بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

MICROBIOLOGICAL AND CHEMICAL QUALITY OF ACTIVE DRY YEAST

By

ABDELRAHMAN SALEH ZAKY AHMED
B. Sc. Agric. Sci. (Biotechnology), Fac. Agric., Cairo Univ., Egypt, 2003

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Submitted in Partial Fulfillment of the
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In

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Department of Agric. Microbiology
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Cairo University
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APPROVAL SHEET

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SUPERVISION SHEET

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ABSTRACT

There is an increasing demand for baker's yeast to satisfy the needs of over growing population. This necessitates that efforts be made to ensure their hygienic suitability and functional quality. This study was, therefore, executed to monitor the microbial content of 9 different brands of active dry yeast (ADY) and the Egyptian compressed yeast. In this regard, the compressed yeast recorded the worst microbiological quality where all samples contained a massive amount of total and faecal coliforms as well as 50% of samples contained *salmonella*. On the other hand, ADY recorded better result as percentage of unacceptable samples; total coliforms (23.3%), faecal coliforms (17.8%) and *Salmonella* (4.4%).

The leavening ability of yeast depends on its viability and chemical composition. Concerning yeast cell viability, the compressed yeast revealed the highest viability (96.9%) while the viability of ADY brands ranged from 23 to 78.3%. All samples contained fair amounts of lipids and proteins while the intracellular trehalose - which generally believed to be a critical parameter for its resistance to stress such as drying - ranged from 7.89 to 28.8%.

The most important role of yeast in bread making is raising the dough to produce the characteristic loaf preferred by consumers. Therefore, evaluating the rising power (RP) and the main parameters affecting the RP includes; temperature, amount of yeast, salt and sugar concentrations were considered. Findings of this study recorded far difference in RP between the local and imported brands especially those from UK and China. Most brands required a specific temperature (35 or 40° C) to give the maximum RP while some brands gave almost the same RP value in wide range of temperatures. Results indicated a positive correlation between yeast amount and RP while a negative correlation between salt concentration and RP was occurred. Furthermore, adding sugar up to 1.5% to the dough did improve the RP of some brands by 25%.

It was rather interest to investigate the most efficient conditions for baker's yeast production. Thus, 4 strains of *Saccharomyces cerevisiae* were isolated from different commercial ADY. The Isolates were tested for five parameters including initial yeast level, molasses concentration, urea requirements, pH-value and agitation speed. The results recommend adjusting the cultivation molasses medium at 10% sugar with 0.15% urea at pH 5. The medium was then inoculated by the yeast strain to obtain the initial count of 10^3 cells / ml. Then the flasks were incubated in orbital shaker (150 rpm) at 30°C for 24 hours.

Key words: *Saccharomyces cerevisiae*, microbiological quality, viability, rising power, trehalose, baker's yeast production.

DEDICATION

I dedicate this work to ***my mother****, for all the care, passion and support she lovely offered along with my life, as well as to the soul of my spiritual father,* ***Prof. Moawad Zahra*** *for giving me an endless support and super trust.*

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Above all, thank to ***Allah*** *who kept and protected me alive for doing this work according to his plan and will.*

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