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## The UGR Patents A Process To Obtain A Protein As A Natural Colorant

2006-09-26 - The Universities of Granada

We only have to read the labels of many commercial products to find colorants among their components. They are natural or synthetic additives authorised by food security regulations and used to colour food and drinks in an artificial way. A research team of the Universities of Granada [<http://www.ugr.es>], Jaén and Almería have devised a process to obtain a natural colorant from the micro-algae *Porphyridium cruentum*.

High performance

Many marine algae are rich in proteins with fluorescent properties. They contain a kind of molecules -chromophores- which pick up and emit light. In the case of the species *Porphyridium cruentum*, the protein known as ficoerithrin confers the micro-algae a reddish colour. Scientists Bermejo Ruperto, of the Universidad de Jaén, José M<sup>a</sup> Álvarez Pez, of the UGR [<http://www.ugr.es>], and Francisco G. Acien Fernández, Emilio Molina Grima and M<sup>a</sup> José Ibáñez González, of the Universidad de Almería, have designed a process to obtain the B-ficoeritrina protein from this microalgae, which is characterized by its "high performance", about 66%. According to José M<sup>a</sup> Álvarez, researcher responsible of the group 'Photochemistry and Photobiology' of the Universidad de Granada, this value is "twice as much as the highest published up to now obtained with chromatographic method". They have separated and purified amounts of this on an almost industrial preparatory scale.

An example of the relevance of this finding is the fact that the results of the research work have been included in an article of a special issue of the prestigious Journal of Chromatography.

Protein structure

Colorants are basically used in food and agriculture, pharmaceutical and cosmetic industry to improve the aspect of the products and make them more attractive to consumers. B-ficoerithrin is "very fluorescent" and its colour "looks like strawberries milkshake's"; therefore, according to the researcher, it could take the place of other colorants.

However, the use of a compound as a colorant must be authorized by the regulations currently in force. In this sense, scientists are dealing with the study of the spectroscopic features of B-ficoerithrin. This way they will obtain information about the possible structural changes of the protein when it is subjected to extreme conditions during the production process of foodstuffs or pharmaceutical or cosmetic formulations.

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On the other hand, the researchers are going to set in motion a R&D&I project with the spin-off of Almería Bioalgal Marine, S.L., a technological innovation company that works on the treatment and commercialization of microalgae aimed at the sector of aquiculture and the preparation of functional food. In addition, among the commercialized products there are pigments produced from microalgae. Biolgal Marine is part of the business projects supported by the Department for Innovation, Science and Company through the Program Campus, managed by Invercaria.

About the UNIVERSITY OF GRANADA - COMMUNICATIONS DEPARTMENT

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The University of Granada (UGR) was founded in 1531, under the initiative of Emperor Charles V. In this way, Granada asserted its vocation as a university city, open to different cultures, peoples and beliefs, continuing the tradition of the Arab University of Yusuf I (Madrassa, 14th century). With 475 years of tradition, the University of Granada has been an exceptional witness to history, as its influence in the city's social and cultural environment grew until it was to become, over a period of almost five centuries, an intellectual and cultural nucleus in Southern Spain in its own right. The University of Granada has also made a strong commitment to its future by fostering the development of quality research, whose guiding criteria are to stress traditional lines of research, to support investigation which - although less developed - may prove useful to a changing society and to forge bonds with firms and institutions. As a result of its growth in scientific production, the UGR is among the top Spanish universities. More than 400 research groups are working in all different areas of knowledge, in collaboration with both national and international research groups. The University of Granada offers to 81,600 students - 10 per cent of which are foreign students - 75 degree courses distributed in 28 centres. The UGR is the leading European destination for Erasmus/Socrates students, the most important Spanish university in graduation prizes, the third in the number of doctoral courses with the Distinction of Quality granted by the Ministry of Education and Science and the sixth in scientific production.

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