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FADIB

20759

FOUNDATION FOR AFRICAN DEVELOPMENT THROUGH INTERNATIONAL BIOTECHNOLOGY

A NON-PROFIT NON-GOVERNMENTAL ORGANIZATION

Enugu Office

*Please send your
Plot 533 Nza St, mails to this P O Box 1457,
Independence Layout, P O Box Enugu, Nigeria.*

Tel: +234-42-339360

Fax: +234-42-332059

+234-42-335856

Tlx: 51405 trade; 51445 sezen



April 24, 1994.

**FINAL REPORT ON THE WORKSHOP ON BIOTECHNOLOGY AND FOOD,
ENUGU, NIGERIA 10-23 APRIL 1994.**

1 Venue of the workshop

The workshop was held at the Department of Medical Biochemistry, College of Medicine, University of Nigeria at Enugu.

2 Names of Teachers and Participants.

The names and countries of the teachers and participants are given in Attachment 1.

3 The Programme

The philosophy of the workshop, and the detailed course outline, are to be found in document entitled Programme placed in this report as Attachment 2.

4 Evaluation of the course by the Organizer

The anonymous evaluation given by the students was gratifying. Without exception they expressed satisfaction with the teaching in the both the classroom and the laboratory.

5 Financial Report.

The financial report of the workshop is attached as Attachment 3.

6 Acknowledgement

I would like to thank the ICGEB and UNIDO most sincerely for their financial support in organizing this workshop.

*Prof Nduka Okafor,
President, FADIB,
and Organizer of the Workshop.*

Trustees : Prof A T Ba, Coordinator, African Biosciences Network, Dakar, Senegal; Prof C J Chetsanga, University of Zimbabwe, Harare, Zimbabwe; Prof Dr Jean Ndeberi, University of Burundi, Bujumbura, Burundi; Prof Bede Okigbo, United Nations University, Nairobi, Kenya; Dr R W Old, University of Warwick, Coventry, England; Mr Decio Ripandelli, International Centre for Genetic Engineering and Biotechnology, Trieste, Italy; Prof Tilahun D Yilma, University of California, Davis, USA; Dr A O Ejirofor, Vice-President, FADIB; Prof Nduka Okafor, President, FADIB.

.....that africa may benefit from the biotechnology revolution.....

ATTACHMENT 1

FADIB

FOUNDATION FOR AFRICAN DEVELOPMENT THROUGH INTERNATIONAL BIOTECHNOLOGY

INTERNATIONAL WORKSHOP ON BIOTECHNOLOGY AND FOOD

ENUGU, NIGERIA 10- 23 APRIL, 1994

Organized by FADIB on behalf of the

INTERNATIONAL CENTRE FOR GENETIC ENGINEERING AND BIOTECHNOLOGY (ICGEB).

Co-sponsored by the

TECHNICAL CENTRE FOR AGRICULTURAL AND RURAL COOPERATION (CTA).

TEACHERS AND PARTICIPANTS.

Teachers

- 1 Dr Prabhakara CHOUDARY,
Director, Antibody Engineering Laboratory,
University of Davis, California, 95616-8584, USA.
Tel. +1 916 752 0475; Fax 916 752 1537.
- 2 Dr Anthony O EJIOFOR,
Nnamdi Azikiwe University,
Awka, Nigeria.
Fax. +234 42 332059.
- 3 Dr Irina KORSCHINECK,
Institute of Applied Microbiology,
University of Agriculture,
A-1180 Vienna, Nussdorferlande 11, Austria.
Tel. +43 1 36 92 92 4 400; Fax: 310 51 76.
- 4 Prof Sam N C OKONKWO,
Univeristy of Nigeria,
Nsukka, Nigeria.
- 5 Dr Daniel OLUKOYA,
National Institute of Medical Reserach,
Edmund Crescent, off Murtala Mohamed Way,
Yaba, Lagos, Nigeria.
Tel. +234 1 800090-4; 861732; Fax 862865.
- 6 Prof George ONUORA,
Faculty of Veterinary Medicine,
University of Nigeria,
Nsukka, Nigeria.
Tel. +234 42 771964.

- 7 Dr Herta STEINKELLNER,
Institute of Applied Genetics,
University of Agriculture,
A-1180 Vienna, Gregor Mendel Str. 33, Austria.
Tel. +43 1 47 654-0; Fax: 310 51 76.
- 8 Prof Nduka Okafor, (Organizer)
FADIB, P O Box 1457, Enugu, Nigeria.
Tel. +234 42 339360; Fax: 332059; 335856; 339360.
Tlx 51445 sezen ng; 51405 trade ng

Participants.

