Ethics in Erwinions

Biotechnology regulations in Mexico are scarce, or worse, in danger of extinction. This is real. Our country in the 21st century has a "biotechnology free culture". This isn't more of our concern because so far, we already solve it with the creation of the two official law protocols. But, ¿how could we assure our country, our society, our environment, our world, that our project impact will be more beneficial than harmful? That is why we couldn't only focus on the legal, social and economic aspects, instead, we needed an ethical approach.

The governmental dependency, SAGARPA, wanted to be sure that every person who practices biotechnology was aware of the possible consequences it might produce to the humanity. It is because, there have been several negligent acts of the people living in Chihuahua, that could have produced a chaos in nature; for example, planting a type of plant from Africa that it has been displacing the native plants, and have reduced the animal population due to starvation. We now understand their concern, and we adopted it as ours too.

Bioethics can define itself as "the systematic study of the human conduct in the field of life sciences and healthcare, examined in the light of moral values and principles"[1]. Ethics has become an obligated reference topic in the biotechnology area. We should be aware that not everything technically possible is ethically desirable. That is why every science must look for its ethic principles that regulate their own actions. These principles, clearly result necessary for the correct practice of biotechnology, and because the individual conscience has become an escape or a justification of the more comfortable or more propitious ethical choices of utilitarian actions in which it is sought to make the most personal profit[2]. The bioethical principles we have been referring to are: autonomy, beneficence, justice and nonmaleficence[3].

Autonomy: In terms of, everyone should have freedom and express the ability to give oneself rules or make decisions without intervention or external influence, all this related to the production, creation, and liberation of GMO´s. Autonomy means that everyone that practice biotechnology and GMO's should be well informed in order to take the right decision. Likewise, that anyone that before liberating a GMO should take the decision to create or liberate it as conscious human beings. With this, we imply that the recognition of this principle doesn´t mean that the moral decision of a person won't be in favor of the wellness of the humanity. Autonomy means that everyone that practice biotechnology and GMO's should be well informed in order to take the right decision.

Beneficence: This principle forces the professional of biotechnology to put the maximum effort in attending the human problems and do everything to fix them, in the way he

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[1] Association of Bioethics in Madrid´s Community. “What is Bioethics? What is it for?”, 2016, https://www.abimad.org/documentación-por-temas/1-bioética-general-y-deontolog%C3%ADa/bioética-una-nueva-definición/

[2] Association of Bioethics in Madrid´s Community. “What is Bioethics? What is it for?”, 2016, https://www.abimad.org/documentación-por-temas/1-bioética-general-y-deontolog%C3%ADa/bioética-una-nueva-definición/

[3] Rivas Muñoz, R. “Fundamental principles of Bioethics”, 2013, http://www.iztacala.unam.mx/rrivas/NOTAS/Notas1Introduccion/etiprincipios.html

considers most appropriate. This applies to the wellness the biotechnology practice will bring to the world, as well as the benefits it will produce for the people. This beneficence and sum up in a way that the creation and liberation of GMO´s will provide the world a solution to diverse problems, rather than create them.

Justice: It refers that the biotechnology products must be available for everyone who want to reach them. It is the obligation this area has towards the distribution equality of the product created. This doesn't mean that it has to be the same for everyone, rather, it must be equal.

Nonmaleficence: It is different to the beneficence principle, due because this one refers to the maximum in the human conduct referent to not make any damage or make harmful actions. This states that is more important not to damage rather than to make good. The harm done on a persona is more reprehensible, under certain circumstances than not having promoted this good. It means the ethical requirement is more imperative. This can relate to the duty a person has before releasing any GMO to the environment, to be one hundred percent sure that the impact produced on humanity will be more beneficial rather than chaotic and harmful.

J.H. Newman thought that if the conscience has its rights, it is because it also has its duties. If we apply it to biotechnology, we can recognize a human being as a rights and obligations holder, as well as the autonomy and freedom it possesses, inherent to his self-being. Said the above, it's clear that no one can be stripped out of its own responsibility or of its own convictions since every person in this world is responsible for their own acts without being able to delegate his or her moral responsibility to anyone.

¿How can we make Erwinions, not only a biosecure project but an ethically responsible one? This question pop in our minds, and at first, we didn´t have the answer. The only thing we knew so far, was that our project was safe and environmentally friendly due to the creation of two official norms protocols and the analysis of them with the Mexican Law regulations, all this because we had considered any possible risks and we have proposed a solution towards them. So, after quite a long research, we concluded that what we really need was a Bioethical Committee, which would have the faculty to evaluate the viability of the project ethically speaking.

<u>Requirements of the Bioethical Committee:</u>

This Bioethical Committee must be formed of 6 persons, graduated and with a professional title. They must have a Ph.D. in Biotechnology, Molecular Biology, Genetic Engineering or any other science related to Synthetic Biology, and minimum 10 years of previous experience in the fields above mentioned as well as 5 years of research.

They will be chosen from the governmental dependencies of SAGARPA and SEMARNAT, depending on the product they will evaluate; meaning each product evaluated will be integrated by different experts. This Committee will always aim to protect the four ethical principles as well as be governed with responsibility and ethical values.

<u>Faculties:</u>

- Review the process of creation and release of GMO´s submitted by third parties.

- Check that this process is in accordance with the two official law norms: “Method for the genetic transformation of risk microorganisms 2 by conventional methods” and “Method for the chromosomal insertion of microorganisms of risk 2 by CRISPR-Cas9”.
- Issuing decisions that determine the viability of the process submitted by third parties.
- Evaluate the benefice against the harm, so it can be more beneficial than harmful for humanity.
- Inform the governmental dependencies of SAGARPA and SEMARNAT in case third parties didn't abide their decision and were a matter of a sanction.