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Bioproduction of bioactive compounds obtained from elicited broccoli cell cultures

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Brassica vegetables have received significant attention in recent years due to their health beneficial properties. In particular, broccoli florets contain a wide range of nutrients, dietary fibre and phytochemicals with health related properties. The healthy properties of broccoli have been associated with isothiocyanates, whose precursors are glucosinolates, a type of sulfur containing compounds found in brassicas. In particular, the isothiocyanate sulforaphane has beneficial effects on human health due to its anti-tumoral, anti-inflammatory and antioxidant activity. As a result of the beneficial properties of glucosinolates, the demand for these bioactive compounds has rapidly increased and as consequence, new biotechnological strategies to obtain them from natural sources have been developed. In this sense, several works have showed that cyclodextrins (CD) and methyl jasmonate (MJ) enhance the production of bioactive compounds in plant cell cultures. For these reasons, the aim of this study has been to characterize the total production (intra and extracellular) of bioactive compounds in broccoli cell cultures treated with CD and/or with MJ, NaCl, hexenol and β-glucan. The results have showed that the presence of these elicitors induced the production of both hydrophilic and hydrophobic compounds, inside and outside the cells.

Biography

Lorena Almagro has completed her PhD from Murcia University and her Postdoctoral studies at the Institute of Molecular and Cell Biology in Porto, Portugal. In 2014, she had a Post-doctoral position in the University of Murcia, Spain. She has published 20 papers in reputed journals and her work has been focused on the production and identification of bioactive compounds derived from different plant cell cultures under elicitation.

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