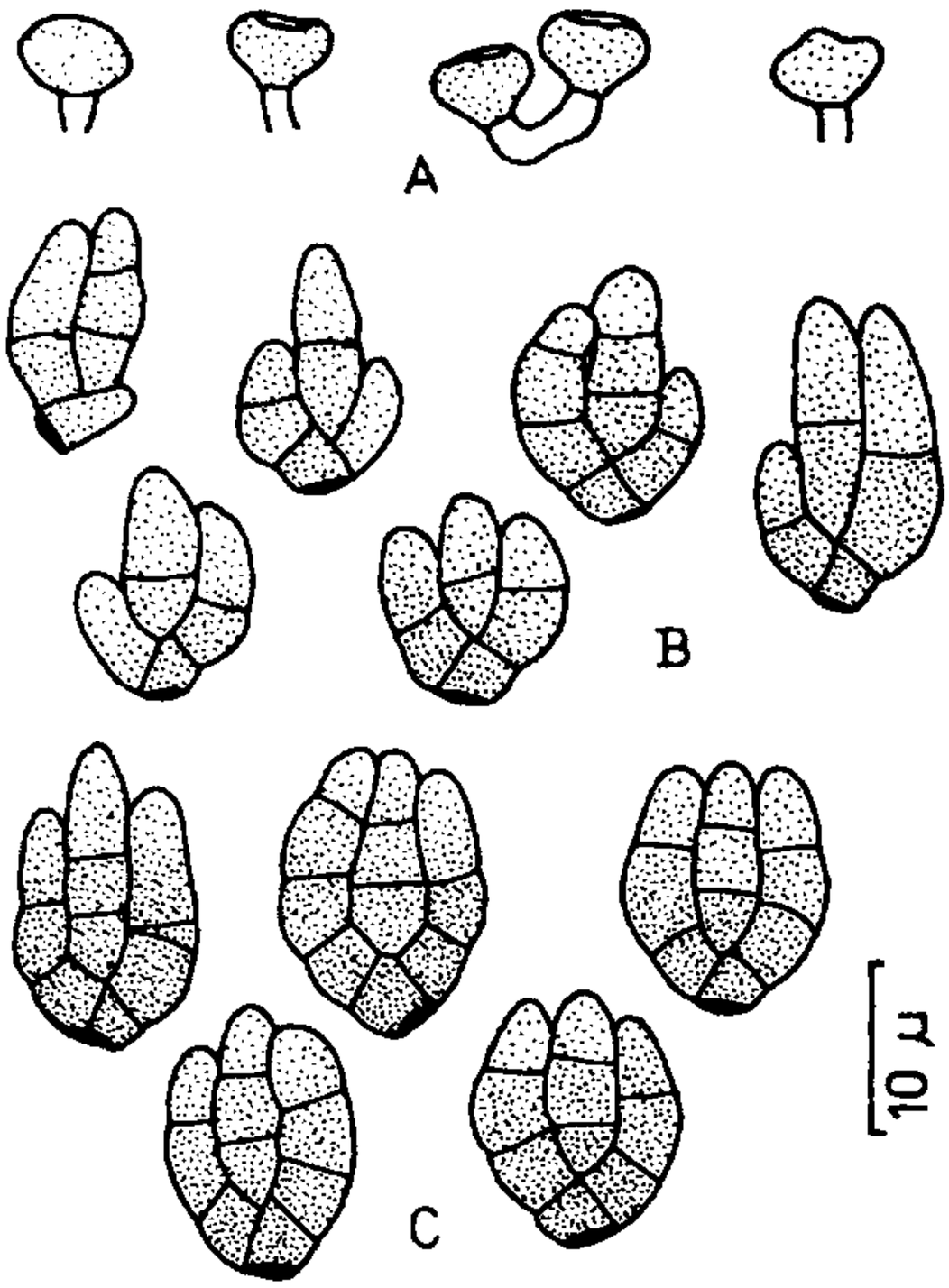

Figure 1. A. conidiophores with conidiogenous cells. **B.** Young conidia. **C.** Mature conidia.

teroblastic, monotretic developing singly from the tip of the conidiogenous cell, smooth, dark brown, 18–22 × 13–15 μ, cheiroid with the three digits closely adpressed all along the length, 2–3 septate, slightly constricted at the septa, often with the middle arm slightly protruding over the other two lateral arms. The detached conidia bear a thick basal scar indicating the point of attachment on the conidiogenous cell which develops a depression around the pore after the conidium is shed.

