

3936281 DTED/M : MAJOR : ENDODONTICS ; M.Sc. (ENDODONTICS)

KEY WORD : LIDOCAINE/DENTAL PULP/HIGH-PERFORMANCE
LIQUID CHROMATOGRAPHY

SOMCHART KANJANAWATTANA : DETERMINATION OF LIDOCAINE
IN DENTAL PULP BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY.

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PREM CHOONTANOM Dr.vet.med., 54 p. ISBN 974-661-453-3

The purpose of this study was to develop a method for detection of lidocaine in dental pulp by high-performance liquid chromatography. It was found that acetonitrile and 5% glacial acetic acid at the ratio 25:75 (v/v) as the mobile phase together with the use of a μ Bondasphere C8 column gave sharp, separate peaks for lidocaine and bupivacaine. The HPLC system was shown to be a reliable tool for lidocaine determination. Within-day and day-to-day coefficients of variation were generally lower than 10%. The extraction procedure for lidocaine from the tissue showed high recovery of 90%. Under the conditions in this study, the HPLC was used to quantitate the amount of lidocaine in the dog dental pulp following local anesthetic infiltration. One upper and one lower canine from each dog, with the total of four teeth, were used. The experiment was performed on different days to obtain an equal volume of local anesthetics for each tooth per day. After a supraperiosteal injection of 1.8 ml of 2 % lidocaine with 1:100,000 epinephrine, the pulp tissue was removed and lidocaine extracted for detection using high-performance liquid chromatographic analysis. The results demonstrated that the mean concentrations of lidocaine were 0.21 and 0.17 $\mu\text{g}/\text{mg}$ wet pulp tissue in the upper and lower canines, respectively. The amount of lidocaine recovered from the upper canine was higher than the lower canine.