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Meiotic behavior in nonaploid accessions of *Brachiaria humidicola* (Poaceae) and implications for breeding

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ABSTRACT. *Brachiaria humidicola* is a grass adapted to seasonally swampy grasslands in Africa; two cultivars, 'common' and Llanero, are widely used in Brazilian pastures. New cultivars are in great demand in order to diversify current production systems to achieve improved quality and yield. Cytological analyses of 55 accessions of this species available from the Embrapa Beef Cattle germplasm collection revealed that 27 are apomictic and have 2n = 54 chromosomes. Chromosome pairing as bi- to nonavalent associations at diakinesis indicated a basic chromosome number in this species of x = 6, as found in other closely related *Brachiaria* species. Thus, these 27 accessions are nonaploid (2n = 9x = 54). Abnormalities were found in the meiosis of these accessions, at variable frequencies. The most common abnormalities were those related to irregular chromosome segregation, which led to unbalanced gamete formation; but chromosome stickiness, cell fusion, and absence of cytokinesis were also recorded. Although some accessions have a low frequency of meiotic abnormalities, ensuring potentially good

pollen viability, these cannot be used in hybridization due to a lack of sexual accessions with the same ploidy level.

Key words: *Brachiaria*; Breeding; Forage grass; Hybridization; Meiosis

