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Profiling of bile acids in bovine follicular fluid by fused-core-LC-MS/MS

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Highlights

- Validated method for the profiling of 9 bile acids in the follicular fluid (FF) of cattle.
- Fused-core chromatography allowed for fast analysis with an HPLC instrument.
- All FF samples show similar relative amounts of BAs, independent of their size.
- CA and GCA are the most abundant BAs in all samples, followed by DCA and its conjugates.

Abstract

Bile acids (BAs) are present in follicular fluid (FF) from humans and cattle. This fact has triggered an interest on the role BAs might play in folliculogenesis and their possible association with fertility. To achieve a better understanding about this subject, new methods are needed to provide reliable information about concentrations of the most important BAs in FF. In this context, liquid chromatography-tandem mass spectrometry (LC-MS/MS) offers high specificity with a relatively simple sample workup. We developed and validated a new assay for the quick profiling of the 9 most abundant BAs in follicular fluid from cattle. The method uses 200 µl of FF and can quantify cholic acid (CA), chenodeoxycholic acid (CDCA), deoxycholic acid (DCA) and their glycine (G) and taurine (T) conjugates. Lithocholic acid (LCA), its conjugates GLCA and TLCA, and sulfated forms, were present in some samples,

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