



## Article

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## DETECTION OF SOMACLONAL VARIATION IN MICROPROPAGATED AND ACCLIMATIZED PLANTLETS OF *Oryza sativa* MRQ 74 FROM STEM EXPLANTS

*Detecção de Variação Somaclonal em Plantas Micropropagadas e  
Aclimatizadas de Oryza sativa MRQ 74 a Partir de Explantes do Caule*

**ABSTRACT** - In plant tissue culture system, the excessive supply of plant growth hormones may inhibit further growth and development of the regenerants and sometimes it may induce somaclonal variation. In this study, the optimum concentration of plant growth hormones for *in vitro* regeneration of *Oryza sativa* L. cv. MRQ 74 was identified and subsequently the occurrence of somaclonal variation of regenerated plantlets was determined through cytological analysis of *in vivo* and *in vitro* grown plantlets. MS media supplemented with 0.1 mg L<sup>-1</sup> BAP in combination with 0.1 mg L<sup>-1</sup> NAA was found to be the optimum concentration for shoots and roots induction of *Oryza sativa* L. cv. MRQ 74. Plantlets derived from MS media supplemented with 0.5 mg L<sup>-1</sup> 2,4-D showed higher survival rate than that of MS media supplemented with 0.1 mg L<sup>-1</sup> BAP in combination with 0.1 mg L<sup>-1</sup> NAA. The plant height, number of leaf, leaf length and number of seeds per stalk of acclimatized plants were significantly lower ( $p < 0.05$ ) as compared with plants grown *in vivo*. Cytological analysis of *in vivo* and *in vitro* grown *Oryza sativa* L. cv. MRQ 74 revealed that the presence of 2,4-D in the culture media had significantly decreased the mitotic index (MI) and increased the ploidy level of the cell nuclei. The findings of the present study would be useful for plant breeders and biotechnologist since somaclonal variation provides a useful source of genetic variation for crop productivity and quality improvement.

**Keywords:** plant growth hormones, *Oryza sativa* L. cv. MRQ 74, survival rate, agronomic parameters, mitotic index, ploidy level.

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**RESUMO** - No sistema de cultura de tecidos de plantas, o fornecimento excessivo de hormônios de crescimento vegetal pode inibir o crescimento e desenvolvimento dos regenerantes e, às vezes, induzir a variação somaclonal. Neste estudo, a concentração ideal de hormônios de crescimento para regeneração *in vitro* de *Oryza sativa* L. cv. MRQ 74 foi identificada, e, posteriormente, a ocorrência de variação somaclonal de plântulas regeneradas foi determinada através da análise citológica de plântulas cultivadas *in vivo* e *in vitro*. O meio de cultura MS suplementado com 0,1 mg L<sup>-1</sup> de BAP em combinação com 0,1 mg L<sup>-1</sup> de ANA foi a concentração ideal para a indução da parte aérea e das raízes de *Oryza sativa* L. cv. MRQ 74. As plântulas derivadas de meio MS suplementado com 0,5 mg L<sup>-1</sup> de 2,4-D apresentaram maior taxa de sobrevivência do que as do meio MS suplementado com 0,1 mg L<sup>-1</sup> de BAP em combinação com 0,1 mg L<sup>-1</sup> de ANA. A altura de plantas, o número de folhas, o comprimento das folhas e o número de sementes por caule de planta aclimatizada foram significativamente menores

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