Determination of 17α-ethynylestradiol, carbamazepine, diazepam, simvastatin, and oxybenzone in fish livers

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ABSTRACT
A method using liquid chromatography/tandem mass spectrometry (LC/MS/MS) was developed for the determination of 17α-ethynylestradiol in fish liver; a second method using LC/MS was developed for the determination of carbamazepine, diazepam, simvastatin, and oxybenzone in fish liver. The fish liver samples were extracted and cleaned up by using liquid-liquid extraction and solid-phase extraction before the extracts were analyzed by LC/MS or LC/MS/MS with electrospray negative and positive ionization. Recoveries of the 5 target compounds from spiked catfish liver ranged from 72 ± 2% to 100 ± 3%. Limits of quantification for the 5 compounds were between 4.2 and 12.3 ng/g (wet weight). Ten turbot (Pleuronichthys verticalis) liver samples were analyzed; levels of 17α-ethynylestradiol, carbamazepine, diazepam, simvastatin, and oxybenzone were below the detection limits. Diazepam was detected in all 10 fish liver samples as concentrations ranging from 23 to 110 ng/g (wet weight).

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