

*R & D + LABS TECHNOLOGY FOOD*

*CENTRES MAPPING ASSIGNMENT*

*MFTI - IMC - FEB. 05*

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## **INTRODUCTION**

*Scientific Research & Development in Egypt is a task that is distributed on 75 “isolated” Research Centre, administered by various entities:*

- *Ministry of High Education & Scientific Research (Universities of Cairo, Ein Shams, Alazhar, Alexandria, Menofiah, Zagazig, Canal, South Valley, Upper Egypt, etc...)*
- *Ministry of Agriculture & Land Reclamation*
- *Ministry of Health*
- *Ministry of Foreign Trade & Industry*
- *Ministry of Investments & Public Sector*
- *Ministry of Electricity & Power*
- *Ministry of Irrigation*

*The Food Production Sector in Egypt is faced with challenges related to upgrading Quality & Food Safety aspects as well as use of Modern processing techniques, environmentally friendly processing & packaging and coping with increased stringent import measures in Export markets.*

*These challenges require Technical Support from R & D Centre in Research, product development, training, upgrading, and problem solving as well as better service in Analysis & Lab tests.*

*MFTI has initiated a mapping assignment for R & D Centres & Labs to assess the existing food technology centres and institutions which can contribute to this task, to avoid duplicating existing services.*

*The Methodology used by the Consultant included:*

- 1) *Interviews & visits to various R & D Centres.*
- 2) *Collecting info. From Food Processors on the extent, quality and cost of services available.*
- 3) *Info. Available on Internet & other publication sources.*

**1) MINISTRY OF FOREIGN TRADE & INDUSTRY**  
**FOOD TECHNOLOGY CENTRE (FTC)**  
**BASATEEN ST., OFF CAIRO UNIVERSITY ST., GIZA**  
**TEL: 02-5711980**  
**FAX: 02-5712019**  
**DR. AHMED KHORSHID – DIRECTOR**  
**DR. REDA SUKKAR – DEPUTY DIRECTOR**

*FTC was established in 2001 and commenced its activities in MAY 2003 from its present “temporary” location at the Agricultural Research Centre in Giza, on loan from MALAR until a new permanent location is assigned in 6<sup>th</sup> October City or Fayium – currently FTC employs 15 technical expert out of 100 employees.*

**OBJECTIVES:**

- 1) Modernize food Industry Sectors by providing technical support & back up, specially to SME's.*
- 2) Upgrading Quality & Food Safety of foods to meet International Standards.*
- 3) Increase competitiveness of Egyptian food processors, both locally and Internationally and increasing exports.*
- 4) Establishing strategic alliances with Food Scientific Centres world wide.*
- 5) Innovation of new products with higher nutrition values, utilizing local ingredients.*

**FTC performs the following activities:**

- 1) Preparation of feasibility studies, technology transfer.*
- 2) Training courses on food quality (ISO) & Safety (HACCP) packaging also thru Video conferencing with Spain.*
- 3) Assistance in choosing and specifying the right processing equipment.*
- 4) Perform tests and Analysis for foods including Sensory Tests & Evaluation which is the only lab of its kind in Egypt.*
- 5) Provide info. & Data related to Standards and market requirements.*

- 6) *Provide Technical Advice to food processors (Molases / Dairy / Olive Oil).*
- 7) *Research studies on product development (Tigernuts).*
- 8) *Organizing Seminars, workshops and Exhibitions in all fields of food industries related activities.*
- 9) *Internet access base with International network with food processing websites for servicing of food processors.*
- 10) *Library with food publication, reference and publishing of an FTC magazine.*

**FTC**

<i>Departments</i>	<i>Research</i>			<i>Services</i>				<i>%</i>	
	<i>Basic (%)</i>	<i>Applied (%)</i>	<i>Main Research Subjects</i>	<i>Training</i>	<i>Analyses</i>	<i>Advice-assistance</i>	<i>Others</i>		<i>%</i>
<i>QUALITY ENVIRONMENT &amp; FOOD SAFETY</i>	-	-	-	50	-	30	20		100
<i>TRAINING</i>	-	-	-	100	-	-	-		100
<i>RESEARCH &amp; TECHNOLOGICAL DEVELOPMENT</i>		100	<i>New products</i>	40	20	20	20		100
<i>MEDIA &amp; PUBLIC RELATIONS</i>	-	-	-	20	20	20	40		100
<i>INFORMATION TECHNOLOGY</i>	-	-	--	20	20	30	30		100
<i>MARKETING</i>	-	-	-	20	20	20	40		
<i>LABORATORIES</i>	-	-	-	30	50	20	-		100

