

Inductions of CaC_2 on Sperm Morphology and Viability of the Albino Mice (*Mus musculus*)

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Abstract : This work investigated possible inductions of CaC_2 , often misused by fruit vendors to stimulate artificial ripening, on mammalian sperm morphology and viability. Thirty isogenic strains of male albino mice, *Mus musculus* (age \approx 8 weeks; weight = 32.5 ± 2.0 g) were acclimatized (ambient temperature $28.0 \pm 1.0^\circ\text{C}$) for 2 weeks and fed standard growers mash and water ad libitum. They were later exposed to graded toxicant concentrations (w/w) of 2.5000, 1.2500, 0.6250, and 0.3125% in 4 cages. A control cage was also established. After 5 weeks, 3 animals from each cage were sacrificed by cervical dislocation and the cauda epididymis excised. Sperm morphology and viability were determined by microscopic procedures. The ANOVA, means plots, Student's t-test and variation plots were used to analyze data. The common abnormalities observed included Double Head, Pin Head, Knobbed Head, No Tail and With Hook. The higher toxicant concentrations induced significantly lower body weights [$F(829.899) > F_{\text{crit}}(4.19)$] and more abnormalities [$F(26.52) > F_{\text{crit}}(4.00)$] at $P < 0.05$. Sperm cells in the control setup were significantly more viable than those in the 0.625% ($t=0.005$) and 2.500% toxicant doses ($t=0.018$) at the 95% confidence limit. CaC_2 appeared to induced morphological abnormalities and reduced viability in sperm cells of *M. musculus*.

Keywords : artificial ripening, calcium carbide, fruit vendors, sperm morphology, sperm viability

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