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## Physiological responses of selected Philippine upland rice genotypes evaluated using drought and salinity stress

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### Abstract

Screening for drought and salinity tolerance was undertaken for selected Philippine upland rice landraces during germinative and seedling stages to identify varieties which can potentially be grown in marginally dry and saline soils. While increasing PEG and NaCl concentrations caused obvious signs of injury to all rice genotypes, considerable varietal differences were noted in the nature of responses providing evidence that these genotypes possess broad intraspecific genetic variations for drought and salt tolerance. Inconsistent responses of these varieties during both growth stages highlight complexities involved in stress responses and underscore the futility of utilizing a single stage in the rice plant's life cycle for physiological screening. Notwithstanding these perplexing responses, G\_Katuil and MI-Pilit Tapul were observed to thrive relatively well despite increased salt and drought stress during early growth stages and may therefore possess genes needed in crop improvement efforts for drought and salinity tolerance. While these results do not reflect the entire spectrum of adaptive expression to drought and salinity stress during the life cycle of the upland rice plant, they nonetheless provide an easy, reliable and reproducible method for preliminary identification of drought and salt tolerant rice varieties.

Keywords: Philippine upland rice, drought, salinity, physiological screening

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