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EKSPLORASI PROTEIN SPESIFIK *PREGNANCY ASSOCIATED GLYCOPROTEIN* (PAG) AIR SUSU SAPI PERAH SEBAGAI BIOMARKER UNTUK PENGEMBANGAN DIAGNOSIS KEBUNTINGAN SECARA LABORATORIS

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ABSTRACT

PREGNANCY ASSOCIATED GLYCOPROTEIN (PAG) PROTEIN EXPLORATION FROM MILK OF PREGNANT DAIRY COW AS FOR EARLY PREGNANCY DIANOSTIC LABORATORIES

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The sustainability of livestock sources is related to birth rate increase and the shortening of kidding interval. One of the efforts to shorten the calving interval in dairy cattle is by conducting early diagnosis of pregnancy after mating. The development of early pregnancy diagnosis method in livestock can be undertaken by observing specific substance presents in the milk of pregnant livestock, i.e. the Pregnancy Associated Glycoprotein (PAG). The objective of this study was to prove that PAG protein was able to induce humoral immune response characterized by the formation of anti-PAG and to prove that anti-PAG produced was able to recognize PAG protein from milk of pregnant dairy cow as the base for developing one of early pregnancy test in dairy cow.

This study was conducted by following these stages: 1) Characterization of anti-PAG produced from the induction of PAG protein isolate from the milk of pregnant dairy cow and 2) Dairy cow pregnancy diagnosis by PAG microtiter strip and rectal palpation. Anti-PAG titer obtained in this study was found to be low in week 5 after the first and second booster (week 10), i.e., 44.76 µg/ml and 69.76 µg/ml, while the highest titer was obtained in week 3 after the first and second booster (week 8), i.e., 555.00 µg/ml and 606.91 µg/ml.

The results of PAG microtiter strip at 21th day after breeding with rectal palpation revealed sensitivity, specificity, accuracy, positive predictive, and negative predictive values of 39,39 %; 80 %; 58 %; 92,86 % and 44,44 %. While the results of PAG microtiter strip at 28th day after breeding with rectal palpation revealed sensitivity, specificity, accuracy, positive predictive, and negative predictive values of 93,93 %; 85,71 %; 86 %; 86,11 % and 85,71 %.

Based on the results, it can be concluded that PAG protein is able to induce humoral immune response by the formation of anti-PAG. The anti-PAG produced can be employed for doe pregnancy diagnosis with PAG microtiter strip. Dairy cow pregnancy diagnosis with PAG microtiter strip at 28th day after breeding has more reliable validation value as compared at 21th day after breeding.

Keywords: *PAG, anti-PAG, pregnancy diagnosis*