Abstract

The naked mole rat (*Heterocephalus glaber*) (NMR) is increasingly becoming an important animal model in biomedical research. Housing NMR optimally in captivity is therefore important. The present study was designed to establish the effects of varying photoperiods and cage designs on feed consumption, weight, behavior, and fecal corticosterone of NMR. The study period was 35 days, where a total of 54 NMR were used. The main behaviors observed during the study were huddling, patrolling/exploring, feeding, licking, climbing, and mouth carrying. The average daily and weekly feed consumption was 5.8 and 40.7 grams per animal respectively. Significant differences were noted on day 2 between group DL (60.66 ± 9.2 nmol/g) and DD (19.57 ± 1.5 nmol/g) at $p < 0.001$, day 3 values between group LL (24.27.2 ± 1.3 nmol/g) and DL (49.71 ± 1.6 nmol/g) at $p < 0.05$, and day 35 between group DL (52.60 ± 4.5 nmol/g) and DD (27.10 ± 5 nmol/g) at $p < 0.05$). These results indicate that photoperiodism affected circadian rhythms and/or stress levels of NMR and hence the difference in fecal corticosterone levels. This study, therefore recommends that NMR should be housed preferably under darkness to allow for full expression of various NMR-specific behaviors and reduced stress levels. Caging system did not affect behavior, feed consumption, growth, and stress levels.