INTISARI

UJI KUANTITATIF MOLEKULER *STRAW* XX SAPI FRIESIAN HOLSTEIN (*Bos taurus*) HASIL *SEXING* MENGGUNAKAN *PRIMER* PLP A 3 (152 bp) DENGAN METODE *QUANTITATIVE POLYMERASE CHAIN REACTION* (qPCR)

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Sapi Friesian Holstein merupakan bangsa sapi penghasil susu yang telah lama dikenal di Indonesia. Setiap tahun, kebutuhan susu di Indonesia terus meningkat, tetapi belum diikuti dengan peningkatan produksi susu nasional. Pemerintah Indonesia berupaya meningkatkan produksi susu nasional dengan cara menambah populasi sapi perah betina melalui program inseminasi buatan menggunakan *straw* hasil *sexing*. Namun, faktanya *straw* hasil *sexing* belum mampu menghasilkan anakan sapi dengan jenis kelamin sesuai harapan. Berdasarkan permasalahan tersebut, penelitian ini berusaha membantu mengonfirmasi apakah *straw* XX semen sapi Friesian Holstein hasil *sexing* benar mengandung gen PLP yang menyandi jenis kelamin betina. Penelitian ini bertujuan sebagai uji konfirmatorik terhadap kemampuan *primer* PLP A 3 (152 bp) yang menyandi kromosom jenis kelamin betina dalam mengamplifikasi gen target yang terkandung dalam *straw*, yaitu gen PLP secara spesifik melalui metode *Quantitative Polymerase Chain Reaction* (qPCR). Hasil verifikasi molekuler dengan metode qPCR menunjukkan kelima grafik sampel menghasilkan *single peak* atau memiliki *melting curve* tunggal yang mengindikasikan bahwa *primer* PLP A 3 (152 bp) mampu mengamplifikasi secara spesifik gen target yang telah diisolasi dari *straw* XX sapi Friesian Holstein hasil *sexing*.

Kata kunci: Sapi Friesian Holstein (FH), *primer* PLP, metode qPCR

ABSTRACT

QUANTITATIVE MOLECULAR EXAMINATION OF FRIESIAN HOLSTEIN CATTLE (*Bos taurus*) XX SEXED STRAW USING PLP A 3 (152 bp) PRIMER AND QUANTITATIVE POLYMERASE CHAIN REACTION METHOD (qPCR)

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Friesian Holstein cattle are a kind of dairy cows that have been known in Indonesia for a long time. Every year, the needs for milk in Indonesia continue to increase, but it has not been followed by any increase in national milk production. The Indonesian government seeks to increase national milk production by increasing the population of female dairy cows through an artificial insemination program using sexed straw. But in fact, the sexed straw has not been able to produce calves with the expected gender. Based on these problems, this study seeks to help determine whether the sexed Holstein Friesian cattle XX semen straw contains the PLP gene which encodes female sex. This study aims to be a confirmatory test of the ability of the PLP A 3 primer (152 bp) which encodes the female sex chromosome to amplify the target gene contained in the straw, namely the PLP gene specifically through the quantitative polymerase chain reaction (qPCR) method. The results of the analysis using the qPCR method showed that all five sample graphs produced a single peak or had a single melting curve which indicated that the PLP A 3 primer was able to amplify specifically the target gene that had been isolated from the sexed straw XX of Friesian Holstein cattle.

Keywords: Friesian Holstein (FH) cattle, PLP primer, qPCR method