Utilization of Water and Rice Husk as *Soilless* Planting Media in Rice Cultivation through Alternate Wetting-Drying Irrigation System

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ABSTRACT

The reduction of paddy fields area and water scarcity threatens Indonesia's food security. The utilization of soilless planting media combined with a wetting-drying irrigation system in rice cultivation can be a solution to this problem. This research aims to analyzed the growth and yield of rice plants grown on soilless media with alternate wetting-drying (AWD) irrigation system. This research used completely randomized design within two factors and three replications. The first factor was the type of soilless media consist of water media, water+rice husk (4:1), water+rice husk (6:1), water+rice husk (8:1), water+rice husk (10:1). The second factor was irrigation system including AWD irrigation and non-AWD irrigation. The results showed an interaction between soilless media and type of irrigation on plant height, panicle length, and grain weight per clump. The highest average of plant height (100.16 cm) was found in water+rice husk (10:1) and non-AWD irrigation, while the largest average of panicle length (29 cm) was found in water+rice husk (4:1) and AWD irrigation. Moreover, the best average of grain weight per clump (65.03 gram) was found in water+rice husk (8:1) and AWD irrigation. On a single factor, water+rice husk (10:1) produced the highest average of productive tillers per clump (35.67 clump), grain weight per clump (53.08 gram), and total grain per panicle (204.17 grain), while non-AWD irrigation performed the highest number of plant height (160.64 cm). In conclusion, soilless rice cultivation affect on rice growth and yield.

Keywords*: soilless media; wetting-drying irrigation; rice variety*