Quantitative expression analysis of Bodhesin genes in the buck (*Capra hircus*) reproductive tract by real-time polymerase chain reaction (qRT-PCR)


**Abstract**

Knowledge of the different patterns of gene expression along the male reproductive tract can assist in understanding the physiological processes of species-specific reproduction in mammals. In the present work, expression profiles of buck spermadhesin (bodhesin) genes along the reproductive tract by qRT-PCR were investigated. Total RNA from the seminal vesicle, testis, epididymis, bulbourethral gland and ductus deferens were reverse transcribed and the cDNA produced was submitted to qRT-PCR. For each homologous bodhesin gene, namely Bdh-1, Bdh-2 and Bdh-3, sets of specific primers and recombinant plasmids were prepared for gene quantification. In buck seminal vesicles, Bdh-2 is the homologue predominantly expressed, with a copy number on the order of millions of times more than Bdh-1 and thousand times more than Bdh-3. The copy number of Bdh-3 mRNA is only 10-fold greater than that of Bdh-1. Bodhesin transcripts were detected in all tissues examined, except in ductus deferens. The quantitative analysis also demonstrated clearly the differential gene expression of spermadhesin in bulbourethral gland. The striking differences in bodhesin gene expression indicate that each isoform could have a specific biological function in the buck genital tract, which deserves further detailed studies.