

International team of scientists to create a “virtual tongue” to predict the taste of food products

05/11/2019

Research news

- **The University of Granada is participating in the VIRTUOUS project, with a budget of 1.1 million Euros, involving institutions from four European countries**

Researchers from the University of Granada (UGR) are to participate in VIRTUOUS—a project with funding of 1.1 million Euros from the European Commission. VIRTUOUS stands for “Virtual tongue to predict the organoleptic profile of Mediterranean ingredients and their effect on human homeostasis by means of an integrated computational multiphysics platform”, and the project is being delivered as a Marie Skłodowska-Curie RISE (Research and Innovation Staff Exchange) Action of the Horizon 2020 Programme.



VIRTUOUS, which has just started and is coordinated by Politecnico di Torino (Turin, Italy), brings together Agrifood Sciences and Artificial Intelligence. It aims to create a “virtual tongue”, by means of an integrated computational framework, that is able to detect foods for natural ligands aimed at taste receptors.

“The idea is to design a taste predictor that can be applied to European food products, which is undoubtedly something that will boost the European food market and expand worldwide,” explains the lead researcher of the project, Vanessa M. Martos Núñez, of the UGR’s Department of Plant Physiology.

Researchers from 9 institutions based in 4 European countries—Italy, Greece, Spain and Switzerland—are participating in the initiative. The UGR’s involvement includes academic staff from the Faculty of Science and the Faculty of Pharmacy, the School

of Computer and Telecommunication Engineering (Jorge Casillas Barranquero) and the SEGE Multidisciplinary Tasting Panel (led by María Luisa Lorenzo Tovar). Companies from the sector are also participating.

The proposed smart algorithm at the heart of VIRTUOUS, which is based on drug discovery techniques blended with big data algorithms, will predict the organoleptic profile of a specific food based on its chemical composition.

An interdisciplinary project

The results of this research will shed light on the mechanisms that control the transfer of information from the chemical level—where the molecular components of food meet taste receptors—to a cascade of supra-molecular and cellular events, which combine in a complex sensation that contributes significantly to the organoleptic profile of a given foodstuff.

The balance between academia and industry, and the interdisciplinary nature of the Consortium, will provide a collaborative and multidisciplinary framework for the project. The relevance of the programme has been identified at European level and globally, both for the academic world and for industry.

VIRTUOUS can also be considered a “computer-aided design tool” for EU food technology. For example, based on taste prediction, the VIRTUOUS platform may be used in the future to predict the results of grafting for a specific grape, or combined with other technologies to improve precision agriculture.

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