The results of investigation for cell parameters of 30 Georgian commercial cultivars and clones of grapevine are discussed in this work. The meristematic tissues of root contain dissimilar, small-size (length 16.1-19.7 μm, width 11.6-15.0 μm, nuclear diameter 4.2-6.0 μm) cells. The chromosomal number of somatic cells basically are diploid (2n = 38), but among those five tetraploid, triploid and diploid-tetraploid clones of Tsolikouri, Rkatsiteli, Saperavi and Gorula varieties were discovered. The process of Mitosis proceeds normally, having sufficient high activity of cell division (4.8-8.6%). The frequency of abortive cells is under the rules. It is dissimilar according to varieties (0.3-2.3%) and presents as in the pre-synthetic (G1), as in the post-synthetic (G2) phases of Mitosis. The pollen parameters of hermaphrodite varieties are diverse: length of air-dry pollen is 21.1-38.8 μm, width is 14.7-23.0 μm, and diameter of colored grains in carmine is 8.1-27.9 μm. They basically have three pores (67.6-98.3%). Pollen of female varieties is pore-less, but infrequently, three-pores pollen grains have been discovered (0.4-2.5%). Hermaphrodite varieties are high fertile (69.2-98.9%). Single number of fertile pollen (0.6±0.4%) was reported among pollen of female varieties. Pollen germination varies among 40-90% and their vitality is 7-10 days. The number of stoma is 135-227 per 1 mm² of leaf. Their parameters are diverse according to varieties: length is 191-295 μm, width is 16.3-21.5 μm and number of chloroplasts per stoma is 27.8-21.5. The studded cytological parameters have ampelographic value and together with the phenotypic traits successfully can be used for characterization of varieties.

Keywords: CULTIVARS, MITOSIS, PLOIDY, POLLEN, STOMA