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Reproduce results on seed priming effect of indoor experiments in the field

Yoshihiro Nakao[1)], Yasuhiro Tsujimoto[2)], Keisuke Katsura[3)], Chiharu Sone[4)], Jun-Ichi Sakagami[1)]

[1)]*Department of Biological production, Faculty of Agriculture, Kagoshima University, 1-21-24 Koorimoto, Kagoshima 890-0065, Japan*
[2)]*Japan International Research Center for Agricultural Sciences, 1-1, Ohwashi, Tsukuba, Ibaraki 305-8686, Japan*
[3)]*Department of International Environmental Agricultural Science, The Graduate school of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8, Saiwai-cho, Fuchu, Tokyo, 183-8509, Japan*
[4)]*Department of Biological production, Faculty of Bio-Resource science, Akita Prefectural University, 241-438 Kaidobata-Nishi Nakano Shimoshinjo Akita City 010-0195 Japan*

Abstract

Unstable soil moisture conditions often negatively affect the emergence, seedling establishment, and growth uniformity at the initial stage, and then reduce the grain yield and biomass in direct seeding cultivation for rice in rainfed fields. Therefore it is important to develop a technique to increase the rapid and stabilized seedling establishment and improve the uniformity of initial growth after sowing. This study aims to confirm results on seed priming effect of indoor using petri dish experiments can be reproduced in the field using container at Ghana. Twenty-seven rice varieties including of *Oryza sativa* L. and *O. glaberrima* Steud. were used in this study. The experiments using petri dish and container with different soil moisture conditions (5%, 10%, 15%, 20%) were compared. As a result, a significant positive correlation was found between the germination time uniformity in the primed seed of petri dish and emergence time uniformity in the primed seed of container in 10% and 15% soil moisture condition. A significant positive correlation was found between the germination time uniformity in the primed seed of petri dish and plant height in the primed seed of container in 10% soil moisture condition in *O. glaberrima*. This study concluded that the priming effect in petri dish demonstrate those in container in the field condition of Ghana in 10% and 15% soil moisture condition during seedling stage.

Keywords: rice, seed, emergence, germination, priming,

Corresponding author*
Jun-Ichi Sakagam
Address Kagoshima University, Tropical crop science Lab., 1-21-24 Korimoto, Kagoshima 890-0065, Japan
Tel and Fax 099-285-8543
E-mail sakagami@agri.kagoshima-u.ac.jp