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FET based sensor indentifying and quantifying cellular communication through specialized structure at interfacial cell wall for graft success in plants

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Electrical resistances of auto grafts and hetero graft of various plants like *Lycopersicon esculentum* and *Amaranthus tricolor* have been measured and found to be a significant means for measure of graft union. The present study deals with the measurement of electrical resistance in some other plants like rose, tea and tissue cultures grown cashew and its pattern of variation at different days after grafting. The present study also examines the existence of inter cellular communication via plasmodesmata appeared at the graft interface when drop of electrical resistance occurs in graft union. The appearance of plasmodesmata at contact surface of the scion and root stock at different time interval of the graft has been confirmed by light and electron microscopy. This study enumerate that this phenomenon is a universal indicator for graft union in plants. A FET and MOSFET based sensor was designed for the measurement of electrical resistance at interfacial graft surface.

In addition to this, weak electric current at the order of milli-amperes were passed through the interfacial graft surface and astonishing results were seen at the graft interface and were also authenticated by the microscopic observations.

Biography

Rajiv Dutta earned his M.Tech. (IIT-Kharagpur), Ph.D. (BITS-Pilani) and D.Sc. (IUCM-Colombo, Sri Lanka). Presently, he is the Dean, Faculty of Biological Engineering, Graphic Era University, Dehradun. He has wide research and academic experience in Universities/Institute in India and abroad. He published several research papers in high impact journals which were highly cited and served as Editorial Board Member for journals of international repute. He has received several awards including ISCA Young Scientist Lecture Award, World Congress of Natural Medicine Young Scientist Gold Medal, JCI Outstanding Young Person of India, Erwin Neher Diamond Jubilee Oration, and Dr. Ramesh Gulrajani Memorial Award for his outstanding contribution.

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