

UNIDAD EDUCATIVA PARTICULAR JAVIER

MONOGRAPH

**“THE USE OF GENETICALLY MODIFIED FOOD ON THE ECUADORIAN
SOCIETY IN THE LAST DECADE”**

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Gratitude

I am thankful to my family, my teachers, my friends and my love of food; they have given me the inspiration to focus on an interesting topic which affects our society directly as well as presently is creating an impact worldwide. My monograph is meant to educate people so that they may become better informed as to what they are eating as well as what their bodies need to stay healthy. My goal is to create an impact on the Ecuadorian society, informing the Ecuadorian public so they may come to realize that the basic traditional food may not always be the best choice. The amount of food we ingest and the combinations we make may not be the healthiest choices, as every organism is unique. To have a healthy body means to make your own choices, to be of one mind and be able to control and make decisions on how to maintain your organism as healthy as possible. Finally, I want to thank my school for teaching me to be an inspiration and for giving me the courage to dare to be the change in a world full of standards.

Summary

In this monograph it's presented the importance of a lifestyle based on a healthy diet, creating consciousness about the reality of using GMOs and how it affects your body in a long-term period of time. In the first chapter is shown the use of genetically modified food in general and then it's detailed in how the Ecuadorian society consumes GMOs, the definition of GMOs and the origin of them.

To inform the Ecuadorian population of genetically modified food, where it comes from and the outcomes of consuming it. Through research in this monograph it was found that GMOs create illness that could end up in cancer or a serious malfunction of the organism leading to death. In the second chapter there was an introduction to the organic food, the use of it in the Ecuadorian society and its origin.

Presenting this type of food to set a new way to achieve a health and more controlled diet to create a new point of view of what a balanced diet should have in the Ecuadorian society. In third chapter there is a diet example and the things a good diet should have based on organic food and non-chemical or processed food.

The purpose of this monograph is to create a new type of vision for Ecuadorian people to treat their bodies in a better way and not to interfere with the natural processes a healthy organism should do, but is not capable of because of the ingestion of food that contains chemicals or modifications, like GMOs, and to achieve the lifestyle that a healthy person has by using organic food and to exercise.

In the conclusions there are some points that affect the process of achieving the perfect healthy life and therefore, to increase diseases related to obesity and malfunction of the

kidney, liver, stomach and other organs that can be affected by the ingestion of food that contains chemicals or different modifications that are dangerous on the human body.

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Introduction

The present monograph, “*The use of genetically modified food on the Ecuadorian society in the last decade*”, is important due to the several consequences that nowadays are reaching a high level of danger and the obesity, diabetes and other diseases that are now affecting the Ecuadorian population. Through the entire monograph there has been research done, and as a final thought the outcome is that you are what you eat and your body is going to pay for the consequences of having bad habits due to alimentation.

The objective of this monograph is to create consciousness of how much can a bad diet damage your body, mind and others aspects. The income of consuming GMOs and the diseases that are relate to them, in which way do they affect in a long-term period of time and if is worth the loose by just eating this type of food and the alternatives that can replace the GMOs.

Through this monograph there has been taken the authors work as a reference to complete the research process these are the respective authors, “*Genetically Modified Foods*” by Lillian E. Forman; “*Determinants of Consumer Attitudes and Purchase Intentions With Regard to Genetically Modified Foods – Results of a Cross-National Survey*” by Lone Bredahl; “*Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods*” by Alan Mchughen; “*Lord Northbourne, the man who invented organic farming, a biography*” by John Paull.

This problematic is affecting worldwide and not only adults but kids and elderly people. Nowadays is really common to associate junk food or fast food to a healthy way to live because of the lack of responsibility of people these days. Not only representing a big

concern due to illnesses that are now starting to affect, but to try to make consciousness of the consequences of not giving it the enough attention to make a change.

The monograph has been divided into three chapters; the first chapter is called Genetically modified food; the use of it, its consume in the Ecuadorian society, definition, characteristics and definition. The second chapter is called Organic food; the use of organic food, the implementation on the Ecuadorian society, definition, characteristics and origin. The last chapter is called Balanced diet; the implementation of a balanced diet; definition, application, results, improvements and health enhancement.

