

Quantitative screening for steroids in animal feeding water using reversed phase LC with gradient elution

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Abstract-

Several isocratic separations for the determination of 20 steroids (STER) in animal feeding water samples (AFWS) from drinking-trough by LC using a mobile phase ACN/H₂O (35:65 v/v) and different RP columns (Hypersil C18, Gemini C18 (GM), Purospher Star C18, Synergi Max C12, and Synergi Fusion) and UV detection were obtained. The elution order was the same: a first group of corticoids (CC) was early eluted, a second group of CC and anabolics (AAS) exhibited intermediate retention, and a third group constituted by AAS was strongly retained. To improve the separation performances of the isocratic separations an ACN gradient elution optimization was carried out for each column. The most satisfactory results were obtained using a Purospher column which allowed the separation of 19 STER in an analysis time close to 26 min. After sample preparation using SPE, method validation was performed in an AFWS spiked with STER according to the EC decision criteria established for quantitative screening methods. For this purpose calibration graphs, extraction efficiencies, decision limits, detection capabilities, precision (repeatability and within-laboratory reproducibility), accuracy, selectivity, and robustness were evaluated. The proposed method was applied to other AFWS with satisfactory results.

Index Terms- Animal feeding water; Gradient elution; Growth promoting agents; LC; Steroids;

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