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Final Report

Contract No. 94/055

**International Centre for Genetic Engineering and
Biotechnology**

Fundação Tropical André Toselio

Workshop:

**“BIOINFORMATICS: DATABASES AND
COMPUTER NETWORKS IN BIOLOGY”**

30 May to 3 June 1994, Campinas - SP, Brazil

Campinas, 16 June 1994

Vanderlei Perez Canhos, PhD (Director)
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Campinas - SP
Brazil

P.H.

INTRODUCTION

This is the final report of the workshop entitled "Bioinformatics: Databases and Computer Networks in Biology", held at Fundação Tropical André Tosello from 30 May to 3 June of 1994. It was jointly organized by the referred Fundação and the International Centre for Genetic Engineering and Biotechnology (ICGEB). This workshop was co-sponsored by the United Nations Industrial Development Organization (UNIDO), under contract 94/055, and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), an agency of the Brazilian Ministry of Science and Technology.

The purpose of this workshop was to enable scientists from Latin American countries to experience the facilities and benefits of computer networks, introducing them to Internet and to the biological databases and molecular sequence analysis software available at BDT, ICGEB and CENARGEN.

Our objectives were fully accomplished. Participants from Mexico, Venezuela, Cuba, and Brazil received introductory training on searching DNA and protein sequence databases, sequence analyses for genetic and phylogenetic studies, and retrieving information from microbial strain databases.

BODY

Lecturers and Participants

The international workshop on Bioinformatics held at Fundação Tropical André Tosello had the participation of six invited lecturers (three from abroad and three from Brazilian Institutes), four supporting instructors (two from abroad and two from the local staff), and fourteen students (three from Mexico, two from Venezuela, one from Cuba, and eight from Brazil). The students were selected from a total of __ applicants. The selection of participants was based on the following criteria: 1) currently working in the fields of molecular biology or molecular ecology; 2) connected to Internet, in order to apply the experiences acquired during the workshop to their research; 3) being in key positions for disseminating the knowledge acquired to their working groups. In order to guarantee the international status of the workshop, all applicants from Latin American countries other than Brazil were selected. One selected applicant from Bolivia and one from Venezuela were not able to find funds, thus resigning from their applications.



Infra-structure

The existing infrastructure in the Fundação Tropical André Tosello was complemented with the acquisition of the software X-Win, which enabled PCs running Windows to emulate X-terminals. This was very significant for the success of the workshop, since most of the applications used run on Unix and need graphical display.

Programme


The programme of the workshop was designed so as to equilibrate overview lectures with practical sessions. Following the initial welcome messages from the staff of the Fundação Tropical, there were lectures describing the computer resources of ICGEBnet, BDTnet (Base de Dados Tropical Network), and BMBB (Brazilian Molecular Biology and Biotechnology Network). In order to guarantee that all participants were leveled in their knowledge of networking, there was a general introduction to Internet and its facilities such as electronic mail, gopher, and world wide web (www). The focus was then shifted to molecular sequence databases, and the participants were instructed on what to expect, and how to access and search those databases for particular sequences. The participants practiced with GCG, a suite of sequence analysis tools available for users of ICGEBnet and BMBBnet. They also learned about the Staden package, very useful when one is looking for protein coding regions in a sequence of DNA. This workshop enabled the participants to gather a good overview of molecular phylogeny, which estimates the relationships between organisms by looking at differences found between their DNA or protein sequences. Computer methods to study protein structures and sequences were also looked upon during the workshop. The programme followed on to show the students how to access and search databases of microbial strains, particularly those included in the Microbial Strain Database Network (MSDN), which is available to users of the BDTnet. The workshop ended with a round table discussing the current status and perspectives for Latin American networking. There was an overview of the situation in Brazil, Venezuela, Mexico and Cuba, highlighting current problems and what is being done to overcome them.

Printed Material

Each participant was given a manual which covers all topics viewed during the workshop. It is composed of a string-bound central core containing articles, introductory texts, instructions for practicals and tutorials, etc. A separate string-bound volume covering Molecular Phylogeny, and a handout on Microbial Strain Databases was also prepared. This material can also be useful as source of reference texts for routine use. A copy of the workshop manual is appended to this report.

Social Activities

In order to promote effective integration amongst the participants, two social activities were promoted during the workshop: a cocktail following the second day of activities, and a dinner, at a typical Brazilian restaurant, on the night after the third day of the course. Lunch was offered free-of-charge to all participants during all days of the workshop.



