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Assessment of Triticum Landraces in Two Mountain Oases of Oman

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Abstract

The Arabian peninsula and Oman, situated at the eastern edge of this peninsula, have an ancient cultivation history of both bread wheat (*Triticum aestivum* L. s. l.) and durum wheat (*Triticum durum* DESF.; SCHWARTZ, 1939). However, given Oman's long geo-political isolation, little is known about the morphological variation, genetic structure, the agronomic properties (e.g. tolerance against heat, drought and salinity) and quality characteristics of these traditional wheat landraces. First wheat collections by the Omani Ministry of Agriculture differentiated a number of landraces (Sareeaa, Missani, Cooley, Hamira, Greda and Walidi) which were found to be increasingly replaced by higher-yielding modern varieties. The purpose of this pilot study was to collect wheat seeds from farmers' fields in two remote mountain villages of Oman, to reproduce them under uniform conditions and to subsequently conduct a morphological characterization of their botanic structure.

The results indicate that there exists considerable morphological variation within and between the five traditional landraces of wheat cultivated. Within two of the landraces grown on irrigated terraces, sized between 2 and 100 m², two new botanical varieties of *Triticum aestivum* were identified. The genetic structure of both varieties is currently being analyzed by micro-satellite techniques and compared to the germplasm contained in the wheat gene bank at the International Maize and Wheat Improvement Centre (CIMMYT) in Mexico. Comparative analyses of the varieties' agronomic traits, grain quality characteristics and possible physiological adaptation to drought and heat, the most important environmental constraints in their habitat will follow. In the next months more systematic surveys in other remote Omani mountain oases with rich environments will be conducted to study the diversity of Omani wheats with respect to the documented germplasm of this crop.

Keywords: Landrace, new botanical varieties, Oman, Triticum