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The high nutritional profile of fruit and vegetables grown in the Solar Greenhouses of Southern Europe plays a positive role in the fight against cardiovascular disease, cancer, and depression.

Daily consumption of fruit and vegetables reduces the risk of disease due to the presence of essential components for the proper functioning of many metabolic processes that are key to maintaining good health.

Now that autumn is in full swing and the weather is cooler, germs are on the rise again. However, there are natural ways to protect yourself from them, such as eating a balanced diet with plenty of fruit and vegetables. The nutritional components of fruit and vegetables act as preventive factors against many chronic diseases. Up to 60% of the tomatoes, peppers, cucumbers, courgettes, and aubergines consumed in the autumn and winter months by Europeans come from the solar greenhouses of Almeria and Granada in southern Spain.

The nutritional quality of vegetable products depends on the quantity and quality of their macronutrients (proteins, carbohydrates, and lipids) and micronutrients (vitamins, minerals, fatty acids and essential amino acids). In this sense, although fruits and vegetables may differ in their organoleptic and nutritional profile, they always have several common denominators: they are low in fat and carbohydrates, have a high water and dietary fibre content and are a very important source of vitamins and minerals.

Scientific research ^{1,2,3} shows that there is a link between adequate consumption of fruit and vegetables and a reduced risk of certain diseases such as cardiovascular disease, some cancers, eye diseases and diseases due to nerve cell death. In addition, there is growing evidence of a link between diet quality (and possible nutritional deficiencies) and mental health. For example, the compilation and evaluation of 17 studies from different parts of the world (including Spain) on fruit and vegetable consumption and the risk of depression concluded that vegetable consumption is inversely related to the rate of depression⁴. On the other hand, they compared carbohydrate intake in adults over 55, finding

¹ "Transforming European food and drink policies for cardiovascular health", European Heart Network Paper 2017. <http://www.ehnheart.org/publications-and-papers/publications/1093:transforming-european-food-and-drinks-policies-for-salud-cardiovascular.html>

² "Possible role of diet in cancer: systematic review and multiple meta-analyses of dietary patterns, lifestyle factors, and cancer risk", Grosso et al. 2017. <https://pubmed.ncbi.nlm.nih.gov/28969358/>

³ AUNE D, ET AL. "Fruit and vegetable intake and risk of cardiovascular disease, total cancer and all-cause mortality: a systematic review and dose-response meta-analysis of prospective studies". *Int J Epidemiol.* 2017; 46 (3): 1029–1056. doi: 10.1093 / ije / dyw319

⁴ Liu, X.; Yan, Y.; Li, F.; Zhang, D. (2016): "Fruit and vegetable consumption and the risk of depression: A meta-analysis" *Nutrition.* 32(3):296-302

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that those who consumed more vegetables had a 41% lower risk of depressive symptoms ⁵. A lower incidence of pathological anxiety was also observed in adults with high fruit and vegetable consumption.

"In short, fruit and vegetables are essential in any healthy diet, such as the Mediterranean diet, and fundamental in any nutritional programme for the reduction of obesity and the prevention of numerous, diverse and important diseases," said Ana Molina, nutritional advisor for the Cute Solar programme.

Components of fruit and vegetables have an impact on health

In the solar greenhouses of Almeria and the coast of Granada, many fruits and vegetables are grown that contain elements that have a positive impact on human health. The daily intake of five portions of fruit and vegetables is vital to strengthen our defences, as certain nutrients provide our organism with the necessary doses for the immune system to function correctly. This makes fruit and vegetables powerful allies in protecting us from the adverse effects of COVID19

According to the definitions of nutrition claims set out in **Regulation (EC) No 1924/2006 on nutrition and health allegations**, peppers are rich in vitamins C and are a source of vitamin B9 & B6; tomatoes are a source of vitamins A & C; courgettes are a source of vitamins C & B9; and melons are rich in vitamins A and a source of vitamin B9 and fibres. Also, in accordance with **Regulation (EC) No 1924/2006**, these vitamins and elements contribute to the normal functioning of our immune, nervous, and skin systems. They also help to maintain normal psychological functions and act in important metabolic processes, such as in the formation of blood, collagen for the correct functioning of bones, skin, and blood vessels, in the protection of cells against oxidative stress, or in the absorption of important minerals such as iron.

What is a solar greenhouse?

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A solar greenhouse is a closed structure covered with a plastic film through which the sun's rays shine, giving the plants the light they need to maintain the right temperature for their development during the winter months so that they can carry out photosynthesis. In the process, the plants produce nutrients from the CO₂ they absorb from the air and release enormous amounts of oxygen into the atmosphere. Solar greenhouses are very different from the production methods used in other greenhouses, which use fossil fuel-based heating and lighting systems that consume up to 30% more energy and are therefore harmful to the environment.

About CuteSolar

CuteSolar is a promotion programme funded by the European Union (EU) and supported by a consortium of Andalusian fruit and vegetable growers' associations (APROA), the Spanish inter-branch fruit and vegetable association (HORTIESPAÑA) and the Assembly of European Fruit and Vegetable Growing Regions (AREFLH). The aim of the information and promotion

⁵ Gopinath, B., Flood, V., Burlutsky, G., Louie, J., & Mitchell, P. (2016): "Association between carbohydrate nutrition and prevalence of depressive symptoms in older adults". British Journal of Nutrition, 116(12): 2109-2114

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campaign, which will run until 2022, is to inform consumers about the sustainable and environmentally friendly production and cultivation methods of EU fruit and vegetables, the high standards of greenhouse technology and the quality of fruit and vegetables from southern Spain.

The programme, with a total investment of €1.95 million, is co-financed by the proposing organisations and the European Union, will run for three years (2020-2022) and will be implemented in Spain, Germany and Belgium.

Disclaimer

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Contact:
Sam Jaspers
+32 499 28 34 00
