دراسة عن الفطريات المتواجدة في الجين والرئيد المصري

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تتميز الفطريات بقدر تها على تحليل الاختلافات المختلفة من ناحية احتياجاتها الغذائية وكذلك من حيث طريقة البيئة المحصصة بها. ولذا تأتي في دورها تربية الفطريات من مشاكل قادات منتخبات الإبان سواء عن طريق متاحته من نسادة المنتج، أو تكون نكهات غير مفيدة أو الأضرار بالمستهل.

لذلك أجريت تلك الدراسة على ثمانية نباتات مشروعة (أرخون من الجين ولبل من الجين)

جمع العينات من محفظة القاهرة والجيزة لعمل تصنيف واحد وتحديد بعضها من الفطريات.

وقد أظهرت النتائج أن نوعية الكثير والكثير في الفطريات في الحجار الواحد من الجين ممكن

Aspergillus, Penicillium, Cladosporium, Alternaria, Geotrichum, Mucor, Rhizopus and Absidia.

بينما على نفس الجين

Aspergillus and Penicillium

وقد تبين تصنيف ما في هذا النوع من الفطريات وجود الانتهاك الآتي في كل من الجين والرئيد

A. niger V. Tieghem, A. Fumigatus Fres., A. flavus Link, A. candidus Link

A. nidulans (Eidom) Wint

A. versicolor Trelleboch.

A. clavatus Desm. في الرئيد A. terreus Thom

A. terrestis Thom

كما حضرت هذه الأنواع من البصيل في كل من الجين والرئيد

P. verrucosum var. cyclopium, P. ver. verrucosum, P. chrysogenum,

P. citrinum and P. atraentosum.

P. griseofulvum, P. brevicompactum, P. camemberti

P. funiculosum, P. roqueforti, P. lilacinum, P. caseicolum and

P. sublateritium

وفي الجين فقط

وتتم مناطق النتائج تأثير الفطريات المفترسة على كل من المنتجات وكذلك من ناحية تأثيرهم على الصحة العامة والاشتراطات الصحية الناجمة تأثيرها في تصنيع المنتجات والرئيد، لتحسين نوعية حفاظا على المنتج من الفاسد وإنعكاس لصحة العامة.
Mycological Studies on Egyptian Soft Cheese and Cooking Butter

By

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SUMMARY

Eighty samples of Damietta cheese and cooking butter (40 samples each) were subjected to mycological examination. The total mould count/g, of Damietta cheese ranged between 100-1200 with a mean value of 537.50 ± 55.20. While in cooking butter the total mould count ranged between 300-1400, with a mean value of 552.50 ± 47.56. Moulds isolated from both Damietta cheese and cooking butter belonged to the following genera: Aspergillus, Penicillium, Cladosporium, Alternaria, Geotrichum, Mucor, Rhizopus, Absidia. Genus Fusarium could be isolated only from Damietta cheese.

Identification of isolated Aspergillus and Penicillium spp. revealed that A. niger, A. fumigatus, A. flavus, A. candidus and A. versicolor could be isolated from both Damietta cheese and cooking butter. While A. nidulans, and A. catavus could be isolated from Damietta cheese, and A. terreus from cooking butter. Penicillium species isolated from both Damietta cheese and cooking butter were P. verrucosum var. cyclopium; P. verrucosum var. verrucosum P. chrysogenum, P. citrinum, and P. atraemtoso, while P. griseofulvum, P. brevicompactum P. camemberti, P. funiculosum, P. roqueforti, P. lilacinum, P. caseicola and P. sublateritium could be isolated only from Damietta cheese. Suggested measures for improving the quality of the products are discussed.

INTRODUCTION

Mouldy foods and feeds may cause serious disease outbreaks in man and animals. Recently it is already known that at least about 250 different types of moulds form toxic substances to man and animals when grown in certain foods under favourable conditions.

In addition to the so called aflatoxins, other mycotoxins may be of great significance and producing food-borne illness in human beings. SERK-HANSEN (1970), EMOMOTO and SAIITO (1970), and DEGER (1976).

