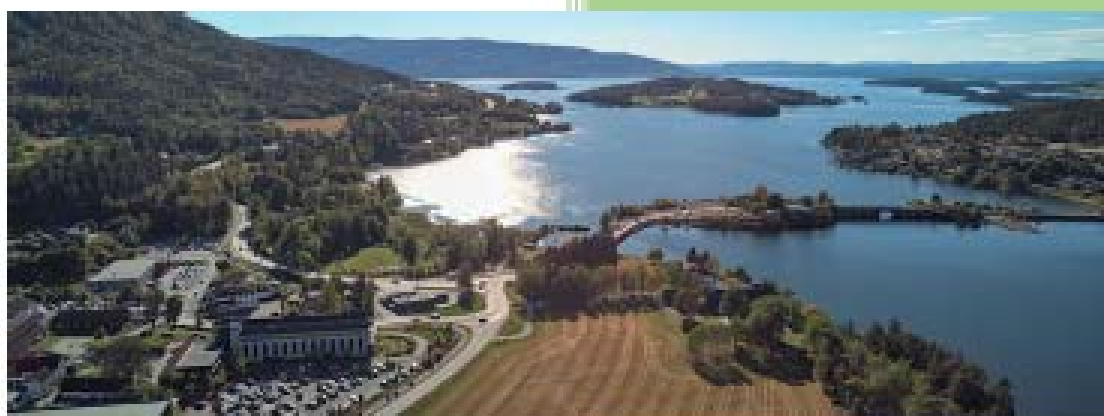
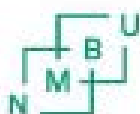


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16) GLYCAN PROFILES OF THE MALE DONKEY URETHRA

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ABSTRACT: The urethra of the male has a dual function, acting as a route for urine and semen. The physicochemical properties of the urethral epithelium surface are of paramount importance in the prevention of bacterial colonization (Alm et al., 1982). Despite its considerable importance, scanty studies report the molecular composition of the urethra of non-human species, including Equides. The presence of glycoconjugates in the pelvic urethra of male donkeys has been found by Alcian Blue-PAS staining (Abou-Elhamd et al., 2019), but in this species as well as in other equids an in-depth characterization of the glycan profiles is still lacking. In this study, the glycan pattern of the pelvic and penile urethra of the male donkey was investigated by lectin histochemistry. Fragments from the pelvic and penile urethra of healthy adult male donkeys were fixed in 4% (w/v) PBS-buffered paraformaldehyde, embedded in paraffin wax, and stained with a panel of twelve lectins. The results demonstrated a complex glycopattern in both the pelvic and penile urethral segments which also differed in the glycan composition. Briefly: i) the lumen of the pelvic urethra contained much more N-linked glycans but fewer sialoglycans and neutral O-linked glycans compared to the penile urethra; ii) the luminal surface of the pelvic urethra expressed more N-linked glycans but no fucoglycans than the penile urethra; iii) goblet cells of the penile urethra secreted neutral and sialylated O-glycans as well as few fucoglycans. These findings suggest that the donkey pelvic and penile urethra are constituted of different glycopatterns and secrete glycans that modify the urethral milieu, thus protecting the urethra against pathogens and regulating the composition of the seminal plasma glycoproteins, which in turn have an impact on male fertility. The results could be a reference point for evaluating the pathological changes of the urethra of this endangered species.

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