Identification of bovine growth hormone (BGH) gene polymorphism using PCR-RFLP method in buffalo bulls

ABSTRACT

Growth Hormone (GH) is a single polypeptide chain synthesised and secreted from anterior pituitary gland by somatroph cells. The product of GH gene hastens metabolism and promotes the growth of many organs and tissues especially bone, muscle and visceral organs. It also regulates growth, mammary gland development and lactation. Polymorphism in this gene is associated with increase in growth and development of many tissues in the body. Aim: The objective of this study was to investigate the polymorphism of bovine growth hormone (bGH) gene in buffalo bulls (Bubalus bubalis) using the PCR-RFLP (polymerase chain reaction–restriction fragment length polymorphism) technique. Design: Genomic DNA was extracted from a total of 10 bulls, consisting of Murrah – Swamp crossbred and pure Swamp buffalo bulls. A The 446 segment of the bGH gene was amplified. The DNA amplicons were detected in 2% agarose gel following 45 minutes of electrophoresis. They were thereafter digesting with AluI endonuclease restriction enzyme, and the digested DNA were detected in 2% agarose gel following electrophoresis for about 45minutes in all samples Results: Similar bands of approximately 300 and 146-bp each, with no variation, were detected in 2% agarose gel following electrophoresis in all the animals tested. Conclusion: Based on the Alu1 digestion result, all samples produced the same allele of the gene, with no polymorphism detected.

Keyword: Buffalo; Bovine Growth Hormone (BGH); PCR-RFLP; Polymorphism