

## Effectiveness of different phytohormones on grain filling and yield of rice (*Oryza sativa* L.) under drought stress

### ABSTRACT

Drought is a major limiting factor affecting rice yield and productivity all over the world, including Malaysia. To induce drought resistance, there is an increasing interest in using different phytohormones for field crop production considering its efficiency, feasibility, cost and labour-effectiveness. A greenhouse experiment was conducted to evaluate effectiveness of five different phytohormone treatments as Vita-Grow Plus (commercial phytohormones product), epibrassinolide, spermine, pyroligneous acid and without any of those or control including three times of application (single spray at 35 days after sowing, DAS; double spray at 35 and 55 DAS and triple spray at 35, 55 and 85 DAS) on growth and yield parameters of rice (*Oryza sativa* L.). Drought stress was exposed by regulating irrigation schedule. It was observed that all applied growth regulators have more or less progressive effect on rice growth and productivity. Both epibrassinolide and spermine application caused highest grain filling and spermine application highest (66.4%) grain yield. Considering yield components and grain yield, double spray of phytohormones was best. Therefore, two times spray (35 and 55 DAS) of spermine could be suggested for rice cultivation in the drought affected areas of Malaysia or other areas in the tropical region with similar ecologies.

**Keyword:** Commercial phytohormones; Drought stress; Rice variety MR219; Spermine