**LIST OF FTC CLIENTS (PRIVATE SECTOR)**

- 1) *HORRIYAH 2000*
  - 2) *GOLDEN FOODS*
  - 3) *MEATLAND*
  - 4) *NILE FRUIT PULP*
  - 5) *UNIFOOD*
  - 6) *FARM FRIETS*
  - 7) *NEW SALHIYAH*
  - 8) *FROSTY*
  - 9) *M.N.BELLA JUICE*
  - 10) *ASSEF FOODS*
  - 11) *OBOUR LAND DAIRY*
  - 12) *EL HELOW DAIRY*
  - 13) *EL EZZ DAIRY*
  - 14) *EL DOHA FOODS*
  - 15) *BARAKAH DAIRY*
  - 16) *DELTA SWEETS*
  - 17) *CROWN BISCUITS*
  - 18) *EXPRESS MEATS*
  - 19) *PRIMA FOODS*
  - 20) *UNITED SWEETS*
- (DIAGNOSTIC STUDIES FOR 66 FOODS PROCESSORS)*

## 2) NATIONAL DAIRY TRAINING CENTRE (NDTC)

MOSTAFA KAMEL ST., EL RAS ELSOUDAH  
ALEXANDRIA  
TEL: 03-5338661  
DIRECTOR ENG. MOHAMED ATEF ABDEL RAHMAN

*This centre was established in 1979 thru funding from FAO & DANIDA, basically to provide a hands on training programs covering all aspects of Dairy processing, starting from Milk Collection, Processing, Q.C, Hygiene, Packaging, Marketing and maintenance of Dairy Equipment.*

*NDTC received a further boost in 1983 from FAO when the regional Dairy training support team was relocated from ANKARA – TURKEY to NDTC.*

*NDTC is approved from the Ministry of High Education to give a 2 years diploma certificate in Dairy Technology.*

*NDTC is also closely linked with Misr Milk, which is the biggest Public Sector Dairy Processor in Egypt (currently under privatization) therefore it performs a high ratio of practical training to Misr Milk staff as well as other private dairies and expatriate students from neighboring M. East & Arab countries.*

*NDTC however does not deal in Research activities nor product development in view of its pure educational & training activities.*

*NDTC is suffering from deteriorated facilities, out dated model lines mainly due to shortage of finance, as Misr Milk is being privatized in under strict finance controls.*

*NDTC needs upgrading of its training, library and pilot plant facilities.*

**3) MINISTRY OF AGRIC.  
AGRIC. RESEARCH CENTRE  
FOOD TECHNOLOGY RESEARCH INSTITUTE (FTRI)  
9 CAIRO UNIVERSITY ST., GIZA  
TEL: 02-5718328  
FAX: 02-5684669  
DR. SAEED MANSOUR – DIRECTOR**

*FTRI was established in 1992 by the Agricultural Research Centre to later for Research & Development of food products – it employees 1800 spread over its head office in Giza and 4 field stations in Assiut, Alexandria (El Sabahiyah), Mansourah and Sakha.*

**ACTIVITIES:**

- *Conducting applied and academic research in the field of food processing with optimum and efficient use of food.*
- *Increasing the value innovation of processed foods for export.*
- *Preparing feasibility studies for food processing projects .*
- *Utilizing the agricultural wastes to keep clean environment .*
- *Transferring the means of the quality control and food safety for producers .*
- *Production of untraditional foods.*
- *Reducing the losses during food processing .*
- *Increasing export by participation in the solving of national problems.*

**RESEARCH PROGRAMS:**

*Fortification of wheat flour with Iron:*

- *Ministry of Supply and Internal Trade.*
- *Ministry of Health & Population .*

*Utilization of peanut in value-added products for Egyptian consumers:*

- *Georgia Univ., U.S.A .*

*Promote olive oil processing:*

- *National Agriculture Research Project (NARP).*

*Production of tomato powder by solar energy:*

*Academy of Scientific Research.*

*Utilization of American Hard white wheat in Egyptian bakery products:  
- Kansas state Univ., U.S.A.*

*Production of natural colours from agricultural wastes :  
- Academy of Scientific Research*

### **ON GOING PROJECTS :**

*Development of food consumption monitoring system for Egypt :  
- California Univ., U.S.A.*

*Transfer of technology for making plastic film for packing fruits and  
vegetables : Korean Food Technology Research Institute*

*Street foods : FAO*

*Food Safety : Ainia center, Spain .*

### **PRESENT WORK OF THE INSTITUTE:**

*Participation in solving some national problems by conducting applied  
researches which has an economical value, by :-*

*- Improving the competition capacity of the self sufficient products  
to increase its economical income.*

*- Participation in achieving self sufficiency and minimizing the  
importation of some products (sugar, oils, wheat).*

*Improving the industrial pilot plants to be parallel with the food  
processing modernization program (by modernization of equipment,  
application of food safety systems, food labeling and food packaging ) .*

*Utilization of industrial wastes to add value or to keep the  
environment clean .*

*Production of safe and useful feeding products from natural  
sources which could be used in food processing instead of artificial ones.*

*Providing the youth with all facilities and guidance to establish  
projects in the field of food technology .*

*Training courses for youth in the field of food Processing  
(cooperation protocol with social funds ) .*

*Training course in mushroom production (8000 trainees,1500 small projects ).*

*Training courses in the field of food processing, food analysis, and food safety for food technologists.*

