

幼苗期におけるイネ根系分布に関する簡易検定法

Evaluation method of root angle distribution at seedling stage in rice (*Oryza sativa* L.)

播種箱を用いたイネ冠根の伸長方向および数を分布として評価する簡易検定法は、従来のバスケット法に比べて、調査期間を短縮し、かつ単一面積当たりの調査個体数を大幅に増やすことができ、多様な遺伝資源や大規模な雑種集団における変異の解析に利用できる。

This study identifies the advantages of the seedling tray method, including shorter duration of rice seed cultivation, bigger population size of rice samples per square meter, and more detailed score scaling compared with that of the basket method for evaluating root angles. This method will be useful in evaluating root types or architectures in rice cultivars, conducting genetic analysis, and surveying of genetic variation in germplasm.

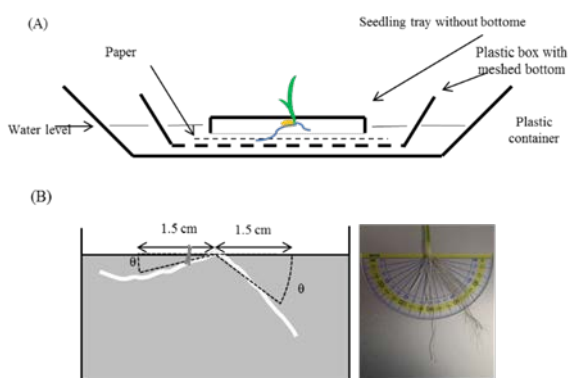


図1、播種箱を用いた冠根伸長方向の計測

Fig. 1. Seedling tray method for evaluation of crown root angle distribution in rice seedling stage.

播種箱を用いた冠根伸長方向の計測。播種箱で14日間育成した後 (A)、水中における水面からの幼苗における冠根の伸長角度を測定する (B) (Tomita et al. 2017、一部改変)。

(A) Set up the seedling tray without bottom in the container. Seedling tray is divided into 17 rows and 2 steps, and 34 rice seedlings are cultivated at the same time. (B) Investigation of growth angle of crown roots from horizontal line, at 14 days after sowing.

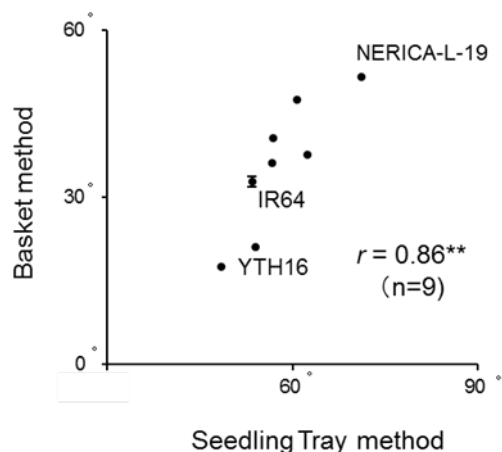
表1、播種箱とバスケット法による冠根伸張角度の計測法の差異

Table 1. Differences of effects between seedling tray method and basket method

Item	Seedling tray method	Basket method
Duration of cultivation (days)	14	21
No of plants per 1 m ²	137	44
Scales for root angles	9 (0-90)	4 (0, 15, 45, 75)

図2、播種箱法とバスケット法との伸張角度の関係

Fig.2. Root vertical angle (RVA) relationship between the basket and seedling tray methods in IR 64 and eight accessions with the IR 64 genetic background.



IR 64の遺伝的背景を持つ8系統とIR 64の冠根あたりの伸張角度の比較。高い相関(0.86**)が認められ、相関式は $y = 1.3976x - 45.436$ で表される (Tomita et al. 2017、一部改変)。

Average values of RVA for each accession were used as representative data in the seedling tray method and in the basket method of Hanzawa et al. (2013). Error bars indicate SD for each accession. **: significant at $P = 0.01$.



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