Benin

- 1 Dr Moutairou EGOUNLETY,
BP 526 FSA/Universite Nationale du Benin,
Cotonou, Republique du Benin.
Fax +229 31 35 59; Tlx 5010 unb

Ghana

- 2 Ms Florence Akpene DARTEY,
Department of Biochemistry,
University Science and Tech,
Kumasi, Ghana.
Tel 233- 4929

Ethiopia

- 3 Dr Berhanu A GASHE,
Department of Biological Sciences, P O Box 1176,
University of Addis Ababa, Ethiopia.
Tel +251 1 185004; Fax +251 1 55 09 11; Tlx 21205;

Kenya

- 4 Mr Dorington O OGOYI,
Department of Biochemistry,
University of Nairobi, POBox 30197, Nairobi, Kenya.
Fax +254 2 446138; Tlx 22095 varsity.

Sudan

- 5 Dr Hassan Beshir ELAMIN,
Director, Technical Commission for Genetic Engineering and Biotechnology,
National Commission for Research (NCR), P O Box 2404, Khartoum, Sudan.
Tlx 22342 ilmi sd.

Nigeria

- 6 Dr Mathias Ikenna AGBA.
Bacterial Vaccines Production Department.
National Veterinary Research Institute.
P O Box 48, Vom.
Tel 073-80812, 80465, 80811.
- 7 Mr Reginald AGU.
Department of Applied Microbiology/Brewing.
Enugu State University of Technology, Enugu, Nigeria.
- 8 Dr J O AKINGBALA.
Food Technology Department.
University of Ibadan, Ibadan.
- 9 Mr A E AMADIFE.
Department of Applied Biochemistry.
Enugu State University of Technology, Enugu, Nigeria.
- 10 Dr Mrs G N ANICHE.
Department of Applied Microbiology/Brewing.
Enugu State University of Technology, Enugu, Nigeria.
- 11 Mr Anthony Chinwuba ANIH.
Department of Food Technology,
Institute of Management and Technology, P O Box 01079, Enugu.
- 12 Mr Chris ANYAMENE.
Department of Applied Microbiology/Brewing.
Nnamdi Azikiwe University, Awka.
- 13 Mr Saul ANOZIE.
Aso Laboratories,
106 Agbani Rd, Enugu.
- 14 Mr Bassey Etta ASIKONG.
Microbiology Unit, Department of Biological Sciences,
University of Calabar, P M B 1115, Calabar.
- 15 Ms Chibuzo AZUBIKE.
Department of Applied Microbiology/Breing.
Nnamdi Azikiwe University, Awka.
- 16 Dr Clarence DIRIBE.
Department of Chemical Engineering.
Enugu State University of Science and Technology, P M B 01660, Enugu.
- 17 Mr Martins Okon EFFIONG Jnr.
Dept of Biological Sciences,
Federal University of Technology, P M B 65, Minna.

Tel 066-222397 Ext 100; 220196.

- 18 Mr I A EKWEALOR.
Department of Applied Microbiology/Brewing.
Nnamdi Azikiwe University, Awka.
- 19 Ms Becky ELEKEH.
Department of Applied Biology.
Enugu State University of Science and Technology, Enugu.
- 20 Mr E N EZEJIOFOR.
Department of Applied Microbiology/Brewing.
Nnamdi Azikiwe University, Awka.
- 21 Dr E B ESAN.
Cocoa Research Institute of Nigeria.
PMB 5244, Ibadan.
Tel 022-410040/412430
- 22 Dr Udo HERBERT,
Department of Animal Production,
Federal University of Technology, PMB 1526, Owerri.
- 23 Dr Kolo IBRAHIM.
National Institute for Pharmaceutical Research & Development,
P M B 21, Abuja.
Tel 09 5231602; Fax 09 5231602.
- 24 Ms Laura IGBOELI,
Department of Food Science and Technology,
Enugu State University of Science and Technology,
Abakiliki, Enugu State.
- 25 Mr Gabriel E IGBOKWE.
Department of Applied Biochemistry.
Nnamdi Azikiwe University, Awka.
- 26 Mr C C IHEUKWUMERE,
University of Agriculture, Department of Biological Sciences,
Makurdi, Benue State.
Tel 044 33204, 33205, 33188. Tlx 05304
- 27 Mr Emeka ILOUNO.
Department of Applied Microbiology/Brewing.
Nnamdi Azikiwe University, Awka.
- 28 Mrs Charity NSOFOR,
Department of Applied Biology.
Nnamdi Azikiwe University, Awka.