*Nutrition education for household (free of charge).*

*Internal training programs for the institute staff (new food processing applications, English language, and computer courses).*

*Preparing brochures in the field of food processing.*

**LIST OF FOOD PROCESSING & EXPORTERS CO.**  
**WHO USE FTRI SERVICES 2004-2005**

- 1) DREEM FOODS
- 2) NADA EXPORTS
- 3) MONGINI BAKERIES
- 4) ELRABIE POULTRY
- 5) AQUA TECK
- 6) ELTAHAN GROUP
- 7) FAMILYN NUTRITION
- 8) NESTLE
- 9) SYNGIDA
- 10) NEW FARMA
- 11) MASS FOODS
- 12) UNITED FOODS
- 13) GOLDEN STATE FOODS
- 14) RAW MATERIALS FOR FOODS
- 15) GREEN VALLEY FOODS
- 16) W.H.D PYRAMIDS
- 17) ADVANCED FOODS - FARAGALLAH
- 18) EL WADI
- 19) MO'MEN FOODS
- 20) EL KHATATBAH
- 21) CFI
- 22) Mc DONALDS
- 23) VIVA
- 24) EASTERN CO.
- 25) HOSTESS
- 26) ARAB FOODS
- 27) EL RABI
- 28) SADAT MILLS
- 29) HOT PAPPER CO.
- 30) HELOW EL SHAM
- 31) SPECIAL FOODS
- 32) EL MASRY PASTA

**MINISTRY OF AGRICULTURE AGRI RESEARCH INSTITUTE**  
**FOOD TECHNOLOGY RESEARCH INSITUTE (FTRI)**

Departments or others	Research		Services					%	%
	Basic (%)	Applied (%)	Main Research Subjects	Training	Analyses	Advice – assistance	Others		
<b>Bread and Pasta</b>	0	70	<ul style="list-style-type: none"> <li>▪ Technological aptitudes of cereals</li> <li>▪ Bread-making technology (balady bread)</li> <li>▪ Wheat substitution (maize, ...)</li> <li>▪ Enhancement of the nutritional value of products</li> </ul>	<ul style="list-style-type: none"> <li>▪ In-house FTRI</li> <li>▪ “young graduates”</li> </ul>	<ul style="list-style-type: none"> <li>▪ 20 mills</li> <li>▪ 20 pasta companies</li> <li>▪ 5 snack companies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Companies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Information to companies</li> </ul>	30	100
<b>Fish and Meat</b>	10	80	<ul style="list-style-type: none"> <li>▪ Utilization of meat substitute</li> <li>▪ Valorization of meat co-products</li> <li>▪ Increased shelf life of meat (smoking, curing, ...)</li> <li>▪ Valorization of unused fish and seafood</li> <li>▪ Processing technology for sea products</li> </ul>	<ul style="list-style-type: none"> <li>▪ In-house FTRI</li> <li>▪ “young graduates”</li> <li>▪ Companies</li> </ul>			<ul style="list-style-type: none"> <li>▪ Information to companies (50 cases/year)</li> </ul>	10	100
<b>Horticultural Crops</b>	10	80	<ul style="list-style-type: none"> <li>▪ Preservation method</li> <li>▪ Designing a solar drying oven</li> <li>▪ Utilization of natural colouring agents</li> <li>▪ Valorization of co-products</li> </ul>			<ul style="list-style-type: none"> <li>▪ Processing activity in farms (through agricultural transfer centres)</li> </ul>		10	100
<b>Field Crops</b>	80	20	<ul style="list-style-type: none"> <li>▪ Chemical and technological assessment of cereals (with the A.R.C . Field Crops Research Institute)</li> <li>▪ Valorization of by-products</li> <li>▪ Nutritional assessment of cereals</li> </ul>					0	100

#### **4) FOOD DEVELOPMENT CENTER (FDC)**

*KAHA – QALIOBYAH  
P.O.BOX: 13743 – KAHA  
TEL: (013) 2600383  
FAX: (013) 2600384  
FDC DIRECTOR: ENG. OSAMA ABELSALAM*

*This centre was established by the Ministry Of Public Sector in 1985 with support from UNIDO, it is currently under the administration of the Food Industries Holding Co. (FIHC) which is under the Ministry Of Investment & Public Sector.*

*The centre employs 56 persons and its main goal was to provide technical support to the Food Processors in the Public Sector, basically: Kaha (which is adjacent to the centre), Edfina, Bisco Misr and the 15 edible oil public sector processors (Cairo Oil, Tanta Oil, Alex. Oil, Nile Oil etc..).*

*FDC has 4 main activities:*

##### ***1) TRAINING:***

*\*\*\*\*\**

*Holding training courses in the field of chemical&Microbiological Analysis of water, raw materials and finished products, and inspection of tinline, Lacquer and flexible packaging materials (FDC has training and conference rooms)*

##### ***2- QUALITY CONTROL:***

*\*\*\*\*\**

*Carrying out quality control for raw materials and finished products for the food industry companies.*

