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Studies on the Formation of the Crown Root Primordia of Rice Plant : II. Formation of the crown root primordia in thc lower part of unelongated stem

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Abstract:
The position and the number of crown root primordia in the lower portions of the unelongated stem (below around the 4th node) of rice plant were investigated microscopically using seedlings of a cultivar of several leaf stages. Six rice cultivars with different rooting abilities were also investigated at the same leaf stage. Results were as follows. (1) Although the form of vascular bundles such as peripheral cylinder of longitudinal vascular bundle (PV) changed obviously even in neighboring sections along the lower part of the unelongated stem, the tissues of the crown root primordia were also formed throughout that part. (2) The lower part of the unelongated stem did not fit to the well-known 'nodal root' or 'shoot unit root' theory, while that part except below around the portion of the 1st leaf attached to the stem could be divided by the 'unit' which we proposed previously. Moreover, in our anatomical observations, we could not distinguished the so-called 'coleoptilar node roots' or '1st shoot unit roots' that emerge following the seminal root emergence. (3) The differences in the number of crown root primordia were caused by the differences of the size of the PV within a cultivar, and by the differences of the differentiation ratio of the tissue of PV into crown root primordia as well as the size of the PV among cultivars.

Keywords:
Crown root primordia, Internode, Nodal root, Node, Oryza sativa L., Peripheral cylinder of longitudinal vascular bundle, Unelongated stem

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