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Micrpropagation of Indian rice varieties by using de-husked seeds

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Rice is staple crop in major parts of India, but it is facing some major problems like abiotic stresses (drought, salinity etc) and its productivity is greatly affected by these abiotic stresses. Attempts to improve resistance in Indica rice to these stresses by conventional breeding through introgression of traits have limited success owing to a lack of resistance germplasm in the wild varieties. Gene transfer technology with genes from other sources can be used to make rice plants resistant or tolerant to abiotic and different environmental stresses. For improving the nutritional value of the edible endosperm part of the rice, iron increasing genes, beta-carotene, or protein of better quality can be introduced in rice plants by bacterial-mediated gene transfer. In this direction, twenty one varieties of Indica rice grown on basal MS medium, supplemented with different concentrations of growth hormones, sucrose (3%) and mannitol (1%) lead to development of callus, roots and multiple shoot proliferation. Callus induction was obtained on full MS and ½ MS medium containing 2, 4-D (2 - 2.5 mg l⁻¹) and 2, 4-D + Kin (2.5-3 mg l⁻¹) sucrose (3%) and mannitol (1%) in ten varieties (Sarsu 52, PR-116, Erramallellu, Pothana, Vijetha, Surekha, Kavya, Sambha Mahusuri, Ramappa and Kheshava) within 4-5 weeks. Multiple shoots were achieved in two varieties (PR-116, PR-115) of Indica rice cultured onto the MS medium within 24-28 days. For multiple shooting of these two varieties, the medium was supplemented with 2, 4-D (5.0 mg l⁻¹) Kin (3.0 mg l⁻¹), sucrose (3%) and mannitol (1%). Complete plantlets were successfully transferred to soil after acclimatization.

Biography

B Singh has completed his PhD at the age of 30 years from University of Rajasthan, Jaipur, India and postdoctoral studies from University of Rajasthan, Jaipur, India with Professor Ashwani Kumar. He is working as Assistant Professor at Institute of Biotechnology, Amity University Rajasthan, Jaipur, India. He has published more than 25 papers in reputed national and Overseas Journals. Five text books have been published in his credit and he has been serving as an editorial board member of repute of many journals.

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