##### **3. RESEARCH AND DEVELOPMENT:**

*For improving quality products, developing new products and assisting in solving problems of quality control by using equipments of the pilot plant of fruits and vegetables processing - oil and fat processing and bakery product processing.*

*The library of the centre has a good reference for food and packaging analysis and also for food industries processing.*

**4-INSPECTION OF IMPORTED AND EXPORTED PRODUCTS:**

*Analysis of imported and exported products according to the national and international standards.*

***FDC building at Kaha has the following Model facilities:***

**1) The Oil & Fat Processing facility:**

*Which includes a Bleacher, Neutralizer, Purifier, Deodorizer and Hydrogenation Units.*

**2) The Frozen Vegetables & Fruits facility:**

*Includes a model line for washing, peeling, dicing, slicing, blanching freezing and jar filling & sealing lines.*

**3) Bakery products facility:**

*Which includes several types of Mixers, Dough Sheeters, moulding, forming and baking lines.*

**4) Packaging Material Testing Facility:**

*Includes testing instruments for tear, friction & permeability of flexible and tin packaging materials.*

*All above labs require accreditation.*

*FDC is equipped with Chemical & Microbiological testing Labs which performs Analysis & tests for food processors, Public, Private & Investment Sectors.*

*(A list of the clients and the cost of Analysis is enclosed).*

**Examples of Technical Assistance:**

*FDC has helped Oil & Fat processors solve problems in formulating blends of Edible Vegetable oils, solve problems in oil color, flavors and treatment of cotton oil to remove toxic materials, also finding alternate local bleaching materials to replace imported ones.*

*FDC has also helped Bakery factories to develop new products and improve Quality Control – also helped EDFINA solve problems in Lacquer for tin cans.*

*FDC has a library which researchers & trainees can use and an equipped training hall to perform training courses on improving quality (ISO) processing of Oil, Fats, Jam, Juice, Frozen Vegetables, Bakery products, Caning & Packaging at nominal fees.*

**LIST OF LAB ANALYSIS SERVICE COST AT FDC**

<i>WATER ANALYSIS</i>	<i>45 LE FOR EACH ELEMENT</i>
<i>OIL &amp; FATS</i>	<i>45 LE FOR EACH TEST</i>
<i>FATTY ACID ANALYSIS</i>	<i>100 LE</i>
<i>HPLC</i>	<i>75 LE</i>
<i>MICROBIOLOGY</i>	<i>35-60 LE</i>
<i>SALMONELA TEST</i>	<i>100 LE</i>
<i>MECHANICAL INSTRON TEST</i>	<i>45 LE</i>
<i>TISSUE STRENGTH TEST</i>	<i>45 LE</i>
<i>(MATURITY IN VEG. &amp; FRUITS)</i>	

**LIST OF CLIENTS OF KAHA FTC**

<b><i>PRIVATE SECTOR + INVESTMENT</i></b>	<b>PUBLIC SECTOR</b>
<b><i>FINE FOODS</i></b>	<b><i>KAHA</i></b>
<b><i>ARMA</i></b>	<b><i>EDFINA</i></b>
<b><i>MIGOB – SAFOLA</i></b>	<b><i>MISR MILK</i></b>
<b><i>NATIONAL OIL</i></b>	<b><i>BISCO MISR</i></b>
<b><i>EL FARIS OIL</i></b>	<b><i>TANTA OIL</i></b>
<b><i>FAMILY NUTRITION</i></b>	<b><i>CAIRO OIL</i></b>
<b><i>CHIPSY</i></b>	<b><i>ALEXANDRIA OIL</i></b>
<b><i>LION</i></b>	<b><i>NILE OIL</i></b>
<b><i>NANAEIYAH DEHYDRATED ONIONS</i></b>	<b><i>15 OIL SECTOR FACTORIES</i></b>
<b><i>BARAKAH WATER</i></b>	
<b><i>EL FARDOUS WATER</i></b>	
<b><i>MINERAL WATER</i></b>	
<b><i>MONTANA FROZEN VEGETABLES</i></b>	
<b><i>AGA</i></b>	
<b><i>ROASTY</i></b>	
<b><i>FRESH FOODS</i></b>	
<b><i>FARM FRESH</i></b>	

**MINISTRY OF INVESTMENT – PUBLIC SECTOR FOOD INDUSTRY HOLDING CO.**  
**FOOD DEVELOPMENT CENTRE (FDC) KAHA - QALIOBIYAH**

<i>Departments</i>	<i>Research</i>			<i>Services</i>				<i>%</i>
	<i>Basic (%)</i>	<i>Applied (%)</i>	<i>Main Research Subjects</i>	<i>Training</i>	<i>Analyses</i>	<i>Advice-assistance</i>	<i>Others</i>	
<b><u>TRAINING</u></b>	20	80	<i>Chemical &amp; Microbiological Analysis of Foods, Water &amp; Packaging</i>	70	30	-	-	
<i>QUALITY CONTROL</i>	10	90	<i>Q.C for raw materials &amp; finished products for food industry</i>	70	-	20	<i>Plant Visitors 10</i>	
<i>RESEARCH &amp; DEVELOPMENT</i>	20	80	<i>Improving Quality new product development solving problems</i>	10	20	70	-	
<i>INSPICTION OF IMPORTED &amp; EXPORTED FOOD</i>	0	100	<i>Inspection of imported &amp; exported foods</i>	-	95	5	-	



