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Proteomic characterization of serum during the body weight changes of the estrous cycle in Bactrian camels

Haile and Jirimutu

Inner Mongolia Agricultural University, China

Depending on the genetic and health condition of the sire, the geographical location, and environmental and nutritional parameters, the duration of the estrus cycle ranges from 2 to 6 months. In China, the estrus cycle of the Bactrian camels ranges from the December to March, and out of this estrus cycle the male Bactrian camels lose their libido. During the estrus cycle, the male camels exhibit morphological, behavioral and endocrinological peculiarities and increase pacing and anxiety and becoming so aggressive towards other males and man that they cannot be handled. In breeding season due to loss of appetite, male camel loss up weight 16% to 25%. Utilizing label-free liquid chromatography–tandem mass spectrometry (LC–MS/MS) shotgun proteomics, we characterized the serum proteome at four key stages of body weight changed during the estrous cycle in the male Bactrian camel. We identified 210, 215, 220, 310 and 220 proteins in control group, stage1-4, respectively, with 178 shared between each stages. Among these 16, 20, 18, 21 differential proteins ($P < 0.05$) on stage 1 to 4 during the estrus cycle was compared with the control group, respectively. Of these differential proteins 4, 9, 11, and 11 proteins up-regulated and 12, 11, 7, and 10 proteins down-regulated on stage1 to 4 during the estrus cycle which compared with the control group, respectively. Among these proteins, 15 up-regulation proteins and 8 down-regulation proteins showed significant and regular changes along with estrus cycle. This study is the first reported LC–MS/MS based global proteomic characterization of serum proteome of the male camel among estrus cycle proteins changes and provides novel information on the temporal alterations in serum composition during critical stages for body weight changes among estrus cycle.

Recent Publications

1. Zia-Ur-Rahman, et al., (2007) Serum hormonal, electrolytes and trace element profiles in the rutting and non-rutting one-humped male camel (*Camelus dromedarius*). *Animal Reproduction Science* 101(1):172-178.
2. Fatnassi M, et al., (2014) Evaluation of sexual behavior of housed male camels (*Camelus dromedarius*) through female parades: correlation with climatic parameters. *Tropical Animal Health & Production* 46(2):313.
3. Abu-Zidan F M, et al., (2012) Camel bite injuries in United Arab Emirates: a 6 year prospective study. *Injury* 43(9):1617-1620.
4. Jain S, V Gautam and S Naseem (2011) Acute-phase proteins: as diagnostic tool. *Journal of Pharmacy and Bioallied Sciences* 3(1):118-127.
5. Valcourt U, Alcaraz L B, Exposito J Y, et al. (2015) Tenascin-X: beyond the architectural function. *Cell Adhesion & Migration* 9(1-2):154.

Biography

Haile completed her undergraduate degree in Food Science and Engineering from Inner Mongolia Agricultural University in 2014, after which she started Doctoral studies in Food Science under the supervision of Professor Jirimutu at her alma mater. Her main focus is the proteomics of wild and domestic Bactrian camels.

haileaijia@163.com