



Tolerance level of three genotypes of cayenne pepper (*Capsicum frutescens* L.) toward drought stress of vegetative phase based on morphological and physiological responses

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Abstract: The aim of this research was to determine the tolerance level of three genotypes of cayenne pepper (*Capsicum frutescens* L.) toward drought condition in vegetative phase based on some morphological and physiological responses. Drought stresses were given by watering plants equal to 60% of field capacity (mild-stressed plant) and 30% of field capacity (severe-stressed plant). Control plant was watered equally to 80% of field capacity. The treatment of drought stress was applied in the beginning of vegetative phase for 3 weeks with interval watering two days. The result showed that drought stress caused the reduction of plant height, stem diameter, leaves length and leaves width significantly but the drought stress levels (mild and severe-stressed) were not significantly different. Drought stress also decrease RWC and width of stomatal opening significantly. The physiological responses observed after the plant experienced drought stress showed that chlorophyll content of leaves of control plants was higher than the plants which experience the drought stress but carotenoid content in the leaves of control plant was lower. Based on the Stress Sensitivity Index (SSI) value from morphological and physiological responses shown by three genotypes of cayenne pepper in this research obtained results that genotype I and genotype II were included in medium tolerant category toward mild and severe drought stress meanwhile genotype III was included in sensitive category toward mild and severe drought stress in vegetative phase.

Keywords: *Capsicum frutescens* L., drought stress, vegetative phase, morphological responses, physiological responses.