## **5- OTHER INSTITUTIONS:**

*The following institution also provide services & support to the Food Processing Sector in Egypt.*

### **A) Alexandria:**

*A-1 HIGH INSTITUTE OF PUBLIC HEALTH (HIPH)*

*UNIVERSITY OF ALEXANDRIA*

*EL HADARAH, ALEX.*

*TEL: 03-4260931*

*FAX: 03-4260929*

*DR. HANAA ISMAEL*

*HIPH was established in 1997 to provide linkage with public Health & utilities departments, Academic research and applied services to food processors, importers & exporters as well as training of post graduates.*

*HIPH provides Analysis tests for water, Environment, Heavy Metals, Toxins, Pesticides, Chemical & Microbiological Tests, thru the Central Lab as well as training courses on Nutrition, Food Hygiene, HACCP and occupational exposure of workers in various industries.*

*The majority of HIPH work is academic but with funding from projects with USAID – Aleb & British Council has resulted in increased services to food processors.*

**A-2 MUBARAK CITY FOR SCIENTIFIC RESEARCH &  
TECHNOLOGICAL APPLICATIONS (MUSCAT)  
BORG EL ARAB CITY, ALEXANDRIA  
TEL: 03-34593422  
FAX: 03-34593423  
DR. MEDHAT SIEF EL NASR**

*The City was established in 2000 to spear head Egypt's Technological entrance to the new Millennium.*

*The City houses ultramodern Labs for Scientific and applied application research in various fields such as Food Processing, Genetic Engineering, Electronics, Software, IT, Water Treatment, among other activities.*

*Muscat's Labs provides Tests & Analysis of food & water to many food processors in Borg El Arab and Alexandria region.*

**A-3 EGYPTIAN ENVIROMENTAL RESEARCH & STUDIES (ERS)  
CONCORD BUILDING, MENCHIAH, ALEXANDRIA  
TEL: 03-4808300  
FAX: 03-4809200  
DR. MOHAMED MEHREM**

*This CO. provides competitive water tests & element analysis in Alexandria to food processors and packaging stations of fresh produce for export.*

**B) CAIRO – GIZA:**

**B-1 MINISTRY OF AGRICULTURE**

**CENTRAL LAB FOR RESIDUAL ANALYSIS OF PESTICIDES**

**7 NADI EL SEID ST.M, DOKKI, GIZA**

**TEL: 02-7601395 – 7611355**

**FAX: 02-7611216 – 7611106**

**DR. MOHAMED EL ELIMEY**

*This Lab is the only internationally accredited Lab in Egypt so far, with equipment supplied thru a grant from Finland and has recently failed the annual Audit but regained its accreditation in Jan. 2005.*

*The Lab provides accurate measuring of the residual effect of pesticides in foods, which is a requirement for exporting fresh & processed Agrifoods to EU & USA.*

**B-2 CENTRAL LAB FOR FOOD & ANIMAL FEED**

**NADI EL SIED ST., DOKKI, GIZA**

**TEL: 02-4592536**

**DR. AKILAH SALEH**

*This Lab was established in 1980 thru a Danish grant and is the first of its kind in M. East, providing Animal feed formula research & development to ensure a safe Animal feed which translates into safer Animal protein source for food processing .*

*The Lab employes 360 staff and has received its ISO / IEC 17025 Certifications in 2003.*

*The Lab is the only one providing accurate Aflatoxin tests in Egypt.*

*B-3 ANIMAL HEALTH RESEARCH CENTRE  
BASATEEN ST., GIZA*

*Provides Chemicals & Microbiological Analysis services for food processors, specially in Animal proteins (Meat, Poultry & Fish) – at 200 LE/test.*

*The centre has branches in Tanta & Behirah.*

*B-4 MINISTRY OF ELECTRICITY & POWER  
ATOMIC ENERGY AUTHORITY  
NATIONAL CENTRE FOR  
RADIATION RESEARCH & TECHNOLOGY  
BIOTECH DIV. – MICROBIOLOGY DEPT.*

*NASR CITY, HELIOPOLIS, CAIRO*

*This Lab provides food processors with:*

- 1) Gama Radiation Services for cold pasteurization of foods, specially Herbs & Seeds exported.*
- 2) A Microbiological Lab provides Analysis for foods.*

*A branch in Tiebeen, Helwan is also providing water Analysis.*

## **6- CONCLUSION:**

*Based on the info. Obtained in the mapping survey, the following comments can be made:*

*1) There is some dreplication in some of the Services supplied by various R & D Centre surveyed, such as Chemical & Microbiological Analysis (10) also Training Courses on quality (4).*

*While some tests are not performed, except in one Centre such as Sensory evaluation (FTC) and Aflatoxin (Animal feed Lab).*

