

IDENTIFICATION OF TWO POSSIBLES NEW CASEIN ALLELES IN ROMANIAN BUFFALO MILK: α S1-CASEIN B^{RV}, β -CASEIN C^{RV}

Bâlțeanu V.A.¹, A.Vlaic¹, Anda Rusu², F.D.Pop¹, Antonia Odagiu¹, S. Creanga³

¹U.S.A.M.V. Cluj –Napoca, Faculty of Animal Husbandry and Biotechnology, Cluj County, Romania; e-mail: avbalteanu@yahoo.com; ²U.S.A.M.V. Cluj – Napoca, Faculty of Horticulture, Cluj County , Romania; ³U.S.A.M.V. Iasi, Faculty of Animal Husbandry, Iasi County, Romania,

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SUMMARY

Milk proteins polymorphism was intensively studied in Italian Buffalo and other buffalo breeds due to its importance in mozzarella cheese production, being used as genetic markers for identifying cheeses autenticity. UTLIEF and PAGE of whole Italian Water Buffalo casein showed just one phenotype for α S1-CN (A), β -CN (B) and k-CN (B), respectively and three phenotypes for α S2-CN (Chianese et al., 2006). An additional β -casein variant named A was observed in Venezuelan Buffalo (Ferranti et al., 1998), but never in Italian Buffalo or other European breeds. A silent allele, named α S1-CN B, was recently discovered by RP-HPLC in Italian Buffalo (Chianese et al., 2006). Milk protein polymorphism was studied in 139 individuals from 3 different Romanian Buffalo populations, herds belonging to the National Genetic Patrimony. To our knowledge milk proteins polymorphism in this breed has never been investigated so far. Genotyping was carried out in 2005-2006 from milk samples by IEF, as reported before (Bâlțeanu et al., 2007). The presence of two new possible casein alleles was observed (always together and only in heterozygous form with α S1-A and β -B), with a 14% frequency in analyzed populations. They were named: α S1 casein B^{RV} and β -casein C^{RV} (Figure 1). The complete characterisation at the protein and DNA level is in progress, in order to establish the aminoacid and nucleotide substitutions. As these new casein variants appear only in Romanian Buffalo, their influence on milk quality and cheese yield will be investigated. They could be used as genetic markers for Romanian Buffalo cheeses traceability.

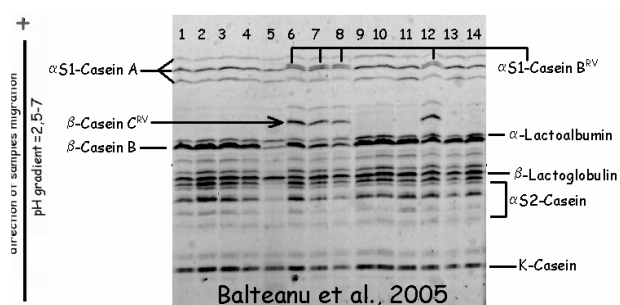


Figure 1. IEF profile belonging some Romanian Buffalo individuals (Lanes 4-14), in comparison with Italian Buffalo (Lanes 1-3). Lanes 1-3: milk samples Italian Buffalo - α S1AA, β -BB; Lanes 4-5, 9-11, 13-14: milk samples Romanian Buffalo - α S1AA , β -BB; Lanes 6- 8,12: milk samples Romanian Buffalo - α S1AB^{RV} , β -BC^{RV}

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