



Analysis of *DRB3* gene polymorphisms in Jafarabadi, Mediterranean, and Murrah buffaloes from Brazil

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ABSTRACT. The *DRB3* gene is an MHC class II gene that has a high degree of polymorphism with more than 100 alleles described in cattle. This variation contributes to differences among individuals in immune responsiveness and disease resistance. In this study, we searched for allelic variants in exon 2 of the *DRB3* gene in 80 river buffaloes of three breeds in Brazil using a PCR-RFLP technique. The PCR product showed genetic polymorphism when digested with *RsaI*, *PstI* or *HaeIII* restriction enzymes. In total, 16 restriction patterns were identified: nine restriction patterns and 16 genotypes were found with *RsaI*; four restriction patterns and nine genotypes were found with *HaeIII*; and, three restriction patterns and four genotypes were found with *PstI*. Three RFLP patterns were exclusive to Jafarabadi buffaloes (*RsaI*-b, *RsaI*-c and *RsaI*-f) and three

others were only observed in Mediterranean buffaloes (*Rsal*-g, *Rsal*-h and *PstI*-y). Jafarabadi buffaloes had a larger number of RFLP patterns than Mediterranean and Murrah breeds. The analysis showed that the *DRB3* exon 2 was highly polymorphic, with the highest degree of polymorphism in Mediterranean buffaloes. This study provides the first assessment of allelic variation among three different buffalo breeds from Brazil and provides a basis for further investigations into the association between the *DRB3* alleles and disease resistance.

Key words: *Bubalus bubalis*; Major histocompatibility complex; PCR-RFLP; Polymorphism