Chapter I

Genetically modified food

1.1 The use of genetically modified food

The human body requires food in order to function normally; from which it extracts energy, nutrients and carbohydrates which are the main resource of life for the body. Through the centuries we have had to change our diets according to what we were able to gather or hunt. At first, we were hunters. We roamed and so, at that time we collected our food from bushes and hunted animals. Then we started to develop different techniques to obtain an easier and more consistent amount food and our sources were well guarded.

For decades we have been genetically modifying our food to increase production in less time and at a lower cost than what it would be if taken from an unhindered, normal food resource. These changes in the genetic structure of the food have put human health in danger. Our modifications, made to make our lives simpler have created a bad diet habit based on the consumption of processed food. This has had an enormous impact on our society as well as globally, yet the increase in the amount of food at our disposal has brought with its grave danger as the obesity levels worldwide have skyrocketed.

When we consume genetically modified food, our body starts to fail as it begins absorbing chemicals which lead to diseases and other affections. The majority of genetically modified food ingredients are found in junk food, meaning food that it's full of bad fats. We can associate a product as genetically modified giving it the denomination of junk food, a commonly used term related to it. We can find products as corn, canola, soybeans, cotton,

zucchini; these products have been altered chemically. These alterations create abnormalities in the human organism.

When people consume the meat and milk of animals fed these plants, their digestive system breaks down the DNA of the genetically modified foods. Bacteria in a person's digestive system might absorb genes for antibiotic resistance. This may add to the increasing tolerance for antibiotics among humans. (Forman, 2000, p. 11-12)

1.1.1 Genetically modified food on the Ecuadorian society.

Ecuadorian people are used to consuming food normally found on the market at a low price, tastes and looks good or appetizing to the eye. Therefore, the high-priced food which has a natural structure and no chemicals added is not normally included in the basic diet of the typical Ecuadorian. The average Ecuadorian consumes a diet based on grains, meat and carbohydrates, this sometimes varies on the region of origin. Nevertheless, these different food groups are misunderstood because we normally associate them to being rice, chicken and fats. These three elements are full of carbohydrates which lead the organism to create high levels of fat and as a consequence, the levels of cholesterol and triglycerides also rise.

They also contain saturated fats which causes your blood vessels to block the blood circulation, causing complications, and even a heart attack. A fat-based diet not only is the main cause of obesity problems, but also brings with it reasons for our brain to fail in various tasks and memory loss. As the author stands Bredahl (2001): "So far, however, little research has tried to explain how consumers form attitudes and make decisions with regard to genetically modified foods." (p. 24).

The plants that are genetically modified with built-in resistance towards insects that are harming may destroy insects that are beneficent. Genetic engineers have been said by some opponents to not interfere with natural processes. Some fear that new genetically modified products by adding patents to them will slowly going to enable agribusinesses from domination of the world food productions. (Forman, 2010, p. 14)

1.1.1.1 Definition.

Genetically modified food is an artificial alteration of the DNA in food. Made by applying different methods of genetic engineering, these methods allow the introduction of new traits and greater control of these new traits compared to previous methods. Two of the most known methods are selective breeding and mutation breeding being implemented in the agriculture and cattle raising. Scientifically, this new type of food is going to alternate the genetic structure of a product that was created with some specific characteristics because our body cannot handle different chemicals which more often than not, today are normally found in any given neighborhood grocery store. It is a product modified to create an increase in the profits and sales, transforming the industry into something commercially productive and lucrative without giving a second thought about the health issues these modifications bring with them and that are affecting the mass population by creating mutation within the human body. These new products are created to satisfy the economy have been proven to cause damage to the human body, taking further and further away from it its natural structure. "It is bandied about, but generally refers to any application of technology to living systems" (Mchughen, 2000, p. 9).