*2) All R & D Centres Lab facilities need accreditation to avoid conflicting data given to clients and for results to be accepted worldwide.*

*3) FTC seems to be well prepared to launch a high caliber training program with support from Spain (Ainia).*

*4) FTRI is more into applied food research than any centre surveyed.*

*5) FDC – KAHA is focused mainly on Public Sector Processors support, but in view of privatization program will soon end up with a 100% private sector clients specially in the Delta Area – it does have a potential in specific areas – like edible oil & packaging test.*

*6) The Dairy Centre in Alexandria is mainly focusing on training for diploma certification than R & D, therefore FTC support to Dairy firms is well received also due to geographical spread.*

*7) FTRI & FTC stand out among all other R & D Centres being mainly focused on foods.*

## **STRENGTH & WEAKNES OF EGYPTIAN R & D CENTRES**

### **STRENGTH:**

- 1) *Solid base of qualified academic staff is all centres and in all fields of food processing.*
- 2) *Affordable Services.*
- 3) *Good geographical Spread in Cairo, Heliopolis, Giza, Helwan, Alexandria, Borg El Arab, Tanta, Kaha, Mansourah, Suez Canal, except for South of Egypt.*

### **WEAKNESS:**

- 1) *Diversified Administrative supervision between several Ministries – needs higher coordination to avoid duplication of services.*
- 2) *Shortage of funds for Media, modern equipment and International linkage is a major weakness expect for FTC.*
- 3) *Lack of confidence from private sector food processors in disclosing their problems to centres staff due to the official nature of the majority of these centres (confidentiality factor) as well as inaccuracy of tests which is sometimes related to sample talking methods.*
- 4) *Lack of International accreditation of Labs.*
- 5) *Professional jealousy is detected between some R & D Centres staff and is sometimes hampering private sector use of such facilities.*

University of Alexandria  
High Institute of Public Health  
Prof. Mohamed El Amine Laboratory  
(Central Laboratory Unit)

**Prices for Analysis of Water**

<b><i>Analysis</i></b>	<b><i>Price</i></b>
<i>Chlorides</i>	<i>100 LE</i>
<i>Sulphate</i>	<i>100 LE</i>
<i>Benzene</i>	<i>100 LE</i>
<i>Toluene</i>	<i>100 LE</i>
<i>Ethyl benzene</i>	<i>100 LE</i>
<i>Styrene</i>	<i>100 LE</i>
<i>Xylene</i>	<i>100 LE</i>
<i>CTC</i>	<i>100 LE</i>
<i>Dichloromethane</i>	<i>100 LE</i>
<i>Chloroethane</i>	<i>100 LE</i>
<i>Chlorine</i>	<i>100 LE</i>
<i>Cyanide</i>	<i>100 LE</i>
<i>Bromate</i>	<i>100 LE</i>
<i>Chlorite</i>	<i>100 LE</i>
<i>Chlorophenol</i>	<i>100 LE</i>
<i>Formal</i>	<i>100 LE</i>
<i>Acrylamide</i>	<i>100 LE</i>
<i>Epidchlorohydrin</i>	<i>100 LE</i>
<i>EDTA</i>	<i>100 LE</i>
<i>Monochloroamine</i>	<i>100 LE</i>
<i>Nitrate</i>	<i>100 LE</i>
<i>Nitrite</i>	<i>100 LE</i>
<i>Polyaromatic hydrocarbons</i>	<i>100 LE</i>
<i>Benzopyrene</i>	<i>100 LE</i>
<i>Pesticides</i>	<i>100 LE</i>

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**Types of Pesticides analyzed in our Central Lab and Prices.**

<b><i>Pesticides</i></b>	<b><i>Price</i></b>
<i>Organophosphorus</i>	<i>100 LE</i>
<i>Organochlorine</i>	<i>100 LE</i>
<i>Carborhyl</i>	<i>100 LE</i>
<i>Lindan</i>	<i>100 LE</i>
<i>Atdrin</i>	<i>100 LE</i>
<i>Fungicides</i>	<i>100 LE</i>
<i>Herbicides</i>	<i>100 LE</i>
<i>Methyl bromides</i>	<i>100 LE</i>
<i>Phosphine</i>	<i>100 LE</i>
<i>Bromine</i>	<i>100 LE</i>
<i>Fumigancs</i>	<i>100 LE</i>
<i>Et. Chiorohydrin</i>	<i>100 LE</i>

**Other Prices of Contaminants**

<b><i>Contaminant</i></b>	<b><i>Price</i></b>
<i>Polyaromatic hydrocarbons</i>	<i>100 LE</i>
<i>Solvent residues</i>	<i>100 LE</i>
<i>Dioxin</i>	<i>100 LE</i>
<b><i>Taints:</i></b>	
<i>Halophenol</i>	<i>100 LE</i>
<i>Anisol</i>	<i>100 LE</i>
<i>Indol</i>	<i>100 LE</i>
<b><i>Biogenic amines:</i></b>	
<i>Histamine</i>	<i>100 LE</i>
<i>Tyramine</i>	<i>100 LE</i>
<i>Thermal heating oils</i>	<i>100 LE</i>
<i>Aromatic fatty acids</i>	<i>100 LE</i>
<i>Dialkyl keton</i>	<i>100 LE</i>
<i>Transport cross contaminant</i>	<i>100 LE</i>

