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ABSTRACT

CHARACTERIZATION AND PRODUCTION OF ANTI-PROLACTIN POLYCLONAL ANTIBODY (Abpo-αProl) AS MOULTING PROCESS INHIBITOR

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Anti prolactin polyclonal antibody (Abpo-αProl) has a specific activity against prolactin. It neutralizes prolactin action in circulation. The effect of such neutralization is the inhibition of moulting process, so that hens may be able to produce eggs again. Abpo-αProl can be produced by injecting prolactin isolate from blood serum of arabic hens in moulting-phase into local goat.

The purpose of this study was to inhibit moulting process without reducing hens immune response. This study was commenced by protein characterization using SAS 50% method, prolactin identification from moulting-phase arabic hens serum by means of SDS-PAGE, and followed with isolation and purification using electroelution. Furthermore, prolactin isolate was immunized to local goat to produce Abpo-αProl. Six local goats were divided into 2 groups. The first group comprised 1 goat immunized with PBS, and the second one was immunized with prolactin isolate in CFA and subjected to booster with prolactin isolate in IFA twice.

The formation of Abpo-αProl and the highest titer was detected using indirect ELISA. Afterwards, the capability to inhibit moulting-phase and the time of the recovery of egg laying were assessed. This study involved 40 early moulting-phase arabic hens aged 14 - 16 months. These hens were divided into four group, the first group (P0), served as control, was immunized with PBS, the second (P1), third (P2), and fourth (P3) groups were given with intramuscular Abpo-αProl of 50 μg/ml, 100 μg/ml, and 200 μg/ml, respectively.

The evaluation of capability in moulting inhibition was carried out every day, starting from the first loss of primary wing feather to the ceasing of feather loss and complete recovery of feather. Moulting process can be ceased at day 4 to day 6, while control group ceased moulting at day 60 to day 65. Results of ANOVA revealed that the difference between groups had $p < 0.05$.

The evaluation of capability in affecting the time of egg laying recovery was also carried out every day, starting from the first grow of wing feather to the recovery of egg laying. Result of evaluation showed that egg laying started at day 2 to day 10, while that in control group at day 17 to day 20. Result of ANOVA revealed difference between groups ($p < 0.05$).

The results of this study showed that (1) Abpo-αProl could be produced in goat from the prolactin isolate of moulting-phase arabic hens blood serum; (2). The first emergence of Abpo-αProl was at the first bleeding after immunization of prolactin isolate in CFA and first booster in IFA. The highest titer was found at eleventh bleeding after the third booster with prolactin isolate in IFA; and (3) Abpo-αProl could inhibit moulting process and shorten the time of egg laying recovery.

Keywords: Abpo-□Prol, prolactin, arabic hens, moulting