1.1.1.2 Characteristics.

Genetically modified is characterized by being unhealthy and lacking nutrients. This specific type of food is commercialized all over the world because of its economic price compared to organic and healthy food which cost more to produce and care for. An example of genetically modified food is chicken, the DNA of the chicken has been modified and it contains hormones which makes our body function abnormally. Corn is another example which genetic engineers have discovered to be a product of a mutation breeding method, making corn grow faster and duplicating the number of traits.

There are different methods applied in order to change the natural structure of a trait, but most of them have the same outcome which is to affect our body in dangerous and deadly ways. Mchughen (2000) stands: “They include gene-splicing, cutting pieces of the DNA, and connecting together fragments from different sources” (p. 9).

1.1.1.3 Origin.

Genetically modified food started with the production of a delayed ripening tomato in 1994, it was unsuccessful but ever since then, farmers have preferred to produce some sort of genetically modified food because it lasts longer at a reduced cost. The modifications started with tomatoes, then corn, soybean, canola and cotton. Nowadays, we see chickens, cows, pigs and all types of food sources transformed into unhealthy food. “These begin, perhaps, with the molecular identification and analysis of genes and DNA. They include extraction and isolation, then ‘cloning’ or multiplying fragments of DNA or genes” (Mchughen, 2000, p. 9).

Chapter II

Organic food

2.1 The use of organic food

People are used to misunderstand the concept of organic food, thinking that this specific type of food has something to do with a diet or a more complicated alimentation lifestyle. Therefore, try to avoid it because of how complicated they think it would be to try to keep a diet based on organic food. The basic concept of this specific kind of product is fresh, free of chemicals and made of nature. This means that any vegetable, meat or grains that contains chemicals or has being genetically alternated is not organic, it can and will affect your health in a long period of time. Through the decade's countries like Ecuador have been trying to avoid farmers from using chemicals, there are laws made for this specific topic but the implementation of it is not as effective as the law. The problem in Ecuador is the malfunction of the authorities, because of that laws are just simply in the constitution but not being applied, therefore there is no control in the food Ecuadorian people's consuming.

2.1.1 Organic food on the Ecuadorian society

The organic food in Ecuador is focused to the medium-high class social-economic standard because this specific class can afford to buy it. The products that are labeled as organic are very expensive due to the processes they have been through to get to be labeled as organic. They are products that have been controlled since they start being a seed, cultivated and taken care of their development. Usually they come from greenhouses that are managed by professionals in the organic food topic. The development of these products has processes that need to have periodic checks to comply with the high quality standards levels. Because

of that the costs on the market stalls are so high and unachievable for other social classes. People that follow a rigorous diet are the ones who are loyal customers to organic food.

2.1.1.1 Definition.

Organic food is defined by being completely free of chemicals and pesticides that endanger the health of a human being. The definition of organic goes beyond the normal concept of healthy food, is more related to a controlled environment where vegetables and other products are supervised to grow in a proper and modern way, to satisfy the new needs of the human beings. The genetic structure is not affected by the organic fertilizers, otherwise it tries to avoid modifying it, getting rid of dangerous bacteria for the human body. Organic food defines a new generation of controlled products to help the population grow in a more controlled and healthier environment. Organic production can be described as an ecological production administration system that encourages and increases biodiversity, biological cycles, and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that re- store, maintain, and upgrade ecological harmony. (Winter & Davis, 2006, p.17)

2.1.1.2 Characteristics.

One of the principal characteristics of organic food is its natural structure, being taken care of since there is a seed until the product is fully packaged and ready to be sold. Organic food is known for the use of organic fertilizers, meaning that the resulting product is not natural or genetically modified, is actually organic. Natural products do not use organic fertilizers or chemicals, they are just grown out of Mother Nature and will have some defects, they will be small and unacceptable to be sold in a supermarket. Another characteristic of organic food is the expenses it takes to produce it, the more organic a