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<b><i>Analysis</i></b>	<b><i>Price</i></b>
<i>Fat</i>	25 LE
<i>Protein</i>	25 LE
<i>Total Ash</i>	20 LE
<i>Acid insoluble</i>	20 LE
<i>Water insoluble</i>	20 LE
<i>Alkalinity of water soluble</i>	20 LE
<i>Saponification value</i>	25 LE
<i>Acid value</i>	25 LE

**Prices for Microbiological Analysis**

<b><i>Contaminant</i></b>	<b><i>Price</i></b>
<i>Bacillus cereus</i>	50 LE
<i>Salmonella</i>	60 LE
<i>Clostridium perfringens</i>	60 LE
<i>Staphylococcus aureus</i>	50 LE
<i>Aerobic spores</i>	60 LE
<i>Anaerobic spores</i>	60 LE
<i>E. coli</i>	50 LE
<i>Thermophilic spores</i>	60 LE
<i>Spores produce H<sub>2</sub>S</i>	60 LE
<i>Shigella</i>	SOLE
<i>Listeria mono.</i>	100 LE

بيان بأسعار التحاليل التي يمكن إجراؤها بمعامل الوحدة ذات الطابع الخاص

1- الحبوب ومنتجاتها :

م	نوع التحليل	سعر التحليل بالجنيه
1	الوزن النوعي للحبوب (الهيكتوليتير)	10
2	وزن الألف حبة	5
3	تقدير درجة النظافة في الحبوب	10
4	تقدير حيوية الحبوب	15
5	الفحص الحشري	15
6	تقدير نسبة القرنية بالحبوب	10
7	تقدير نسبة الاستخراج	20
8	الرطوبة	15
9	<u>الرماد الكلي</u>	20
10	الرماد الغير ذائب لتقدير السليكا الدقيق	20
11	البروتين الكلي	45
12	النيتروجين الذائب	45
13	تقدير نشاط أنزيم الألف أمبير (رقم السقوط)	40
14	نسبة الجلوتين الطرى - الجاف	45
15	الألياف	40
16	الزيت الخام (المستخلص الأثيري)	50
17	الكربوهيدرات الكلية	40
18	السكريات المختزلة	40
19	تقدير العناصر (كا . بو . مع ..) للعنصر	40
20	العناصر الثقيلة (الرصاص ، الكاديوم ..) للعنصر	100
21	تقدير كلوريد الصوديوم	45
22	تقدير التانينات	40
23	تقدير الزرنيخ	125
24	تقدير اللاكتوز	45

سعر التحليل بالجنيه	نوع التحليل	م
45	<u>الفينولات</u>	25
45	كلوريد البوتاسيوم	26
40	الجلوكوز	27
45	الفوسفات	28
20	رقم الحموضة	29
50	تقدير مثبت انزيم التربسين	30
50	تقدير حمض الفتيك	31
20	رقم الترسيب (اختبار زلنى)	32
40	تقدير درجة نشاط الخميرة	33
20	اختبار زمن التخمر	34
65	الفارينوجراف	35
65	الفسكواميلوجراف	36
65	الأميلو جراف	37
65	تجربة خبيز مع عملية مع تقييم الخبز الناتج لكل 1 مجم	38
50	تقدير طزاجة الخبز اثناء التخزين	39
50	معامل هضم الكربوهيدرات	40
50	معامل هضم البروتين	41
125	انتاج 1 كجم بجهاز البثق الحرارى	42
95	تقييم المنتجات المصنعة بالبثق الحرارى (لكل تركيبة)	43
20	درجة التحبب فى السيمولينا والدقيق	44
25	درجة التبقع فى السيمولينا	45
50	تقدير صفات طهى المكرونة	46
40	تقدير نسبة الأميلوز	47
50	تقدير صفات الطهى لحبوب الأرز	48
50	تقدير صفات الطهى فى الفول	49
40	تقدير الألياف الكلية	50
50	تقدير الألياف الغذائية	51

## 2- تحاليل منتجات الحاصلات البستانية :

م	نوع التحليل	سعر بالجنيه	التحليل
1	المواد الصلبة الذائبة (لاكتوميتر)	5	
2	تقدير الـ PH	15	
3	تقدير اللون بطريقة الاستخلاص	20	
4	تقدير اللزوجة	20	
5	تقدير الكاروتين	20	
6	تقدير الأنسوسياتين	35	
7	تقدير البكتين	45	
8	تقدير النشا	45	
9	التقييم الحسى	60	
10	تقدير الزيوت الطيارة	45	
11	تقدير ثانى اكسيد الكبريت	45	

