Determination of platinum originating from carboplatin in canine sebum and cerumen by inductively coupled plasma mass spectrometry.

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\textbf{Abstract.}
We present highly sensitive, reliable methods for the determination of platinum originating from carboplatin in canine sebum and cerumen. The methods are based on the measurement of platinum by inductively coupled plasma mass spectrometry and allow quantification of 0.15pg platinum per cm\textsuperscript{2} body surface in canine sebum and of 7.50 pg platinum per sampled ear canal. The sample pretreatment procedure involved extraction of wipe samples followed by dilution with appropriate diluents. The performance of the methods, in terms of accuracy and precision, fulfilled the most recent FDA guidelines for bioanalytical method validation. Validated range of quantification were 15.0–1.00×10\textsuperscript{4} ng L\textsuperscript{−1} for platinum in canine sebum extraction solution (corresponding to 15.0 pg per wipe sample or 0.15 pg cm\textsuperscript{−2}) and 7.50–1.00×10\textsuperscript{4} ng L\textsuperscript{−1} for platinum in canine cerumen extraction solution (corresponding to 7.50 pg per sampled external acoustic meatus). Canine matrices may not always be obtained in sufficient quantities. Therefore, we also confirmed the legitimacy of the application of human matrix samples for the preparation of calibration standards and quality control samples as alternatives, to be used in future clinical studies. The assays are used to support human biomonitoring studies and pharmacokinetic oncology studies in pet dogs treated with carboplatin.