

These will be the four types of smart food created by the Tec



An academic from the Tec's Guadalajara campus is working alongside students on four lines of research to enhance food properties for tackling various illnesses.

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Researchers from the [Tec's Guadalajara](#) campus are developing **four lines of smart food research** with the aim of **tackling chronic-degenerative diseases** related to obesity in order to prevent them.

Using **biotechnology**, they've developed **nutraceuticals or smart food**, from **juices to chocolate** to tackle diseases such as **diabetes** and **hypertension**.

The project is led by Daniel Jacobo, a researcher from the **Tec's Guadalajara** campus, alongside undergraduate and graduate students, as part of a collaboration

with [**The Institute for Obesity Research.**](#)

This institute is the **Tec's new research center** to tackle obesity in **Mexico and Latin America**, with different approaches being conducted on various campuses.

Jacobo said that the goal is ***"to generate knowledge, products, and technology that are transferable, in demand, and affordable to the general population."***



Professor Daniel Jacobo (left) explains an experiment to be conducted for developing smart juices to students at the Tec's Guadalajara campus.

Combining foods to tackle illnesses

*"These **smart foods or nutraceuticals** aim to prevent different types of diseases,"* emphasized Jacobo, explaining that these **four lines of research** are being conducted at the Tec's Guadalajara campus:

1.- Mixed vegetable juices

This consists of a **combination of different vegetables** to turn them into juice for **tackling colon cancer**, which is also one of the most common comorbidities related to obesity.

*“We’re creating **combinations such as broccoli and carrot juice**, so that they can work more powerfully together at **attacking cancer cells** than alone,”* Jacobo said.

“We design smart mixtures, combining ingredients or compounds. In this case, carrots have chlorogenic acid, which complements the properties of broccoli.

*“We hope that this combination can **attack cancer cells**, and then **transform them into digestible food**,”* he explained.



2.- Functional chocolate

This **smart chocolate** combines compounds that **tackle long-term Covid-19**, a neurological condition suffered by patients with this disease.

Consuming this functional chocolate could **reduce the side effects** suffered by people infected with **Covid-19**, such as memory loss, anxiety, or difficulty concentrating.

3.- Appliance design

The Guadalajara campus team is also working on the design of **appliances** so that **people can treat their own vegetables** at home.

*"We want people to put their vegetables into this appliance before preparing a salad so that they can **generate more antioxidants** to tackle this type of disease," explained the academic.*

*"**This device will produce specific compounds**, obtaining 2000% **more antioxidants** that also tackle obesity and its comorbidities," he said.*

The mixing process to create smart juices.

4.- Low glycemic index foods

They are researching the creation of food with a **low glycemic index** to help people with **diabetes**, based a combination of ingredients and compounds that act synergistically.

*"These compounds help **to reduce the glycemic index** so that when they are consumed by a diabetic person, the sugar is absorbed slowly," he said.*

This type of food "**will allow glucose to be metabolized efficiently and not accumulate in the blood**, which is why it will be suitable for diabetics to consume," he said.

Prevention and the impact on the food industry

*“Diet is the main risk factor in developing obesity. That’s why the institute aims to **create food that tackles and prevents this problem** through this work unit on campus,” said the researcher.*

Jacobo added that this research will have an **impact on the food industry in Mexico**, adding value to the crops harvested in the region, and working closely with national farmers who produce them.

*“We want **people to incorporate smart food into their diet**, to prefer buying these types of products over conventional ones.*

*“That’s why we aim to **educate the community about the potential of disease prevention**. Our goal is to work through government social programs to produce them in large quantities and distribute them among the people,” said the academic.*

The Guadalajara campus research team hopes to have made tangible progress by 2023. They will also advance in the process of acquiring the patents for the mixtures they have created.

“We aim to educate the community about the potential of disease prevention. Our goal is to work through government social programs to produce them in large quantities and distribute them among the people.”- Daniel Jacobo.

He also explained that *“the Institute for Obesity Research began in early 2022. It’s a virtual center where we **unite talents and efforts** from different campuses.”*

Daniel concluded by saying that “the Tec is making progress as a whole by focusing its efforts on solving global health problems and conducting **important research** for Mexico and the world.”

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