product is, the more expensive it will be according to the needs the buyer has. The most significant characteristic is that organic food is so healthy that it provides the vitamins and proteins that your body needs but being free of chemicals, inorganic fertilizers and uncontrolled processes to make a product that fits the special needs of a nowadays human being. Society has become non-aware of the needs their bodies have and tries to avoid as much as they can to satisfy these needs, as a result of that food is being left is a second place and not taken seriously. As a matter of fact, fast food is an easy way to escape from feeling hungry and it hurts your body and mind. It takes time to have a healthy diet and to feel good with your body, people in the last decade have been losing the track of time and everyday have less time to invest on themselves, being that a social problem which leads to some other psychological problems. “Demand of vegetables in the domestic and global market is very high because of rich nutrition value (high amount of minerals, fiber, vitamins, carbohydrate and calcium). India has been producing 11.4% vegetables of the total world production and placed at second larger producer of vegetables” (Rai and Pandey, 2005).

2.1.1.3 Origin.

After the Second World War people saw the necessity of a more voluminous development in the production, created by the need of feeding a big amount of people and to stabilize the economy. Lord Northbourne, an English man who described this new type of food as organic and the method used as farming, combining them into one being organic farming. During that period of time there was a fertilizer called DDT that was used in new plantations, it made the product free from synthetic chemicals and it was so strong that it started to kill the flies that where around the plantation. The consequence to that was the death of thousands of birds that used to eat the flies. The term organic farming came from

the boom of Lord Northbourne called “Look to the land” and its known because of the new apportion that it gave to chemistry and the organic food industry. “Northbourne’s ideas were foundational in launching the worldwide organics movement, and the book was a turning point in his own life” (Paull, 2014, p.31).

Chapter III

Balanced diet

3.1 The implementation of a balanced diet

In order to complete a diet free of chemicals, pesticides and genetic alterations that can cause damage in our DNA, we need to find a diet based on products that can not only keep us from using GMOs but a product that gives our body the enough energy that it need to keep a normal and healthy lifestyle. In the food industry we can find organic food, genetically modified food and other products that in its majority will not affect your organism as much as the ones mentioned before. To achieve the goal of a clean organism, free of toxicity, we have to clarify that the process starts when you buy a specific kind a food. To make that change in your life you have to psychologically recognize that unhealthy not only means junk food, it also means chemicals and oils that our body don't actually needs. To transform your life into a free of GMOs and toxic products.

3.1.1 Definition.

To define a balanced diet, we need to look at the pyramid of food, we can devise different groups that are divided because of their genetic structure, like grains have a special combination of chemical components that were created by its natural growth. To get to the perfect balanced diet is necessary to mix and match a lot of different types of food to get the perfect number of calories that each body needs. Mixing grains, protein, extracted from natural products not necessarily meat, carbohydrates, healthy fats and water. I consider that a perfect meal to actually achieve a healthy life. That could be the perfect structure to the 3

essential meals and the 2 snacks could start from a fruit, to Greek yogurt or something small, organic and that makes you feel full.

A healthy diet includes the following: Fruit, vegetables, legumes (e.g. lentils and beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat and brown rice). At least 400 g (i.e. five portions) of fruit and vegetables per day (2), excluding potatoes, sweet potatoes, cassava and other starchy roots. (World Health Organization, 2018, p.31)

By this statement we understand that the world health organization tries to keep the population of the world apart from the consume of unneeded food.

3.1.2 Application.

To apply and actually get a result from the change of the type of food you eat, is needed to at least have 5 meals a day and 2 liters of water to keep your hydrated because of the amount of food your body has to process. These 5 meals consist in a 3 full of proteins and carbohydrates and 2 soft meals just to keep your stomach full for longer and you don't feel the need to eat. With this method of application people cannot eat sugars in excess or oils because it will produce obesity and malfunction of the organism because of the amount of meals it is processing. As the World Health Organization (2018) states: “Consuming free sugars increases the risk of dental caries (tooth decay). Excess calories from foods and drinks high in free sugars also contribute to unhealthy weight gain, which can lead to overweight and obesity” (p.11).