Moreover, various species of moulds play an important role in spoilage and discoloration of many dairy products such as cheese and butter FOSTER et al. (1958), HOSSEL (1975) and JAY (1978).

As Damietta cheese and cooking butter are among the most popular dairy products consumed in Egypt. Therefore, the aim of this investigation was undertaken to throw light on the rate of mould contamination of both products.

MATERIAL and METHODS

Eighty samples, 40 each of Damietta cheese and cooking butter were collected in sterile jars from different groceries in Cairo and its suburbs. Collected samples were immediately transferred to the laboratory for mycological examination.

Mould Count:

The technique adopted is that recommended by APHA (1978).

Preparation of serial dilution:

Eleven grams from the prepared cheese sample were thoroughly emulsified into 99 ml. of warm sod. citrate solution (2%) to have a dilution 1:10, from which 10-fold serial dilutions were prepared.

Similar decimal serial dilutions were made from already prepared butter sample. Duplicate plates of milt

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extract agar, were inoculated each with one ml. from each serial dilution before being incubated at 25°C. for 5
days. The average number of colonies per gram sample was calculated and registered. Suspected mould colonies
from both products, according to their morphological characteristics, were isolated to be identified according to
RAPER and FENNEL (1965) and SAMSON (1976) for the genus Aspergillus; RAPER and THOM (1949), ARX (1967), KULIK
(1968) and SAMSON et al. (1970) for genus Penicillium.

The other genera were identified according to ZYCHA et al. (1969) and BARNETT and HUNTER (1972). Results
obtained were recorded.

RESULTS and DISCUSSION

Results given in Table (1) reveal that the mould count/g. of examined samples of Damietta cheese ranges
from 100-1200, with a mean value of 537.50 ± 55.20. The highest frequency distribution of examined samples (72.5)
lies within the range 100-700 (Table 2).

Nearly similar findings were reported by ABD EL-RAHMAN (1972), JANTE et al. (1972) and SHELAIH (1979).

While increase of cooking butter the total mould count/g. sample varied from 300 to 1400, with a mean value
of 552.50 ± 47.56. The highest frequency percentage (52.5%) lies within the range 400-700 Table (2).

These findings substantiate what has been reported by MILONNOJA and BRIGIEZ (1965), MILONNOJA (1972) and
CANTON et al. (1975).

Incubation of cooking butter either genera of moulds could be identified. Geotrichum spp. were the most prevalent
(80%), while Alternaria spp. and Absidia spp. were the lowest (2.5%); Penicillium spp., Cladosporium spp.;
Aspergillus spp., Mucor spp. and Rhizopus spp. lies inbetween.

Nearly similar results were reported by KRISHNASWAMY (1949), PECEK and PETRICIC (1963), MILONNOJA & BRIGIEZ
(1965), and BHEET (1976).

The percentage distribution of isolated Aspergillus and Penicillium spp. from both products given in (Table
4) reveals that 7 and 6 different species of Aspergillus could be identified from both cheese and butter samples
respectively. While 13 and 5 different spp. of Penicillium from both products respectively.

It is worth mentioning that A. flavus, A. clavatus, A. nidulans, A. terreus and A. versicolor as well as P. cyclo-
podium and P. roqueforti are considered as mycotoxins producers MOSSEL (1975), FRAZIER and WESTHOFF (1978) and
BULLERMAN (1980).

The existence of moulds in nature under severe ecological environments as being able to withstand more unfa-
vable conditions than other microorganisms renders their destruction or elimination a serious problem encoun-
tered by food scientists, consequently perpetual investigations are continuously undertaken aiming to find new
methods and technology to save these products from being spoiled on the market, and to safeguard consumers from
being infected.

Educational programmes should be imposed to producers, processors and handlers to improve the quality of
these products.

