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| Category | : International Rice Research Conference |
| Select Theme | : Systems physiology |
| Keyword 1 | : Salinity tolerance |
| Endorsement email | : |
| Keyword 2 | : Yield potential |
| Keyword 3 | : Photosynthesis |
| Title of Entry | : Alleviated salt stress in upland rice (<i>Oryza sativa</i> L. ssp. <i>indica</i> cv. Leum Pua) using arbuscular mycorrhiza fungi inoculation |
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| Select only one type of presentation | : 15 minute oral presentation |
| Abstract | : Salt stress is a major problem on rice crop due to the growth inhibition and yield reduction, especially in inland salt-affected rain-fed area. The symbionts of arbuscular mycorrhizal fungi (AMF) with plant hosts could not only promote plant growth, but also alleviate abiotic stresses such as drought and salt constraints. This study aimed to investigate the impact of AMF on salt stress of an upland pigmented rice (cv. Leum Pua). In general, Leum Pua glutinous rice contains anthocyanin pigment in the black pericarp, referring to high antioxidant activities when compared to non-pigmented rice. Pot experiment was conducted to evaluate the impact of un-inoculated and inoculated AMF, GE (<i>Glomus etunicatum</i>), GG (<i>G. geosporum</i>), and GM (<i>G. mosseae</i>) strains until booting stage subsequently subjected to 0 (control) or 150 mM NaCl (salt stress) for two weeks. Root colonization percentage in either 0 or 150 mM NaCl conditions was ranged from 23 to 30%. Total phosphorus content in the roots and flag leaf tissues of both AMF inoculated and un-inoculated plants was maintained in either with or without salt stress. Na ⁺ content in the flag leaf tissues was increased to 18-35 mg g ⁻¹ DW after exposure to 150 mM NaCl in both inoculated and un-inoculated plants whereas Na:K ratio was very low in cv. Pokkali (a positive check or salt tolerance). Interestingly, sucrose content in the flag leaf tissues of un-inoculated plants under salt stress was increased significantly by 50 folds over control condition to be played as an indicator of salt stress response in cv. Leum Pua. Grain fertility and |

total grain weight in AMF inoculated plants of cv. Pokkali were significantly dropped, while those were maintained in cv. Pokkali. In addition, one-hundred grain weight in un-inoculated plants was sharply declined whereas it was retained in AMF-inoculated plants. In summary, AMF-inoculated procedure in rice crop may play as alternative approach to reduce salt toxicities leading to maintain the yield attributes.

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