

Research Title Effect evaluation of using indole acetic acid (IAA) produced by bacteria from laboratory on germination and growth at seedling stage of rice

Abstract

The objective of this study was to determine the effects of indole-3-acetic acid (IAA) produced from *Enterobacter concerogetus* (RD4-1-1) on germination and seedling of lowland rice. The study was conducted both in water deficiency stress conditions in laboratory (cultured on polyethylene glycol (PEG) solution with contained various concentrations and cultivation in soil) and studied in field by spraying rice plants with 2.5 μM IAA. The results showed that the response to IAA of rice depended on the level of stress condition due to water deficiency, cultured conditions and varieties. It was found that the response to IAA of both rice varieties (RD 31 and RD 41) could promote germination and growth of rice seedlings from cultured in non-water deficiency stress condition (0% PEG) to 10% PEG. For the study on planting in the soil showed the response to IAA of rice plants from the water supply condition every two days to every seven days. However, the appropriate concentration of IAA for soaking or soaking with spraying in the seedling stage varies between culturing on medium and in soil; the appropriate range of IAA was found to be lower in RD31 (25 μM -50 μM and 2.5 μM -25 μM , respectively), but was stable of IAA in RD41 (2.5 μM) for spraying. For the spraying of IAA to rice plants in field, it was found that spraying at the tillering stage showed a tendency to IAA of rice response; by increasing height and yield of various varieties of rice, better than spraying at grain filling stage.

Keywords : *Oryza sativa*, Germination, Seedling growth, Indole-3- acetic acid, Drought condition