REFERENCES

American Public Health Association (1978): Standard methods for the examination of dairy products, INCI, 14th
Ed. New York.
Bullerman, L.B. (1976): Examination of Swiss cheese for incidence of mycotoxin producing molds J. of food Sci.,
41, I.
WOULD AND DAIRY PRODUCTS


Table (1)
Statistical analytical results of mould count/g. sample

<table>
<thead>
<tr>
<th></th>
<th>Damietta cheese</th>
<th>Cooking butter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>100</td>
<td>300</td>
</tr>
<tr>
<td>Maximum</td>
<td>1200</td>
<td>1400</td>
</tr>
<tr>
<td>Mean</td>
<td>537.50</td>
<td>552.50</td>
</tr>
<tr>
<td>SE.M ±</td>
<td>55.20</td>
<td>47.56</td>
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Table (2)
Frequency distribution of examined samples based on their mould count/g.

<table>
<thead>
<tr>
<th>Range</th>
<th>Cheese No. of samples</th>
<th>Cheese %</th>
<th>Butter No. of samples</th>
<th>Butter %</th>
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</thead>
<tbody>
<tr>
<td>100 - 400</td>
<td>16</td>
<td>40.0</td>
<td>10</td>
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<tr>
<td>400 - 700</td>
<td>13</td>
<td>32.5</td>
<td>21</td>
<td>52.5</td>
</tr>
<tr>
<td>700 - 1000</td>
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<tr>
<td>1000 - 1300</td>
<td>9</td>
<td>22.5</td>
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<td>-</td>
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<tr>
<td>1300 - 1400</td>
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<td>3</td>
<td>7.5</td>
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Table (3)
Incidence of isolated moulds from examined samples

<table>
<thead>
<tr>
<th>isolate of mould</th>
<th>Cheese No. of samples</th>
<th>Cheese %</th>
<th>Butter No. of samples</th>
<th>Butter %</th>
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<tbody>
<tr>
<td>Aspergillus</td>
<td>27</td>
<td>67.5</td>
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<td>Pencillium</td>
<td>24</td>
<td>60.0</td>
<td>13</td>
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<tr>
<td>Cladosporium</td>
<td>12</td>
<td>30.0</td>
<td>9</td>
<td>22.5</td>
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<tr>
<td>Alternaria</td>
<td>5</td>
<td>12.5</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Geotrichium</td>
<td>3</td>
<td>7.5</td>
<td>32</td>
<td>80.0</td>
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<tr>
<td>Mucor</td>
<td>2</td>
<td>5.0</td>
<td>4</td>
<td>10.0</td>
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<td>Rhizopus</td>
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<td>Absidio</td>
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<td>2.5</td>
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<td>Fusarium</td>
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Table (4)
Frequency distribution of isolated Aspergillus and Penicillium spp.

<table>
<thead>
<tr>
<th>Isolates</th>
<th>Cheese No. of sample</th>
<th>Cheese %</th>
<th>Butter No. of sample</th>
<th>Butter %</th>
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<tr>
<td>A. niger</td>
<td>10</td>
<td>15.0</td>
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</tr>
<tr>
<td>A. fumigatus</td>
<td>10</td>
<td>25.0</td>
<td>1</td>
<td>2.5</td>
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<td>A. flavus</td>
<td>4</td>
<td>10.0</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>A. candidus</td>
<td>5</td>
<td>12.0</td>
<td>1</td>
<td>2.5</td>
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<td>2.5</td>
<td>-</td>
<td>-</td>
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<td>5.0</td>
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<td>-</td>
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<tr>
<td>A. terreus</td>
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<td>-</td>
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<td>2.5</td>
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<td>P. verrucosum var.</td>
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<td>11</td>
<td>27.5</td>
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<td>cyclopium</td>
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<tr>
<td>P. griseofulvum</td>
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<td>12.0</td>
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</tr>
<tr>
<td>P. chrysogenum</td>
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<td>5.0</td>
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<td>P. brevicompactum</td>
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<td>P. citrinum</td>
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<td>2.5</td>
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<tr>
<td>P. camemberti</td>
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<td>2.5</td>
<td>-</td>
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<tr>
<td>P. funiculosum</td>
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<td>P. roqueforti</td>
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<td>7.5</td>
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<tr>
<td>P. lilacinum</td>
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<td>5.0</td>
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<td>P. caseicolum</td>
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<td>P. sublateralium</td>
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