### 3- تحاليل الألبان ومنتجاتها :

#### أولا التحليلات الميكروبيولوجية :

م	نوع التحليل	سعر بالجنيه	التحليل
1	العدد الكلى	95	
2	الفطرة والخميرة	95	
3	بكتريا القولون	95	
4	البكتريا المحللة للبروتين	95	
5	البكتريا المحللة للدهن	95	
6	البكتريا حمض اللاكتيك	95	
7	البكتريا المتجرثمة	95	
8	الكشف عن اى بكتريا مرضية (النوع الواحد)	150	

#### ثانيا التحليلات الكيماوية:

م	نوع التحليل	سعر بالجنيه	التحليل
1	الرقم الهيدروجينى والحموضة	20	
2	الرطوبة	15	
3	البروتين الكلى	45	
4	النيتروجين الزائد	45	
5	الدهن	45	
6	الرماد	20	
7	اللاكتوز	45	
8	كلوريد الصوديوم	45	

#### ثالثا التحليلات الريولوجية:

م	نوع التحليل	سعر بالجنيه	التحليل
1	صلابة الخثرة	25	
2	اللزوجة	25	

4- تحاليل خاصة بالزيوت والدهون:

م	نوع التحليل	سعر بالجنيه	التحليل
<u>1</u>	تقدير نسبة الرطوبة	15	
2	تقدير نسبة الزيت	50	
3	تقدير لزوجة الزيت	15	
4	تقدير اللون في الزيت	20	
5	تقدير حموضة الزيت	20	
6	تقدير رقم البيروكسيد	45	
7	تقدير معامل الانكسار	10	
8	تقدير رقم التصبن	45	
9	تقدير العدد اليودي	65	
10	تقدير كمية المواد الغير قابلة للتصبن	45	
11	تقدير ثبات الزيت عن طريق جهاز الرنسيمات (فترة الصلاحية)	125	
12	تقدير نسبة المواد المتبلرة	45	
13	تقدير الاحماض الدهنية المؤكسدة	75	
14	استخلاص عينات الزيوت النباتية (البذور الزيتية)	25	
15	نقطة الانصهار	15	
16	نقطة التدخين	15	

5- تحاليل اللحوم والأسماك ومنتجاتها :

م	نوع التحليل	سعر التحليل بالجنيه		
1	كيمياوية	رطوبة		
		دهن		
		بروتين كلى		
		رماد		
2	تحديد الصلاحية	النتروجين الكلى المتطاير		
		نتروجين ثلاثى ميثايل الأمين		
		نتروجين الأمونيا		
		اختبار التزنخ		
3	تقدير نسبة المواد الحافظة	نسبة الملح كلوريد الصوديوم		
		نسبة النيتريت		
		نسبة الكاربونيلات		
		نسبة الفينولات		
4	اختبارات ميكروبيولوجية	عدد كلى T.P.C		
		COLIFORMS		
		SALMONELLA		
		SHIGELLA		
		STAPH		
		YARSINEA		
		LISTERIA		
		CLOSTRIDIUM		
		فطر وخمائر		
		تصنيف ميكروبي		
		5	اختبارات فيزيائية	القدرة على امساك الماء W.H.C
				الطراوة

**6- التحاليل الدقيقة :**

م	نوع التحليل	سعر التحليل بالجنيه	
1	التحليل الكروماتوجرافي الغازي G.C	الأحماض الدهنية بدون ميثلة	
		60	
		20	
		15	
		75	
		95	
		65	
		<b>منظمات نمو</b>	
		80	
		95	
		95	
		95	
		95	
		95	
2	التحليل الكروماتوجرافي عالي الأداء بالسائل HPLC	الأحماض الدهنية	
		بدون ميثلة	
		فصل الأحماض الدهنية	
		عملية الميثلة	
		بعد عملية الميثلة	
		بعد الفصل وعملية الميثلة	
		مواد غير متصينة	
		<b>منظمات نمو</b>	
		80	
		95	
		95	
		95	
		95	
		95	
3	التحليل الكروماتوجرافي عالي الأداء بالسائل HPLC	زيوت طيارة	
		95	
		95	
		95	
		95	
		95	
		95	
		95	
		95	
		95	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	فيتامينات	
		95	
3	التقديرات اللونية وغير اللونية اجهزة SPECTROPHOTOMETER	هرمونات نباتية	
		45	
3	التقديرات اللونية وغير اللونية اجهزة SPECTROPHOTOMETER	هرمونات حيوانية	
		40	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	فيتامين A	
		65	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	فيتامين E	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	فيتامين C	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	بيتا كاروتين	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	الأحماض العضوية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	سكريات	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	مضادات حيوية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	مخدرات صناعية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	قلويات صناعية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	السكريات الكلية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	الفينولات الكلية	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	التانينات	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	تقديرات الكافية (القهوة - المياه الغازية)	
		90	
4	التحليل الكروماتوجرافي عالي التدفق SUPER CRITICAL FLUID CHROMATOGRAPHY	تقدير الكافيين والثيوبرومين في الشيكولاتة ومنتجات الكاكاو	
		90	