3.1.3 Improvements.

Time will show the different improvements that your body has achieved through the whole process; physically, mentally and your organism will feel cleaner. You might loss the

excessive weight and unneeded fats that your body has accumulated over the time. The immune system will react faster and you will not suffer from common fever or the flu. Your metabolism will start to act faster and as a result of that your digestion will process food much faster to keep your whole body on track and connected to the routine that you started. If you follow the advice of the world health organization, you will understand that an organization, known by its work done worldwide, is trying to change the basic food diet of a normal person that is ignorant of the damage that the food modified is causing them.

The World Health Organization (2018) states that the reduction of incentives for the industry of food to keep or increase the production of food that has been going through a process, containing levels that are high in saturated fats, trans-fats, free sugars and salt/sodium

3.1.4 Results.

As a result of all those new changes and routines you will feel psychologically better, the anxiety in your body is going to keep down as long as you have controlled your meals and the things that you are eating. You will feel happier, not only because of the new way you look but because you are being friendly to your organism, the earth and organic food. The reduce of the chemicals that are used to enter our body because of gmos is going to produce a positive result in a long-term lapse of time. Leaving behind diseases that silently kill the good cells our body is made to create and avoid deadly tumors or failures from our organs.

3.1.4.1 Health enhancement.

If you start adding a workout routine to this balanced diet, you will find a stress-free life and a health enhancement from the life you were used to have. In addition to that you will

start eating new types of food, healthier and start treating your body in the right way, a way to let it be its natural self and let your whole mind, body and soul let be yourself. The increase of positive changes in your life will lead you to a life full of new experiences and it all ends in the things you consume and the way you treat your body, because as human beings the only thing we are supposed to satisfy is the need of taking care of our own bodies through our whole life. The health enhancement is just a small portion of the new things that life will bring you because of the love you gave yourself to enhance your life.

Conclusions

At the end of this monographic work it is concluded that:

- The Ecuadorian society is used to have a diet based on how expensive it is, not worrying about the health issues it might bring as an outcome in a long-term period of time.
- The Ecuadorian farmers try to make a product that has a low cost of production without thinking about the chemicals that are being used to kill fungus; these are known for being dangerous and toxic.
- The increase of obesity levels in Ecuador is a problem that has reached a high level due to bad diets that affect the organism because of the fats that contain or the malfunction that creates.
- Through the research in this monograph there has been a discovery that the Ecuadorian law for GMOs is strong and is similar to first world known countries' laws but they aren't being applied the way they should be, and the expertise, supervisors and health agents are not being careful to search deeper in farms that use illegal chemicals to grow vegetables or food in general.
- Organic food is known in Ecuador for being expensive but the problem stays in the people, because an average Ecuadorian is not willing to pay more for food due they believe that it's an unnecessary way to spend money and the mentality will not change unless a health issue appears.

- Ecuadorians believe that a diet based on simple things, excluding vegetables, is the perfect diet. Through research there has been proven that this is not a viable way to achieve a healthy lifestyle, because the consume of carbohydrates are the highest when they should be the lowest and the lack of exercise is making all the fats accumulate, leading to diseases and in the worst-case scenario death.
- The proposal of a balanced diet in chapter III is an example of the quality a meal should have and the importance it should have in every person's life, without letting aside the fact that the human bodies need to consume sugar but in a normal level.
- The only way that a person can change their destiny is by worrying about their health and start treating their own bodies in the proper way. Is important to not only change a diet but to achieve a mental state where you analyze that the change you're making is not to reduce weight but to create a new path towards a healthy life free of chemicals, GMOs and junk food.

Recommendations

After ending this monograph, it is recommended that:

- In order to finally understand the purpose of this monograph you should analyze it through an analytic point of view, understanding that the food industry is not as clear as it seems and that little changes in a daily diet can change in an amazing way your life and wellbeing.
- To achieve a healthy mind with all the benefits that it brings with it, people should start analyzing the way that they're treating their bodies and getting to actually understand the meaning of a balanced diet based on not a food pyramid, but their special needs and what actually their own bodies need to consume to be regularized.
- Try as hard as you can to avoid the use of GMOs, they will lead your organism to a state of malfunction and eventually diseases will affect your normal activity or your organs will start to fail and probably end up in death.

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