

IDENTIFIKASI KERAGAMAN GEN GDF9 PADA KAMBING BLIGON DENGAN METODE PCR-RFLP

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INTISARI

Kambing Bligon adalah hasil persilangan kambing Kacang dan Kambing PE (Peranakan Etawah). Kambing Bligon merupakan kambing dwiguna penghasil susu dan daging yang memiliki sifat *mothering ability* baik serta mampu menghasilkan dua anak per kelahiran (prolifik). Sifat prolifik dipengaruhi oleh kerja gen fekunditas (kesuburan) salah satunya adalah gen GDF9 yang berhubungan dengan peningkatan laju ovulasi dan *litter size* ternak. Penelitian ini bertujuan untuk mengidentifikasi genotip berdasarkan SNP g.3855 A>C pada gen GDF9 kambing Bligon dengan metode PCR-RFLP berdasarkan enzim restriksi yang telah terkonfirmasi, menghitung frekuensi alel dan genotip, serta mengetahui keragaman genetik dalam populasi. Materi penelitian yaitu 21 sampel DNA kambing Bligon kelahiran kembar. Metode penelitian ini meliputi pemilihan sampel DNA, isolasi DNA, amplifikasi target sekuen DNA dengan primer *forward* 5'-CTC CTC TTG AGC CTC TGG TG-3 dan *reverse* 5'-TCC AGT TGT CCC ACT TCA GC-3', konfirmasi enzim restriksi pada lokasi SNP, penentuan genotip menggunakan metode RFLP dengan enzim *MspI*. Analisis data yang dilakukan yaitu perhitungan frekuensi alel dan frekuensi genotip. Hasil penelitian menunjukkan bahwa hanya diperoleh 1 macam genotip AA pada SNP g.3855A>C berdasarkan *GenBank* EF446168.2 di kambing Bligon kelahiran kembar. Frekuensi alel A sebesar 0,01 % dan frekuensi genotip AA sebesar 100% dalam populasi sehingga dapat dinyatakan bahwa gen GDF9 kambing Bligon pada penelitian ini bersifat monomorfik atau seragam. Penelitian mengenai gen yang berkaitan dengan sifat-sifat unggul dapat dilakukan selanjutnya untuk memperoleh genotip yang dapat dijadikan marka pembawa sifat.

Kata Kunci : kambing Bligon ,Polimorfisme ,Gen GDF9 ,PCR-RFLP,Enzim Restriksi

**POLYMORPHISM DETECTION OF GDF9 GENE IN BLIGON GOAT BY
USING *POLYMERASE CHAIN REACTION-RESTRICTION FRAGMENT
LENGTH POLYMORPHISM (PCR-RFLP) TECHNIQUE***

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ABSTRACT

Bligon goat is a crossbred of Kacang and Ettawah crossbred (PE, Peranakan Ettawah). Bligon goat is dual-purpose milk and meat goat that has a good mothering ability and able to produce two kids per birth (prolific). Prolific traits are influenced by the role of fecundity genes (fertility), one of which is the GDF9 gene which is associated with increased ovulation rate and litter size of livestock. This study was aimed to identify genotypes based on SNP g.3855 A>C in the GDF9 gene of Bligon goats by PCR-RFLP method based on restriction enzymes that have been confirmed, calculate allele and genotype frequencies, and determine genetic diversity in the population. The research material was 21 DNA samples of twin-born Bligon goats. This research method includes the selection of DNA samples, observation of body weight and size, DNA isolation, amplification of target DNA sequences with primers forward 5'-CTC CTC TTG AGC CTC TGG TG-3 and reverse 5'-TCC AGT TGT CCC ACT TCA GC-3', confirmation of restriction enzymes at SNP locations, determination of genotypes using the RFLP method with the MspI enzyme. The data analysis performed was calculation of allele frequency and genotype frequency. The results showed that only 1 type of AA genotype was obtained at SNP g.3855A>C based on GenBank EF446168.2 in twin-born Bligon goats. The allele frequency is 0,01 % and genotype frequency is 100% AA in population, so it can be stated that the GDF9 gene in Bligon goats in this study is monomorphic or similar. Research on genes related to great traits can be done to obtain genotypes that can be used as markers of traits.

Keyword: Bligon goat, Polymorphism, GDF9 Gene, PCR-RFLP, Restriction enzyme