عنوان مقاله:

Influence of drought stress on grain composition and cooking attributes of Iranian rice mutants

محل انتشار:

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خلاصه مقاله:

Grain quality in rice plays a critical role in consumer acceptance. This research aimed to investigate the grain physicochemical and cooking characteristics of ۱۸ Iranian rice genotypes under both normal conditions and ۳۵ days of drought stress. Significant differences were observed in the studied traits specially percentage of total conversion, head rice, and broken rice indicating differences in the extent of grain retention and damage during processing among the genotypes under both normal and drought stress conditions. The drought stress markedly influenced the expression of nine cooking and nutritional properties and resulted in decreased total conversion percentage, head rice percentage, and cooked head rice length, while the percentage of broken rice increased considerably across all studied genotypes. Conversely, the impact of drought stress on the rough rice length/width ratio, head rice length/width ratio, and elongation ratio were negligible. Most drought-tolerant promising mutant lines exhibited superior grain physicochemical and cooking properties under both drought stress and normal conditions compared to four well-known Iranian rice landraces and cultivars. Evaluation of the grain physicochemical and cooking properties suggested that two drought-tolerant promising mutant lines, namely TM-B-۷-۱ and HM-۲۵۰-E-۱-۱, could be suitable for final cultivar registration experiments.

کلمات کلیدی:

(Cooking and nutritional quality, Drought, Mutant promising lines, Rice (Oryza sativa