Biotechnologies for all. A challenge for a necessary reality

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REPORT

The First Workshop on Biotechnological Development and its Implications for Central America and the Caribbean took place on March 15 to 17, 2006 in Costa Rica. This workshop hosted an open debate between biotechnologists and university students on the there potential of Biotechnology in Central American countries where, in an integrating effort, specialists from Mexico, Salvador, Honduras, Nicaragua, Costa Rica, Panama and Cuba discussed their achievements and points of view on the current situation of biotechnology, they also analyzed specific actions to be undertaken to conciliate the future development of this discipline with the particular interests of the region. Within that context, it was evidenced that biotechnology can play a major role in social progress when implemented with a humanist approach that prioritizes its potential benefits to society. Our political system, which strives for economical development to improve the well-being of the nation and its citizens and, therefore, for social progress, has considered Biotechnology to be instrumental for achieving this purpose; not to mention its importance in international trade for procuring goods, raw materials, and also technologies. This illustrates why the development of Biotechnology in Cuba is directly implemented by the Cuban state and not used for the accumulation of capital by individuals or corporations.

Based on the development of molecular sciences, Biotechnology emerged as a tool that generated new knowledge in the fields of biology and medicine and served equally well in manufacturing, therapeutic and commercial settings. During the seventies, the development of technologies based on the latest achievements of exact and basic sciences resulted in the consolidation of biotechnological research and boosted its application in animals, plants, and human beings. Currently, one of the most important avenues of application of Biotechnology is the production and use of genetically modified organisms (GMO). Developed countries, with most of the biotechnological companies and, therefore, the transgenic technologies, have stated the aim of transgenics as that of decreasing the cost of food production and developing a market that will ultimately replace the traditional products while considering transgenic products as the solution to the current, rampant problems of hunger and disease throughout most of the world. However, it is well known that the desperate situation of millions of inhabitants of the so-called Third World countries without a normal access to water and food, is originated by political and economical situations that will not be salved by neoliberal policies, for which reason biotechnology alone will never improve this situation. We are convinced that unless a humanist approach on the solution to these problems is adopted worldwide, the global production of foodstuffs, including transgenics, will continue to be distributed based not on the needs of the population, but on their buying power. According to a Food and Agriculture Organization (FAO) report, it is estimated that more than 800 million people will suffer starvation in the near future, and 192 million children under five will suffer acute or chronic protein and energy deficiencies. Agriculture needs new technologies to double or triple current production volumes without triggering an irreparable ecological imbalance [1]. Therefore, while the owners of biotechnologies continue increasing their manufacturing capacities and monopolizing the potentialities of nature, the real solution lies in united demand for a change in the state and in international policies focused on the social sectors which have been historically impoverished.

The other side of the biotechnological coin is represented by the adoption of particular, or perhaps regional, solutions. The dominant biotechnological corporations and the governments of certain industrialized countries are blocking the access of their underdeveloped partners to biotechnologies, through the current state of affairs in international trade. This situation engenders a dependency on the cheapest source of foodstuffs that may compromise the sovereignty of countries that, within the current political and economical conditions, are fighting for their very existence. A way to potentially achieve a genuine and necessary independence in the global political context is by strengthening and developing the collaboration between underdeveloped countries in the field of Biotechnology.

Within this first Workshop, the participants from academic institutions made several proposals for joint cooperation, including:

1. The creation of an Organizing Committee that promotes and follows the initiatives proposed during and after the Workshop:

a) The compilation of information on biotechnological activities from each participating country, and the dissemination of this information.

b) The promotion of biotechnological projects on a regional scale.

2. The creation of a permanent system for undergraduate and postgraduate training.

3. The consolidation of human resource exchanges to disseminate technical knowledge and skills through short regional courses, exchanges of teachers and researchers, and scholarships at all levels.

4. The creation of a post-graduate course with a regional relevance.

5. Design and development of training actions (in each country) for technology transfer and its social extension.

1. Boletín FAO en Cuba; diciembre 1995.

6. Development and conciliation of biosafety policies for the implementation of controlled releases and assays using GMO in the region.

7. Inclusion, at elementary and junior high school levels, of pedagogical objectives and contents on the nature of biotechnologies in the educational curricula.

8. Several tentative topics for future projects were also proposed in this Workshop:

a) Biotechnology and nuclear energy for peace.

b) Genomics and Bioinformatics; regeneration-transformation of regionally important cultures threatened by different diseases, development of technologies for the molecular detection of pathogenic agents and pests.

c) Use of biotechnological methods for the characterization of marine resources.

d) Biotechnology of fermentation for the production of metabolites in cells.

e) Validation and use of processes of bioremediation, biological control and biofertilization.

Furthermore, the following proposals were accepted:

1. To hold a Youth Meeting in Zamorano (Honduras) from December 10 to 14, 2006, to raise the awareness and struggle against the "brain drain" affecting our countries through the early education of our children. Local experts on specific subjects are to be used particularly Cuban and Mexican specialists, as representatives of the most highly advanced countries in biotechnology in the region.

2. To expand the participation at IICA (Honduras) through the inclusion of professionals from other countries of the region.

3. To explore and strengthen ties between different organized student groups, from academic institutions related to Biotechnology.

5. To design a workshop for biotechnology students, to be held in Costa Rica.

These initiatives may create and consolidate the basis for scientific exchange in biotechnology development in Central America considering the interests and natural or economic conditions of each country. Theis may, increase the awareness on the potential relevance of biotechnology for our countries and the preservation of our natural resources.