



### Determination of calcium and phosphorus concentration in the seminal plasma and their relationships with semen characteristics in rooster

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**Objectives:**The present study was conducted to evaluate the concentrations calcium (Ca) and phosphorus (P) and their relationship with semen characteristics such as forward progressive motility (FPM) and viability in rooster.

**Material and Methods:**A total of 10 broiler breeder males were used in the present experiment. Semen was collected from roosters twice a week by abdominal massage method and FPM and viability were assessed in samples. By centrifugation, seminal plasma was separated from spermatozoa and kept in -20<sup>0</sup> C til minerals measurement. Concentrations of Ca and P were measured by commercial kit.

**Results and conclusion:**Result revealed that the mean concentrations of Ca and P were 6.52±0.40(mg/dl), 3.89±0.18 (mg/dl) in samples, respectively. Our result showed that significant and positive correlation between concentrations of Ca and FPM(r=0.57; P < 0.05) and viability (r= 0.058; P< 0.05). For better judgment and according to spermatozoa motility percentages, samples were classified to 3 groups with excellent (samples with higher than 90% FPM, n=31), good (samples with FPM between 70-80%, n=9) and fair FPM (samples with FPM less than 70%, n=11). In excellent group; the correlation coefficients between FPM and Ca and P concentrations were 0.13 and 0.10 that there were not significant (P> 0.05). Moreover, in good group; the correlation coefficient between FPM and Ca and P concentrations were 0.51 and 0.11 that there were not significant (P> 0.05). In fair group; the correlation coefficient between FPM and Ca and P concentrations were -0.18 and 0.11 and the results were as the same as the excellent group. It can be concluded that higher FPM was correlated with Ca concentrations in rooster. Further research is needed in this area to evaluate the semen enrichment with calcium and other minerals on quality of semen during in vitro storage.

**Keywords:** calcium, phosphorus, FPM, semen, rooster

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### Effect of Palmitoleic acid on quality of rooster semen during chilled storage

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**Objectives:**The practice of artificial insemination is now widely utilized in fowl. The present study was designated to evaluate the effect of palmitoleic acid on the quality of rooster semen stored at 4<sup>0</sup> C.

**Material and Methods:**Semen was collected from ten roosters twice a week. Good quality ejaculates were pooled and after dilution, the semen was enriched with 0 (control), 0.25 (P 0.25) and 0.5 (P 0.5) millimolar palmitoleate. Forward progressive motility and viability and concentrations of malondialdehyde (MDA) were evaluated in seminal plasma and spermatozoa at 0, 24 and 48h.

**Results and conclusion:**Motility was 77.5±1.04, and 69.5±2.32% at 24h and 49.33±1.36 and 43.00±2.08% at 48h in P0.25 and control, respectively (P<0.02). There were no significant differences in MDA levels of the seminal plasma among groups, while the MDA concentrations of the spermatozoa were lower in P 0.25 and P 0.5 compared to the control group at 24 and 48h (P<0.002). In conclusion, enrichment of rooster semen with palmitoleate would exert beneficial effects on the semen quality during cold storage.

**Keywords:** Palmitoleic Acid, Malondialdehyde, motility, Semen, Rooster.