Collected from litter of *Cinnamomum zeylanicum*, Nemmar (Karnataka State), India, B.P.R. Vittal, 12 November 1974, Herb. MUBL No. 2914.

The author is thankful to Dr B. C. Sutton and Dr P. M. Kirk of the CMI, Kew, England for their help in identification and to Prof. C. V. Subramanian for his comments.

6 February 1986

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IN VITRO SELECTION OF NaCl TOLERANT CELL CULTURES IN *ORYZA SATIVA* L

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RICE is one of the most globally important cultivars. In India an area of nearly 4 million hectares of rice is affected by soil salinity. However, salinity is not necessarily incompatable with plant life. Selection of crop varieties of greater tolerance to salt environment will allow greater productivity from large saline lands. Many plants have been found to achieve the ability to grow under saline condition[1–4]. In the present investigation salt-tolerant cell lines of *oryza sativa* L cv Kiran and Madhu have been isolated by exposing the cultures to increasing levels of NaCl (0.5%, 1%, 2% and 3% w/v). The salt selected lines of Kiran and Madhu grew at 1% and 1.5% NaCl respectively.

Two cultivars of rice, Kiran and Madhu were selected for testing their salt-tolerance level from cultured callus tissues due to its high regeneration ability[5–6]. Cultures were raised from scutellar tissues of embryo of both the cultivars of Murashige and Skoog's[7] (MS) nutrient medium. The seeds were dehusked, sterilized with 0.1% $HgCl_2$ solution for 10 min, washed thoroughly with sterile-distilled water, the embryo part dissected out and cultured on the MS medium supplemented with different concentrations (1, 2 and 4 mg/l) of 2,4-dichlorophenoxy acetic acid (2,4-D). The callus tissues showed the best growth response when the medium was supplemented with 2,4-D (2 mg/l) + coconut water (cw, 15% vol/vol) + casein hydrolysate (CH, 500 mg/l).

About 2 g of callus tissues were transferred to 25 ml of liquid medium to initiate cell suspension. The liquid cultures were shaken at 100 rpm under continuous illumination. After 15 to 20 days, the suspension was filtered through a 200 μm pore size stainless steel mesh to separate the cell aggregates and the filtrate gently centrifuged. The cells were subcultured into a fresh liquid medium. Cell numbers were estimated by fixing the samples in equal volumes of 10% chromium trioxide solution at 70°C for 10 min and agitating it on a bench shaker of 25 min. This technique effectively separated the cells from the aggregates without any disintegration. The suspension was transferred to a haemocytometer slide and the cells present in randomly chosen microscopic fields were counted at a magnification of 100 times. From the mean of 50 counts the cell number per/ml was calculated. Cell

viability was tested by using fluorescence diacetate test[8].

The cells were then plated at a final density of 10^6 viable cells/ml in petridishes (8 cm diameter) containing 5 ml of semisolid MS medium supplemented with 2,4-D (2 mg/l) + CW (10% v/v) + CH (200 mg/l) and different concentrations of NaCl (0, 0.5%, 1%, 1.5%, 2%, 2.5%, 3%). An average of 20 plates per treatment were used. Plates were scored after 4 to 6 weeks by visual observation of cells or colonies which had a healthy appearance and able to grow despite exposure to higher level of salinity. These colonies were repeatedly transferred to the respective salt containing media for 48 to 50 subcultures (one subculture period is equivalent to 15 days). After the 45th subculture the callus gained some degree of salt tolerance. The salt-selected line of cells grew better than unselected cells at high level of salt. Growth patterns (by fresh weight measurement) of these salt selected calluses was virtually identical to that of control during the culture period. Among the two cultivars, Madhu was more tolerant (1.5% NaCl) than Kiran which achieved a tolerance level of NaCl upto 1% (figure 1).