- 29 Mr Joseph NWANKWO.
Department of Food Science and Technology.
Enugu State University of Science and Technology, Abakiliki.
- 30 Mrs L A NWUBA.
Department of Applied Biology,
Nnamdi Azikiwe University, Awka.
- 31 Mr Chinedu NWODO.
Department of Applied Biochemistry,
Enugu State University of Technology, P M B 1660. Enugu.
- 32 Mrs Virginia NZEGWU,
Department of Applied Biology,
Nnamdi Azikiwe University, Awka.
- 33 Dr Frederick John Chidi ODIBO.
Department of Applied Microbiology/Brewing,
Nnamdi Azikiwe University, Awka.
- 34 Mrs Josephine OFILI.
Department of Applied Biochemistry,
Nnamdi Azikiwe University, Awka.
- 35 Mr Abiodun A OGUNJIMI,
Genetics Division,
National Institute of Medical Research,
P M B 2013, Yaba, Lagos.
Tel 01 800090-4; Fax:862865
- 36 Dr Tunde OGUNTIMEIN,
Department of Food Technology,
University of Ibadan, Ibadan.
Tel 022 712560; Fax +234 22 412048; Tlx 31230 mosuro ng
- 37 Mr Anozie OHAEBULA,
Department of Parasitology and Entomology,
Nnamdi Azikiwe University, Awka.
- 38 Mr M U OKENCHI,
Department of Applied Biochemistry,
Enugu State University of Technology, Enugu.
Tel 042 336220
- 39 Mr Ezenwa OKONKWO,
Department of Applied Biochemistry,
Nnamdi Azikiwe University, Awka.

- 40 Ms Stella OKOYE.
Department of Parsitology/Entomology.
Nnamdi Azikiwe University, Awka.
- 41 Dr J K OLOKE.
Department of Pure and Applied Biology.
LAUTECH, P M B 4000, Ogbomosho.
- 42 Mr Victor E OLORI,
Department of Animal Breeding and Genetics,
Univ Agric PMB 2240, Abeokuta.
Tel 039 200170 - 200177; ext 40.
- 43 Ms Christine ONYEJEGBU,
Soyabean Utilization Lab, GLIP,
International Institute of Tropical Agriculture, PMB 5320, Ibadan
- 44 Mr M B SARUMI,
National Centre for Genetic
Engineering and Biotechnology, (NACGRAB), PMB 5382, Ibadan.
Tel (022) 312601; 312622.
- 45 Mr Clement UDE,
Department of Applied Biochemistry,
Enugu State University of Science and Technology, Enugu.
- 46 Mr Benjamin S C UGOJI,
Department of Food Technology, Federal Polytechnic, Oko, Anambra State.
- 47 Prof Agwu I UKOHA,
School of Science,
Federal University of Technology, Owerri.
- 48 Mr Peter O UVERE,
Department of Food Science and Technology,
University of Nigeria, Nigeria.
Fax 042 770644; Tlx 51496 ulions

ATTACHMENT 2

PROGRAMME

TEACHING PROGRAMME

Course Philosophy

The basic idea of this course, *Workshop on Biotechnology and Food*, is to examine food as it can be affected by modern biotechnology from the field to the table. This is a very broad field and it is impossible to do justice to it in the brief period of eleven working days. What is covered is dependent on the interests and areas of specialization of the available teachers. Biotechnology itself has been defined as the manipulation of biological objects for the production of valuable goods and services, ie for man's benefit. When the literature is examined, it is found that some authors restrict biotechnology to manipulations of the genetic make up of the organism in question. For others biotechnology is any manipulation whatsoever of biological entities.

FADIB 's raison d'etre is gene manipulation and hence this workshop, while including a small proportion of non-nucleic acid biotechnology, is devoted almost entirely to molecular gene manipulation.

Lectures

1 **Introduction.** (1 lecture)

2 **Basic Molecular Biology and Genetic Engineering.** (12 lectures)

1 Biochemical nature of genetic material (structure and organization)

2 Synthesis of DNA, RNA, and protein (Replication, transcription, translation)

3 Genetics of bacteria, bacteriophages, eukaryote, mammalian viruses and plasmids

4 Basic tools and techniques in gene cloning and expression (genetic engineering)

Restriction and modification enzymes

Transformation, transfection, and other procedures of DNA introduction

DNA isolation, characterization, agarose electrophoresis, Southern

blotting

RNA isolation, gel electrophoresis, Northern blotting

Protein isolation, characterization, Western blotting, enzyme and immuno assays

5 Cloning strategies

cDNA cloning, genomic cloning; construction of DNA libraries;

screening of libraries:

Host-vector systems for cloning: prokaryotic and eukaryotic vectors

6 Expression strategies

Prokaryotic host-vector systems

Eukaryotic host-vector systems

7 PCR technology and applications

8 Nucleotide sequencing

9 Mutations and mutagenesis

10 rDNA technology in diagnosis and treatment of diseases, and gene therapy

11 Recombinant baculoviruses as safe pesticides

12 Safety, ethics and concerns - a group discussion

3 **Plant Biotechnology.** (7 lectures)

1 Genetically engineered plant-resistance breeding

2 Coat protein mediated resistance against pluv. pox virus

3 Polymerase chain reaction and applications

4 Production of genetically engineered antibodies in *E coli* and plants

5 Plant tissue culture and food security.

4 **Farm animal biotechnology.** (3 lectures)

Lecture 1

a) Introduction: the need for improved methods of animal production.

b) Embryo transfer techniques: bovine, porcine, ovine, caprine, equine.

c) Applications of embryo transfer technique: genetic engineering, disease control, chimeric animals, endangered and zoo animals.

Lecture 2

a) Artificial insemination: bovine, porcine, equine, caprine, ovine, poultry.

b) Further advances in animal production: selection of sex, selection and breeding of disease resistant animals, inducement of parturition, shortening of inter-breeding period, improvement of meat texture, synchronization of estrus, improvement of sperm motility, improvement of litter size.

Lecture 3

a) Mini-livestock: rabbit, snails, insects, caterpillars, rodents, guinea pigs.

b) Seminar/discussion.

5 **Crop protection by biotechnology.** (1 lecture)

- 6 **Lactic Acid Bacteria and the Processing of African Foods. (1 lecture)**
- 7 **Group discussion: discussion of participants' work and general review of course by teachers and participants.**

Laboratory Work

- 1 **Review of basic laboratory procedures**
- 2 **Isolation of plasmid DNA with mini-prep**
- 3 **Isolation of plant genomic DNA and partial digestion preparation**
- 4 **Ligation of plant DNA with plant DNA digest to make recombinant molecule**
- 5 **Agarose gel electrophoresis of restricted and plasmid preps; Southern blotting.**
- 6 **Preparation of competent E coli cells and transformation**
- 7 **Preparation of DNA probe and hybridization.**

SOCIAL PROGRAMME

Sunday, 10 April 1994: 7 pm

Informal working dinner for teachers and members of the Workshop Organizing Committee to finalize plans.

Monday, 11 April 1994: 11 am

Opening Ceremony: Presidential Hotel, Enugu.

Chairman: Emeritus Prof C Nwokolo, NNMA, FAS, Hon DSc (Ibadan and Maiduguri).

Guest of Honour: Hon Minister of Science and Technology, Dr Laz Unaogu.

Monday, 11 April 1994: 7 pm

Welcome cocktail, Zodiac Hotel.

Friday, 15 April 1994: 1.30 pm

Luncheon in honour of Workshop given by Vice-Chancellor, Nnamdi

Azikiwe University, Awka. Transport departs at 12.30 pm.

Saturday, 16 April 1994: 8.30 pm

Evening out to see Enugu nite life

Sunday, 17 April 1994 : 9 am

Excursion to erosion site at Nanka, Anambra State.

Friday, 22 April 1994 3 - 4 pm

Meeting to discuss workshop and future plans

Friday, 22 April 1994: 7 pm

Workshop Dinner

Saturday, 23 April 1994: Departure

Scheduling:

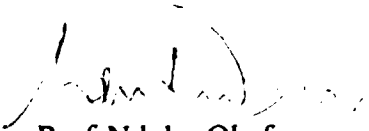
Lectures: 8.45 - 12 noon; Labs: 2 - 6 pm. Breaks for tea/coffee in the morning and break for soft drinks in the afternoon about 10.30 and 3.30 respectively or as may be decided by the teacher.

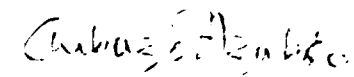
ATTACHMENT 3

Financial Report

April 25, 1994.

S/No	Item	\$
1	Transportation of 2 teachers to from Austria	3600
2	Transportation of 1 teacher from the US	2700
3	Honorarium for teacher from US	1000
4	Refund of pre-trip expenditure and item purchase to US teacher	1074
5	Subsistence of 7 teachers for 13 days at \$60 per day	5460
6	Transportation of 3 non-Nigerian African students.	1500
7	Subsistence for 3 international students at \$30 per day	1170
8	Sustenance of 8 Nigerian students; others were non-resident at \$15 per day	1560
9	Course materials: stationery, bags, hand outs etc	400
10	Local transportation	1000
11	Laboratory materials	300
12	Administrative: faxes, telexes	236
TOTAL		20,000


Prof Nduka Okafor,
President, FADIB
and
Organizer of the Workshop


Ms Chibuzo Azubike,
Treasurer, FADIB.