

# **Can Biotechnology Improve Tomatoes flavor, in Order to Increase Their Consume**

## **Puede la Biotecnología Mejorar el Sabor del Tomate para Aumentar su Consumo**

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### Abstract:

This research has the purpose to inform if biotechnology can improve tomatoes taste without compromising the characteristics that producers need and consumers love. To know that, a gene from a dragon flower was injected to one variety of tomatoes (purple) and the maturation process of tomatoes was slow, allowing them to develop full flavor while enjoying a longer life.

### Introduction:

How you should know, nutrition is a problem in our country because a great amount of the population don't like the flavor of fruits and vegetables (healthy food).

Most people like junk food more than healthy food. This is because almost all junk food have a lot more sugar and fats than healthy food, so it is more delicious, but it is very bad for our body. And that is a reason why Chile is the second country OCDE with the highest cup of obesity in the world.

¿How can biotechnology help us to improve our nutrition by helping improving fruits and vegetables taste?

Key words: biotechnology, tomatoes, fruits, vegetables, nutrition, improvement, taste.

### Introducción:

Como deben saber, la nutrición es un problema en nuestro país porque a una gran cantidad de la población no le gusta el sabor de las frutas y verduras (alimentos saludables). A la mayoría de la gente le gusta más la comida chatarra que la comida sana. Esto se debe a que casi toda la comida chatarra tiene mucha más azúcar y grasas que la comida saludable, por lo que es más deliciosa, pero es muy mala para nuestro cuerpo. Y

esa es una razón por la cual Chile es el segundo país de la OCDE con la mayor tasa de obesidad en el mundo.

¿Cómo puede ayudarnos la biotecnología a mejorar nuestra nutrición al ayudar a cambiar el sabor de las frutas y verduras?

Palabras clave: biotecnología, tomates, frutas, verduras, nutrición, mejora, sabor.

Problem:

All fruits and vegetables are necessary for having a good nutrition. Tomatoes in specific are a very completed fruit. Tomatoes are very nutritious, and a better tasting tomato would encourage people, especially children, to eat them.

In supermarkets, tomatoes have a bad reputation because people say that they have a paperboard flavor. The problem is that usually, they look very good (with a good color, a good shape, a good size, a good consistence, etc), but their taste is not good enough.

The disappearance of tomato flavor began about seventy years ago when producers noticed that some parts of the tomatoes turned from green to red slower than the rest of the tomato. The “green part” made it difficult for farmers to know when the tomato was ready to harvest, and buyers didn't like the way it looked.

Farmers began selecting the seeds of the uniform red tomatoes and crossing them with other uniform red tomatoes to create the visually perfect commercial tomatoes we have today.

The problem is that the mutation disabled a gene that was in the “green part” of the tomatoes, that regulated chlorophyll, that was in charge to increase the level of sugars, that gave the original flavor to tomatoes.

¿So, can we find a solution for this fruit to recover its original flavor? ¿Can biotechnology help us to solve this problem?

Methodology:

A variety of tomatoes was selected, in this case, Purple Tomatoes. A gene from a dragon flower, that allows the tomato to produce anthocyanins, was injected to the tomatoes. Anthocyanins were used to slow down the maturation process of tomatoes, allowing them to develop full flavor while enjoying a longer life.

Solution:

Using biotechnology (introducing a gene from a dragon flower), the flavor of Purple tomatoes, can be improved without compromising the characteristics that producers need and consumers love.

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