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Studies on the Formation of the Crown Root Primordia of Rice Plant : III. Cultivar differences of the formation of the crown root primordia in the unelongated stem

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Abstract:

Every successive cross section in the unelongated portions of the main stem of five rice cultivars, 8.5-8.6 plant age in leaf number, were investigated anatomically to clarify the varietal differences of some characteristics on the formation of crown root primordia. (1) The number of emerged crown roots per plant were larger in IR36, Nipponbare and Fujiminori followed by Koshihikari and Akenohoshi. These orders coincided with the orders of the number of tillers. (2) The order of the number of crown root primordia of the main stem was IR36 > Fujiminori, Nipponbare > Koshihikari, Akenohoshi. But, the diameter of the base of the crown root primordia was smaller in cultivars with more crown root primordia. There were no correlations between the total number of crown root primordia and the length of the stem or the area of peripheral cylinder of longitudinal vascular bundles. However, when the stem was divided into successive 'units' as previously reported, a significant positive correlation was found between the number of crown root primordia and the area of peripheral cylinder of longitudinal vascular bundles. The percentage of the formation of the crown root primordia indicated by the linear regression coefficient was higher in cultivars with more crown root primordia. (3) These results suggest that the number of crown root primordia of the main stem is larger in cultivars with more tillers and/or with more emerged crown root per plant, and also in cultivars with diameters less than the base of the crown root primordia.

Keywords:

Crown root primordia, Main stem, Nodal plate, *Oryza sativa* L., Peripheral cylinder, Unelongated stem

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