

Semen Evaluation in Jungle Fowl, Domestic Chicken and Ayam Serama

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Abstract

This research was conducted to investigate variation in semen quality of three chicken breeds. Nine cocks comprising 3 cockerels each of jungle fowl, domestic chicken, and ayam serama were used in this project. Semen was collected once a week by abdominal massage method. The semen was evaluated for volume, colour, wave pattern, general and individual motility, concentration, live and, abnormal percentage and sperm size. No significant differences were observed in volume of semen among all three breeds ($P > 0.05$). Creamy and milky colour of semen were observed for jungle fowl and domestic chicken, whereas for ayam serama the color was watery. There were significant differences ($P < 0.05$) between semen concentration in jungle fowl ($94.44 \times 10^9 \pm 905.3$ sperms/mL) and ayam serama ($1.83 \times 10^9 \pm 743$ sperms/mL). For general motility, no significant ($P > 0.05$) differences were observed among these three breeds. The types of individual motility observed and analyzed were forward, rotating, vibrating, and backward. Jungle fowl had highest forward motility and lowest for rotating motility. There were no significant ($P > 0.05$) differences in term of sperm size between jungle fowl and the other two breeds. All three breeds had total live spermatozoa of more than 90%. Six sperm defects were observed: macrocephalic, mid piece knotting, bend head, plasma droplet, spermatid and bend tail. It was concluded that there were significant ($P > 0.05$) differences between the three cock breeds in semen color, concentration, individual sperm motility particularly forward and rotating motility, size of sperm and total abnormalities. Jungle fowl appeared to have higher quality semen compared to domestic chicken and ayam serama. Although ayam serama appeared to have lower semen quality than domestic chicken and jungle fowl, it still had sufficient quality for use in artificial insemination.

Keyword: Semen evaluation, jungle fowl, domestic fowl, ayam serama, and sperm morphometric,