Abstract

Oryza glumaepatula is a perennial wild rice species, endemic to tropical America, previously known as the Latin American race of Oryza rufipogon. In Costa Rica, it is found in the northern region of the country, mainly in the wetland of the Medio Queso River, Los Chiles, Alajuela. It is diploid, of AA type genome and because of its genetic relatedness to cultivated rice it is included in the O. sativa complex. We describe the ultrastructure of leaf blade, spikelet, ligule and auricles. Special emphasis is given to those traits of major taxonomic value for O. glumaepatula and to those characters that distinguish this species from O. rufipogon and O. sativa. O. glumaepatula has a leaf blade covered with tombstone-shaped, oblong and spheroid epicuticular wax papillae. It has diamond-shaped stomata surrounded by spherical papillae, rows of zipper-like silica cells, bulky prickle trichomes of ca. 40 μm in length and small hirsute trichomes of ca. 32 μm in length. The central vein is covered with large, globular papillae of ca. 146 μm in length, a characteristic that distinguishes this species from O. rufipogon and O. sativa. The border of the leaf blade exhibits a row of even-sized bulky prickle trichomes of ca. 42.5 μm in length. Auricles have attenuated trichomes of ca. 5.5 mm in length on the edges and small bicellular trichomes of 120 μm in length on the surface. The ligule has a large number of short attenuated trichomes on its surface of 100 μm in length. These latter two traits have important taxonomic value since they were found in O. glumaepatula but not found in O. sativa or in O. rufipogon. The spikelet has the typical morphology of the Oryza genus. Fertile lemmas have abundant spines, a trait shared with O. rufipogon but not with O. sativa. The sterile lemmas are wing-shaped with serrated borders, a characteristic that distinguishes this species from O. rufipogon and O. sativa. All the ultrastructure characters observed in O. glumaepatula from Costa Rica are also common to the specimens from Brazil.

Keywords

Oryza glumaepatula, Oryza, rice, ultrastructure, anatomy, morphology, Oryzeae, Poaceae.