B·DEBATE International Center for Scientific Debate BARCELONA

ISABEL DÍAZ CV

SPEAKER AT:

THE DEATH OF PLANT CELLS.
FROM PROTEASES TO FIELD APPLICATIONS

October, 2nd and 3rd , 2013, Barcelona

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Potential Biotech Applications of Cysteine-proteases and Their Inhibitors

Proteases occupy the most relevant position among industrial enzymes, representing near 60% of all commercialized enzymes in the world. However, the number of proteases from plant origin used in industrial processes is low. Probably, the most frequently plant proteases employed in a variety of industrial processes are papain, bromelain and ficin, belonging all of them to cysteine-protease class. They are considered traditional enzymes in the industry but they are still focus of attention from the pharmaceutical and biotechnology industries because of their strong proteolytic activity on a wide variety of substrates and because they are active over a range of temperatures and pHs. Besides, plant protease activities are regulated by protease inhibitors, small plant proteins with a wide range of applications in industry. The recent biotechnological developments and particularly, protein engineering, predict a big future for plant proteases and their inhibitors with improved industrial properties. Here, it is presented the whole family of cysteine-protease C1A from barley and their inhibitors, the cystatins. A revision on their potential roles in different physiological events in the plant, are also mentioned and their potential application as proteins with multiple roles for controlling plant development and plant responses to abiotic and biotic stresses.

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