Towards Cloning Aluminum Tolerance Gene in Rye. (C07-miftahudin162939-Oral)

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Abstract:

Aluminum (Al) toxicity has been considered as a major problem of crop growth and production in acid soils. The ability of crops to overcome the Al toxicity varies among crop species and cultivars. Rye is one of the most Al-tolerant species among cereals. Our study showed that the Al tolerance trait in a rye F6 RIL population was controlled by a single dominant gene designated as the Alt3 gene located on the long arm of rye chromosome 4. The gene region was suggested to be co-linear with the Al tolerance gene located on the long arm of homoeologous chromosome 4 of wheat and barley, and one of the Al tolerance QTL on rice chromosome 3. To facilitate cloning the gene from rye, we constructed a high-resolution map of the Alt3 region using rice genome sequence as a markers source. After mapping markers to 2286 gametes of an F2 population segregating for the same gene, we located the Alt3 gene in between two RFLP markers that separated 0.1 cM among each other. Analysis of candidate genes will be discussed.

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