Accommodation and Transport

Campinas is a city well served with hotels. A list of these was sent to all participants, including their prices. The lecturers stayed in the Hotel Colonial Plaza which was also indicated to the participants. Most of them stayed in this hotel. A bus transported the participants to and from the Fundação Tropical, during the course of the event.

TERMINAL SECTION

The workshop "Bioinformatics: Databases and Computer Networks in Biology" was the first of its kind in Latin America, and proved to be very successful. The high number of applications suggest that there is an increasing number of Latin American scientists lacking the knowledge to effectively process and analyze the molecular data they are generating in the laboratories. The difficulty found by Latin American scientists, due to lack of funds, to take part of similar courses held in Europe or the United States also explains the high demand for participation in this workshop. Science in developing countries is hampered by the difficulty found in accessing up-to-date information. Computer networking can alleviate this problem, enabling scientists to access databases and obtaining an enormous wealth of information at the click of a button. This kind of workshop should therefore be repeated, at least on an yearly basis, to ensure that a greater number of scientists have a chance to participate of the networking community.

The topics chosen to take part of the programme of the workshop met the expectations of the participants. Despite the short period of time to cover the wide range of subjects proposed, it was possible for the students to get hold of sufficient information to enable its application in their researches.

The students were asked to make an evaluation of the workshop (sheets included with this report) and some points were highlighted, particularly the quality of the lectures, the very good organization, and the appropriate infrastructure provided by Fundação Tropical. It was almost unanimous the necessity of increasing the duration of the course. Originally the workshop was planned for 8 dzys. However, due to limitation of funds, the duration had to be reduced to 5 days, at the expense of further practical classes.

The workshop was a general success, and should be repeated more often. The collaboration between the International Centre for Genetic Engineering and Biotechnology (ICGEB) and Fundação Tropical André Tosello was very productive and will be extended in the form of biological information exchange and interconnectivity between their computer resources. Several common projects are also being envisaged for the future.

R.H.

FINANCIAL REPORT

This workshop was co-sponsored by the United Nations Industrial Development Organization (UNIDO), under contract 94/055, and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), an agency of the Brazilian Ministry of Science and Technology.

CNPq contributed with all travel and maintenance costs of the following international staff:

Gary Olsen
University of Illinois
USA

David P. Judge
University of Cambridge
UK

Valeria Bevilacqua
ICGEB
Italy

UNIDO contributed with a total US\$6,000.00 (six thousand dollars), of which US\$4,800.00 have already been credited to Fundação Tropical André Tosello, while the remaining US\$1,200.00 (one thousand and two hundred dollars) will be credited to us upon approval of this final report. The above sum was spent on travel and maintenance costs of one international and two Brazilian staff, apart from the travel and maintenance costs of a Cuban student:

Goran Neschich
EMBRAPA/CENARGEN
Brasília, Brazil

Gilson P. Manfio
University of Newcastle
UK

Wim Degrave
FIOCRUZ
Rio de Janeiro, Brazil

Ricardo R. Parellada
CIBG
Cuba

UNIDO funds were also used to cover other expenses incurred during the workshop, such as purchase of software, internal transport in Campinas and secretarial and printing services.

A detailed description of the expenses incurred under UNIDO funds is found on the following page.

Workshop "Bioinformatics: Databases and Computer Networks in Biology"

Financial Report

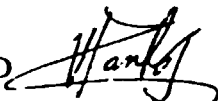
	<u>Description of Costs</u>	<u>Value (US)</u>
Staff	Dr. Goran Neschich (Brasília/Campinas/Brasília)	380
Travel	Dr. Wim Degrave (Rio/Sao Paulo Campinas/Rio)	330
	Dr. Gilson P. Manfio (London/Sao Paulo/London)	1000
	Taxi to/from airport for lecturers	555
Staff	Hotel for Drs. Neschich and Degrave	280
Maintenance	Per diem for Drs. Neschich, Degrave and Manfio	300
Participant	Dr. Ricardo R. Parellada (Havana/Sao Paulo/Havana)	680
Travel		
Participant	Hotel for Dr. Parellada	138
Maintenance	Per diem for Dr. Parellada	100
	Daily lunch and one cocktail for all participants	340
Software	X-Win	500
Transport	Daily bus on the route Hotel-Fundação-Hotel	200
	Transport to collect ICGEB documents from customs at Sao Paulo Airport	260
Secretarial Services		480
Printing Services		457
	TOTAL	6000

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LOCAL ORGANIZING COMMITTEE

Head-Organizer

Vanderlei Perez Canhos, PhD



Technical and Scientific Organizer

Heitor L.C. Coutinho, PhD



Campinas, 16 June 1994