Similar observations were also reported with alfalfa and rice callus cells[9,10]. Cells of *Capsicum annumm* and *Nicotiana sylvestris*, progressively improved their growth in 1% of NaCl during the initial phase of culture[11]. NaCl-tolerant cell lines of *Cicer arietinum*, *Pisum sativum* and *Vigna radiata* were also isolated[12].

25 November 1985; Revised 10 February 1986

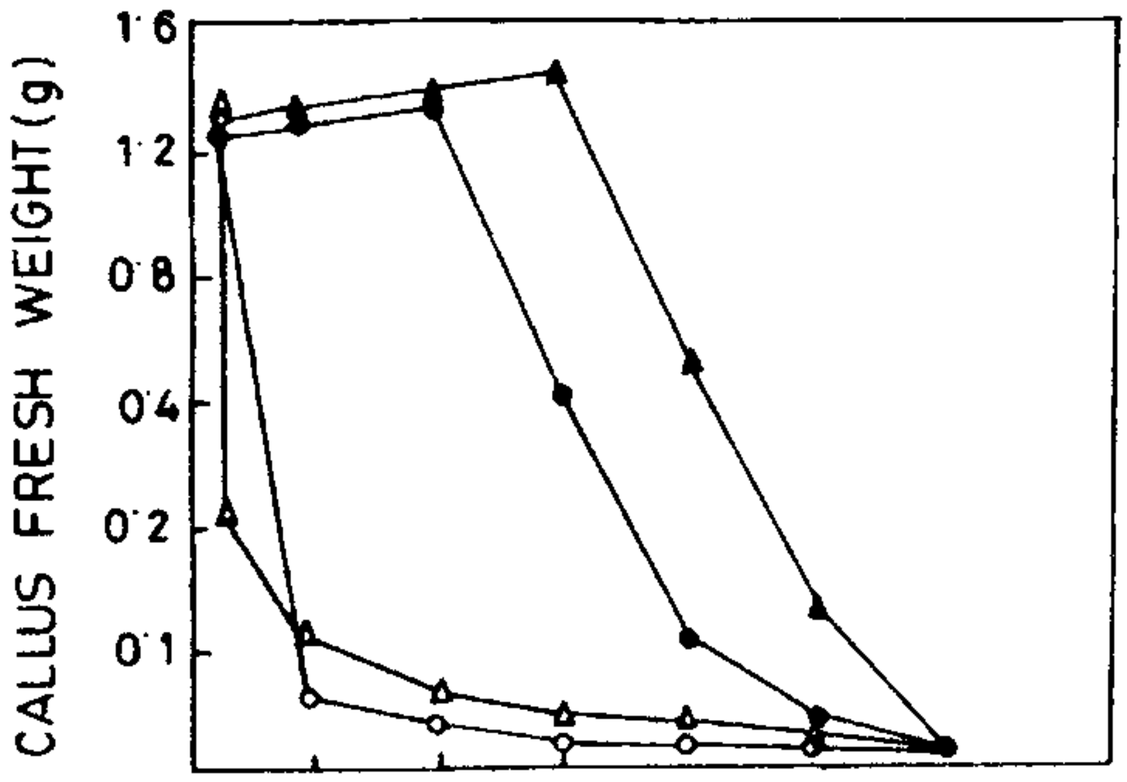

Figure 1. Growth characteristics of rice callus selected from suspension plating at different levels of NaCl in two cultivars of rice, Kiran (——●——) and Madhu (——▲——), corresponding the control (——○——, ——Δ——respectively) cell lines from which they were selected.

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REPETITIVE DNA AMOUNT IN *SOLANUM NIGRUM* GENOME

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EUKARYOTIC DNAs are characterized by repetitive sequences[1], which might even go up to 87% in some grasses[2] or 90% in *Neturus*—an animal[3]. The association of high repetitive sequences with heterochromatic segments of chromosomes is well illustrated[4-6], and it is assumed that most of them are inert sequences. However, interspersion of repeat and unique sequences, observed in many genomes[7-9], hints at important regulatory functions of repetitive sequences.