

SUPPORTING STUDENTS FOR A BIOTECH CAREER

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Abstract

The biotech high-education in Romanian has started relative recently, the first accredited college being registered in 1996 in Bucharest, in the University of Agronomical Sciences and Veterinary Medicine. Since then, more than 1000 license students have graduated in different specializations as Agricultural Biotechnology, Industrial Biotechnology and Veterinary Biotechnology. Recently, during the implementation of a structural funds project for human resources (POSDRU/109/2.1/G/81570) has been conducted a survey on how the biotech graduates have been placed on the labour market. The statistics shows that less than 27% from the graduates have found jobs in biotech fields, such as scientific research and education, food and beverages production, environmental protection, including biofuel production, pharmaceutical products, instrumentation and suppliers.

In this regard, educators, professionals and counsellors, on regional level, have started to take important measures to develop and implement activities to increase the absorption level of the biotech graduates.

Aside the curricula improvement, an important step it has been the counselling of 100 students, between 20 and 30 years old about self-knowledge, neuro-linguistic programming, CV content, letter of intention writing, as well as about behaviour during an interview. Also, it has been underlined the importance of the continuous learning. More than 93% from the counselled students has found it very useful.

Further, a network of 12 economical biotech operators have been developed and 38% of the counselled students have been involved in internships in fields as agriculture and food production, pharmaceutical industry, food safety and consumer protection, hygiene products design and biotech research.

As preliminary result, all the graduated counselled students have decided to continue their studies in master courses, and 27% has already been employed in biotech field.

The program will continue in the next years, with the aim to increase the employability for the biotech graduates.

Keywords: *biotech career, counselling, internship.*

INTRODUCTION

By definition, biotechnology means the use of advances in life science to create products and services for our world (Frierman-Hunt G, 2008). Although biotechnology industries make many different products from vaccines to seeds to specialized equipment, many of the job duties and titles are similar across the industry. To understand the different job functions, the jobs can be grouped into five areas: research and development (which includes research and development, laboratory support and technician jobs); manufacturing and services; quality and regulatory affairs; sales and technical support; and administration and management.

The biotech high-education in Romanian has started relative recently, the first accredited college being registered in 1996 in Bucharest,

in the University of Agronomical Sciences and Veterinary Medicine having different specializations such as Agricultural Biotechnology, Industrial Biotechnology and Veterinary Biotechnology. In the mean time, the faculty leads to Master of Science degree in the fields of „Biotechnologies and Food Safety”, „Biotechnologies in Environment Protection”, as well as „Modern Applications of Biotechnology in Agriculture” (<http://en.usamv.ro/faculty-of-biotechnologies>).

Generally talking, Biotechnology is a growing industry and supposes to offer excellent opportunities, pay and benefits. These opportunities are available for people with a background in biological science with good laboratory and computer science skills (Frierman-Hunt G, 2008). In the past last years, the biotech graduates have faced difficult problems related to their

integration in the labour market in biotech fields (Matei, 2012). The causes are multiples and relate to biotech jobs market in Romania, student motivation, career counselling, don't forgetting the last years of economical crisis.

In 2011 our team have started to implement a structural funds project, financed by POSDRU (HRDSOP-Human Resources Development Sectorial and Operational Program) in the Bucharest-Ilfov region. The main objective of the project is to increase the biotech graduates employability developing counselling services and implementing good quality internships. The project financing lasts two years, but there are undertaken measures to sustain its activities after the end of EU funding. As mains activities, the project developed a survey on biotech graduated employability in the labour market, as well as organizing career counselling sessions for students and creating a partnership with economical agents for internships development.

MATERIALS AND METHODS

The project is run by a multi-actor team, consisting in teachers from biotechnology high education field (UASMV Bucharest, Faculty of Biotechnologies), researchers from the same field (CBM Biotehgen), human resources and counselling professionals, former and actual students, stakeholders from biotech sector (research institutes, food production and food safety, pharmaceuticals, cosmetics, environmental protection).

1. Labour market insertion survey

The target group for the survey consists of Biotechnology graduates between 2007 and 2011 in the region Bucharest-Ilfov. They questions addressed to their professional background and how they have passed the transition from school to active life on the market. The questionnaire consisted in eight questions batteries with answers on choice. The answers have been processed by tools of classical mathematical statistics.

The questionnaire has been send to the graduates via e-mails existent in the Faculty of Biotechnologies database, as well as by socialisation website (Facebook) and groups created along the years by former and actual students from the biotechnology field.

2. Information, awareness and career counselling

During March–May 2012 time frame and following the results's survey the team has conducted a virulent campaign of biotech students information and awareness regarding the importance of their involvement in counselling sessions for their career development and in real and qualitative internships.

The information and awareness tools were oral communication in front of the classes, distribution of flyers and brochures, electronic messages via e-mails and socialisation networks, as well as the use of the campus visibility spots.

Between April 2012 and June 2012, 100 students (22 Master students and 78 licence students) have been involved in counselling sessions, where they have learned about self-knowledge, neuro-linguistic programming, CV content, letter of intention writing, as well as about behaviour during an interview. Also, it has been underlined the importance of the continuous learning.

3. Preparing and developing biotech internships

Having in the team teachers from biotech high education and stakeholders from the field, it has been created a partners network with economic operators from the biotech fields. The economic operators by their legal representative or operational representatives, have been contacted via e-mail, phone or in person. Considering the sectors were the faculty members and former students have been employed, the dialogue have been conducted in the research field, food industry, pharmaceutical industry, food safety authorities and laboratories, environmental protection.

