

起源于花药培养的水稻同源不联会三倍体的细胞遗传学研究 1)

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 本文报道了由花药培养获得的两株同源不联会三倍体水稻减数分裂的染色体行为。观察表明双线期以后的各个时期染色体均无联会发生, 在浓宿期及中期I呈现出36个单价染色体, 表明它们是Asyndetic三倍体。其减数分裂时的异常行为表现在纺锤体在形态及数目上的异常; 中期I时出现合胞体; 四分体时期小孢子, 继续分裂; 形成从一分体到八分体的异常小孢子; 花粉完全不育而不结实。作者联系到稻属三基三倍体杂种F1 (ABC及ACD) 减数分裂的染色体行为进行了讨论, 并推测在花药培养时发生不联会三倍体的可能途径。

关键词

分类号

Cytogenetical Study on Homologous Asyndetic Triploid Derived from Anther Culture in Rice

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Abstract

nts of homologous asyndetic triploid were discovered. This paper might be the first one reporting homologous asyndetic triploid in rice, especially those derived from anther culture. From cytogenetical study of meiosis of these triploids there has not been found chromosome pairing in diplotene, diakinesis and metaphase I. 36 univalents are represented (Plate I, 1-3 and Table 1). Whether or not the chromosomes before diplotene are in pairs was not observed. The distribution of lagging chromosomes in continuative in anaphase I (Plate I, 4 and Fig.2).

The other abnormal phenomena in meiosis are:

- 1) Monstrositas (abnormality) of spindle, their appearance in morphology is :divergent spindle in "V" shape, curved spindle in "C" shape (Plate I, 6-8) or poly-pole spindle (Plate I, 11 and Table 2). In number of spindles they appear as poly-spindles (Plate I, 9-10 and Fig.3).
- 2) Syncytium to be made up from 2 to more than 10 PMCs (Plate I, 12 and Table 3).
- 3) Tetrads division (Plate I, 13-14 and Table 4).
- 4) Abnormal microspore (from monoads to octoads) (Plate I, 15-21, Fig. 4) in the tetrads stage.

These two triploids may be considered asyndetic because the evidence of nonpairing chromosomes has not yet been obtained before diplotene.

The origin of the asyndetic gene of these two asyndetic triploids might be traced to be : (1) recessive mutation, (2) dominant mutation and (3) asyndetic gene segregated from hybrid F1 pollens. The writers consider that the first assumption is predominant.

The role of asyndetic gene in homologous condition is discussed by comparing these two homologous triploids with meiosis of the threebase-allotriploid in *Oryza* that is "(*Oryza sativa* (AA)×*O. latifolia* (CC DD))" hybrid F1 (ACD) and "(*O. sativa* (AA)×*O. minuta* (BBCC))" hybrid F1 (ABC).

Key words

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