



PERBANDINGAN HASIL ISOLASI DNA (*Dexyribo Nucleic Acid*) DARAH DAN FESES SAPI BALI (*Bos sondaicus*)

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INTISARI

Deoxyribo Nucleic Acid (DNA) merupakan sumber informasi genetik pada seluruh makhluk hidup yang dapat diwariskan kepada anaknya. Darah merupakan sumber materi genetik yang umum digunakan pada ternak karena lebih mudah diisolasi dan tingkat keberhasilan isolasi sangat tinggi. Sapi bali merupakan ternak yang umum dipelihara oleh peternak di Indonesia. Pengambilan sampel darah yang tidak tepat dan baik pada sapi bali, serta bila ternak dipelihara secara ekstensif (tidak ditemukannya kandang jepit), dapat menyebabkan ternak stres dan sulit dalam pengambilan sampel darah. Untuk itu perlu dieksplorasi sumber materi DNA selain darah yang bersifat *non invansive* seperti feses dan urin. Penelitian ini telah dilaksanakan pada Desember 2016 sampai Januari 2017. Lima ekor sapi bali jantan digunakan dalam penelitian ini. Pengambilan sampel darah, feses dan urin dilaksanakan di Balai Inseminasi Buatan Tenayan Raya Kota Pekanbaru. Isolasi DNA dan uji kualitatif DNA dilaksanakan di Laboratorium Genetika dan Pemuliaan Fakultas Pertanian dan Peternakan UIN Suska Riau. Konsentrasi dan kemurnian DNA hasil isolasi dihitung menggunakan alat spektrofotometri di Laboratorium FMIPA Institut Pertanian Bogor, Bogor. Pengambilan sampel darah melalui *vena jugularis* bagian leher sebanyak 3 mL dan disimpan pada tabung *vaccutainer* EDTA pada suhu 5⁰C. Sampel feses dan urin ditampug saat ternak melakukan *defekasi*. Prosedur isolasi berdasarkan *GeneJET Whole Blood Genomic* yang telah dimodifikasi. Hasil penelitian ini menunjukkan bahwa darah dan feses berhasil dilakukan pada ternak sapi bali dan tidak pada urin. Hasil uji t menunjukkan bahwa konsentrasi DNA hasil isolasi feses (81.59 ng/μL) lebih tinggi dibandingkan darah (15.17 ng/μL), namun kemurnian darah (1.155) lebih baik dari feses (0.511).

Kata kunci: Darah, DNA, Feses , Isolasi, Sapi Bali, Urin



THE COMPARISON OF DNA ISOLATION RESULT (*Dexyribo Nucleic Acid*) OF BLOOD AND BALI CATTLE FECES (*Bossondaicus*)

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ABSTRACT

Deoxyribo Nucleic Acid (DNA) was the source of genetic information on all organism that could be inherited to their progeny. Blood was a source of genetic material commonly used in livestock because it was more easily isolated and the success rate of isolation was very high. Bali cattle was a common livestock reared by farmers in Indonesia. Inaccurate and good blood sampling of Balinese cattle, and when livestock was extensively maintained (not found in flock enclosures), could cause stressful cattle and difficulty in sampling of blood. Therefore, it is necessary to explore non-invasive sources of DNA material such as feces and urine. This research has been carried out in December 2016 until January 2017. Five Balinese proven bull were used in this study. Blood sampling, feces and urine were conducted at Tenayan Raya artificial insemination center of Riau Province. DNA isolation and DNA qualitative tests were conducted at the Laboratory of Genetics and Breeding Faculty of Agriculture and Animal Science UIN Suska Riau. The concentration and purity level of the isolated DNA was calculated using a spectrophotometric device at the Faculty of Mathematic and Natural Science Laboratory of Bogor Agriculture University. Blood sampling through the jugular vein of the neck section of 3 mL and stored on an EDTA vaccutainer tube at 5⁰C. Samples of feces and urine were exposed at the time the cattle did the defecation. Isolation procedure based on modified GeneJET Whole Blood Genomic. The results of this study indicated that blood and feces were successfully performed on cattle and not in the urine. The result of t-test showed that the concentration of DNA from fecal isolation result (81.59 ng/ μ L) was higher than blood (15.17 ng/ μ L) but the blood purity (1,155) was better than feces (0.511).

Keywords: Bali Cattle, Blood, DNA, Feses, Isolation, Urine