaminated samples with mould incidence of (100%) while incidence in pasteurized Kareish (10%), Feta tetra pack (26.7%), Feta unpack (70%) and Mozzarella shreds (14%), With mean value count 3.17 ± 0.14 , 1.16 ± 0.16 , 1.06 ± 0.06 , 2.08 ± 0.12 , 1.19 ± 0.06 \log_{10} cfu/g, respectively, but failed to be detected in all samples of Mozzarella blocks.

In respect to yeast in cheese samples the results revealed that raw Kareish cheese samples showed the highest incidence (100%) over pasteurized Kareish (13.3%), Feta tetra pack(6.7%),Feta unpack(70%), Mozzarella shreds(10%) and not detected in all samples of Mozzarella blocks. With mean \log_{10} count value for raw Kareish, pasteurized Kareish, Feta tetra pack, Feta unpack and Mozzarella shreds (3.14 ± 0.13), (1.10 ± 0.07), (1.00 ± 0.00), (1.78 ± 0.14) and (1.26 ± 0.00) \log_{10} cfu/g, respectively

5.5. Isolation of salmonella spp.

Concerning our microbiological analysis with 30 samples for each cheese type, the results revealed that *salmonella Spp.* were not detected in all examined cheese samples.

5.6. Isolation of *Listeria monocytogenes*

Concerning our microbiological analysis with 30 samples for each cheese type, the results revealed that *Listeria monocytogenes* were not detected in all examined cheese samples.