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#### Research Notes

## High frequency of callusing from root explants of Assam Rice Collection

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The regeneration of plants from cell and tissue culture is an important and essential component of biotechnology that is required for the genetic manipulation and improvement of plants. Rice is the world's single most important food crop and a primary food source for more than one third of world's population. Callusing and subsequent regeneration of rice from different explants were reported by Rueb *et al.* (1994), Seraj *et al.* (1997), Wenjing *et al.* (1997) and Mukopadhyay *et al.* (1997). However there are only a few reports on the induction of callus from root explants in rice. Mature seeds of Assam rice collection were obtained from Central Rice Research

Institute Cuttack, along with *japonica* check Taipei 309, and were used for this study. For obtaining root explants, mature seeds were dehusked and sterilized under aseptic condition. MS medium was supplemented with 2 mgL<sup>-1</sup> IAA or NAA (Indole acetic acid or Naphthalene acetic acid) and used for obtaining adventitious roots from rice seedlings. Eighteen to twenty days old roots from rice seedlings were selected as explants (Anju John and Prathapasenan, 1999). Effects of different carbon sources (sucrose/maltose) were also tested. Approximately 1.5 cm length root explants were transferred to callus induction medium (MS medium containing 2 mg 2, 4-D L<sup>-1</sup>).

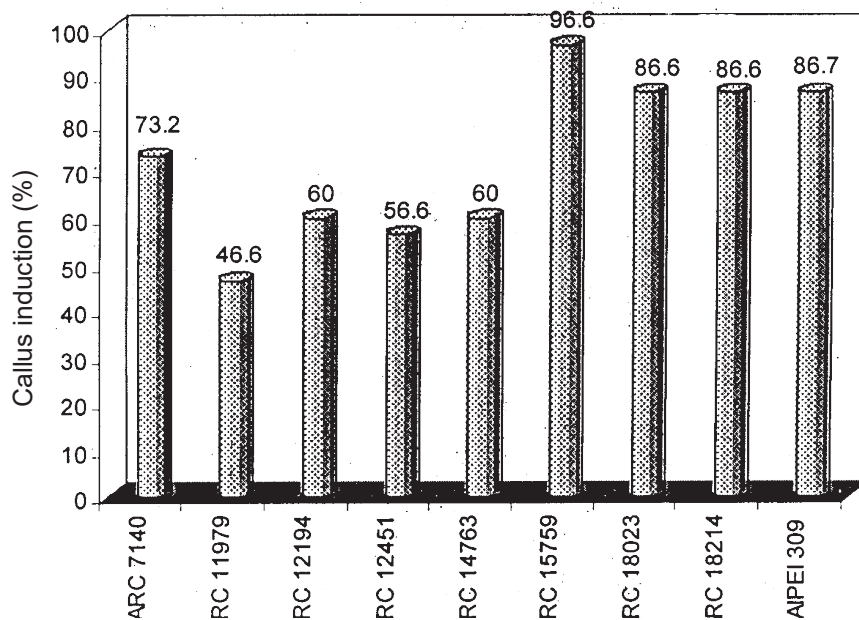


Figure 1. Percentage of callus induction from root explant

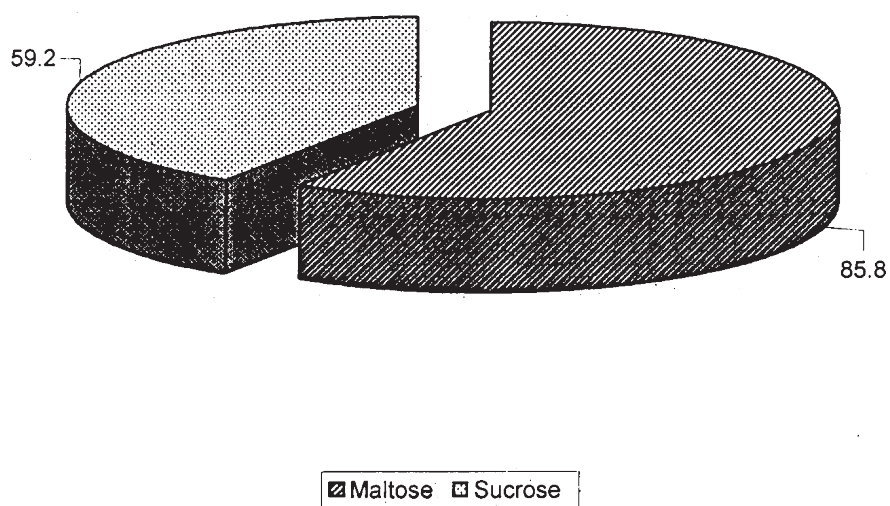


Figure 2. Effect of carbon source on root explants

Callus formation occurred after 10 days when cultures were incubated in dark at 25±2°C for 3 days and then kept in the light room under 16 hr light and 8 hr dark photoperiod. Callus was developed from cut ends of root explants and adventitious root tips only (Anju John and Prathapasenan, 1999). Even within the *indica* group, there were significant variations in the *in vitro* culture response among different genotypes (Hoque and Mansfield, 2004). Among the ARC lines, ARC 15759 expressed high frequency of callus induction (96.6%) than check Taipei 309 (86.7%). The lines ARC 18023 and ARC 18214 were at par with check (Fig. 1). High frequency callus induction was obtained when using maltose as carbon source instead of using sucrose (Fig. 2).

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## Research Notes

### Organic sources of nutrients on groundnut seed production

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India ranks first in groundnut acreage (6.4 million ha), which accounts for 23.87 per cent of the world total groundnut area. The average productivity of groundnut in India is 1125 kg ha<sup>-1</sup>, which is far below the world's

average of 1449 kg ha<sup>-1</sup> (www.agricop.nic.in). In the wake of serious pollution problems and bio-magnification of toxic chemicals in the various biological systems, 'organic farming' is the right approach in the present day