Studying the microbiological safety criteria and quality related problems of the traditional Kishk *Sa'eedi*

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Kishk Sa'eedi is an indigenous food that is part of the rich food heritage of Egypt. The name "Kishk" refers to a group of popular fermented dairy cereal mix products common to Egypt and the Middle East Within the framework of the European funded "AFTER" Project (African Food Tradition rEvisited by Research).
The natural microflora in Kishk Sa'eedi were studied and characterized. An inventory of both the technological flora (lactic acid bacteria) and pathogenic germs (*Salmonella sp., Listeria sp., Clostridium sp. Staphylococcus aureus coagulase positive, Brucella spp*, yeasts, and moulds) were analyzed in the final product.
During the microbiological analysis of raw materials and final product, lactic acid bacteria that could potentially act as starter cultures were isolated and identified. The isolates were identified using rep-PCR as *Lactobacilli acidophilus, Lb. helveticu, Lb. del. bulgaricus, Lb. del. Lactis, Lb casei, Lb. paracasei, Lb. plantarum, Lb. rhamnosus,*
Lb. brevis ,Lb. fermentum. The technological criteria (Stability of lyophilized, acidification, activity flavour development, antagonistic activities, slimy production, peptidase activity, antibiotic resistance and amines production) were determined for all isolates. Mixing cultures were selected to produce the second generation Kishk Sa'eedi.

Introduction

Kishk Sa'eedi is made from a combination of wheat with natural local fermented buttermilk, yoghourt or sour milk (Laban Zeeir). On completion of fermentation, the mixture is shaped and sun dried.
The production of fermented foods is based on the use of starter cultures. Recently, new starter cultures with an industrially important functionality are being developed. The starter culture can contribute to the microbial safety or offer one or more organoleptic, technological, nutritional, or health advantages. Examples are starter cultures that produce antimicrobial substances, sugar polymers, sweeteners, aromatic compounds, vitamins, or useful enzymes, or that have probiotic properties.
Traditionally Kishk Sa'eedi is still a very important part of the daily food in Upper Egypt. This product may have a very constant microbial content over time. In general, however, environmental conditions such as temperature, origin of the milk, processing and sanitary conditions, etc., might have a significant influence on the microbial composition of traditionally made Kishk Sa'eedi.

Materials and methods

Kishk Samples

A total of 75 samples were collected from Mania Governorate in Upper Egypt; the cultures were isolated only from samples having good sensory properties (34 samples); fermented milk (Laban Zeeir) (22), Dough (5), and final product (Kishk) (7).

Source	+	Number
Laban Zeeir	*Lc lactis ssp lactis, E. feacium, Lb. helveticus, Lb. acidophilus, Lb. delbrueckii ssp bulgaricus, Lb. delbrueckii ssp lactis, Lb. delbrueckii ssp delbrueckii, Lb. paracasei ssp paracasei, Lb rhamnosus Lb. plantarum* and *Lb. fermentum*	141
Kishk Sa'eedi	*Enterococcus faecium , E. faecalis, E. durans, Lb. brevis, Lb. fermentum*	46

RESULTS

Acidification rate of some selected strains isolated from Laban Zeeir

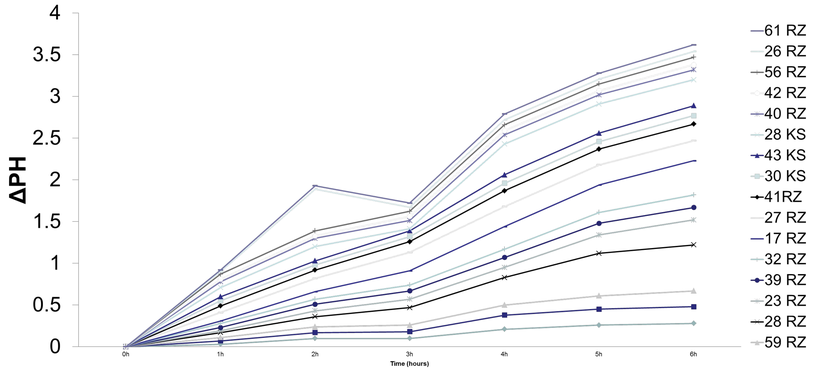

Table 1. Inventory of the technological flora and pathogenic germs of KS samples

Microorganismes-	SOP number	Variety/Treatment/Process/Raw material used					
		Laban Zeir BEITY *			BEITY KS**		
		Number of Samples	Mean Log_{10}	SD	Number of Samples	Mean	SD
Enumeration of microorganisms	Micro-01, ISO 4833	41	5.0	0.99	14	6.83	0.50
Enterobacteriaceae	Micro-02, ISO 21528-2	41	2.15	0.71	14		1.4
Escherichia coli	Micro-03, ISO 16649-2	41	0	0	14	0	-
Bacillus cereus	Micro-04, ISO 7932	41	0	0	14	0	-
Staphylococcus aureus and CPS	Micro-05, ISO 6888-1	41	One sample positive		14	0	-
Listeria monocytogenes	Micro-06, ISO 11290-1/A1:2004	41	0	0	14	0	-
Salmonella	Micro-07, ISO 6579:2002	41	0	0	14	0	-
Clostridium perfringens	Micro-08, ISO 7937	41	0	0	14	0	-
Yeasts and moulds	Micro-09, ISO 7954	41	5.30	0.93	14	5.17	1.35
Lactic acid bacteria	Micro-10, M-METH-MO-13	41	4.85	1.6	14	6.27	0.85

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