RESULTS AND DISCUSSIONS

1. Labour market insertion survey

We have received feedbacks from around 10% of the graduated students, from which 84% are living and working in Romania. The answers have come from licence graduates (54%) and from Master courses graduates (46%).

The statistical results show the following facts:
-67% from the licence students have follow further Master courses;

-50% from the graduates have followed other types of professional training by their own

funds, the main reason being the career advancement;

- 96% consider that they have a high level knowledge in the biotech field, while only 19% stated relevant knowledge in complementary fields;

- from the graduates sample, 40% have been already employed in the labour market, 29% were following other type or studies, mainly Master courses and 31% were in job hunting;

- regarding the way of finding a job, 14% graduate consider that the university network is the most important;

- very interesting fact, only 50% from them have been interested to find a job during the study, while the other half started the job hunting only after the graduation;

- from the employed graduates, 93% have a single job, while 7% have parallel jobs;

- 58% from the employed graduates have contracts on indeterminate time, while the rest have contract on determinate time;

- only for 35% of graduates the stated that the employers takes into account the licence or dissertation paper field and the marks obtained during the school;

- for the employer final decision, 37% considered that the university reputation has been important, while 44% consider that their personality was the most important;

- 33% from the graduates consider that the Master courses are relevant for their employ-

yability, while only 10% consider useful doctoral and post-doctoral training;

- 38% from the graduates considered that the biotech job offer in Romanian labour market is very limited.

2. Information, awareness and career counselling

During the conducted campaign regarding the importance of the biotech students' involvement in counselling sessions and internships have been distribute around 350 flyers and 250 brochures. More than 200 students from licence and master courses have been informed and awarded about the opportunities given by the implementing project to get involved in counselling activities and to apply for an internship.

As a result of the awareness campaign, 100 students, between 20 and 30 years old, got involved in counselling sessions with professional from human resources (Mari Net 21 SRL). They have received a brochure regarding their possible professional biotech pathway and a mini-guide for the young employees. They have learned about self-knowledge, neuro-linguistic programming, CV content, letter of intention writing, as well as about behaviour during an interview.

Regarding the satisfaction grade, more than 93% from the counselled students considered that the sessions were very interesting and useful, as well as the received materials (table 1).

Table 1. Statistic on the students' satisfaction grade after the counselling sessions

Quality indicator*	Very week	Weak	Good	Very good	Excellent
The training content	0	0	7.5	41.9	50.6
Lecturer effort for the material accessibility	0	0	1.1	21.5	77.4
Lecturer efficiency in teaching	0	0	3.2	29.0	67.8
Lecturer expression clarity	0	0	3.2	21.5	75.3
Lecturer ability for alternative explanation, when applied	0	0	3.2	34.4	62.4
Used examples and illustration	0	0	15.1	38.7	46.2
Students' encouragement to express themselves	0	0	4.3	33.3	62.4
Overall assessment	0	0	8.6	38.7	52.7

results are given in %

As a special remark, all the counselled students from the licence level have decided to continue their further studies in Master courses.

3. Preparing and developing biotech internships

Having in the team teachers from biotech high education and stakeholders from the field, it

has been created a partners network with 12 economic operators from the biotech fields, respectively agriculture and food and beverages production (Angst Buftea, VelPitar Bucharest, United Romanian Breweries Bereprod-Tuborg), pharmaceutical industry (Medica Group, Slavia Pharma, LabormedPharma), food

safety and consumer protection (DSVSA Bucharest, S.C. ICA Research & Development S.R.L.), hygiene products design (Evic Romania – Bio High Tech SRL) and biotech research (NARDI Fundulea, NICPRI Bucharest, Institut of Food Bioresources Bucharest). Finally, 38% from the counselled students have been involved in 3 weeks of internships implemented with the help of the 12 economic operators, totalising 3420 internship hours.

When choosing the internship sector, the first choice of the students it was the pharmaceutical industry, being motivated by the higher jobs opportunities, as well as the higher salaries in the field. The second choice was the food industry, which in Romania is well developed and still offers job positions of high interest.

In a foreseeable manner, the last students' options were towards the national research institutes, because of the actual low financing opportunities.

After the internship a strong relation have been developed between the students and the hosts, and by March 2013, 27% of them have been employed in the existent network or in very similar companies related to the existent network.

CONCLUSIONS

The statistical survey shows that about 40% from the 2006-2011 biotech graduates have found a job, while 29% were following other type or studies; less than 25% from the graduates have found jobs in biotech fields, such as scientific research and education, food and beverages production, environmental protection, including biofuel production, pharmaceutical products, instrumentation and suppliers.

In this regard, more effort should be done to create the partnerships between university, research institutes and economic operators leading to the increase of the absorption rate of biotech graduates into the labour market and to counsel the students from their early study years in finding a job.

Regarding the counselling sessions, more than 93% from the counselled students considered the training very interesting and useful, as well

as the received materials. All the counselled students from the licence level have decided to continue their further studies in Master courses.

From the 38 students involved in internships, in less than one year 27% have been already employed in the existent network or in very similar companies related to the existent network. The others are continuing their studies.

It has been demonstrated that the internships firstly, give experience to the student. Secondly, the company gets to "look over" a prospective employee. Employers prefer to hire people they know over strangers. Thirdly, internships count as job experience. Listing an internship and the skills used in it on a resume will help get a job.

After meetings involving the project team, students and former students, as well as stakeholders, it has been concluded that the practical competences acquired during an internship have a huge impact on finding an adequate job in the biotech field.

The project activities, counselling and internships, will last one more year with EU funding. The team has already foreseen some measures to assure the activities continuation, by enlarging the partnership with economical operators and by proposing on the university level the establishment of a counselling bureau for the students, as well as for their parents.

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