Systematic HPLC study of a new series of 4-methyl-1,4-dihydropyridines with antitrombotic activity

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A systematic study of a new series of 4-methyl-1,4-dihydropyridine derivatives by HPLC by both photodiode array and electrochemical detectors is reported. The optimum mobile phase was acetonitrile/0.05 M phosphate buffer pH 3 (55/45, v/v) at a flow-rate of 1.5 mL/min. Compounds I-VIII were determined with UV detection at 250 nm and by electrochemical detection at + 1200 mV. Retention times varied between 3.0 and 14.0 minutes in the optimal experimental conditions. Good linear relationships between the peak areas and concentration were found, with limits of quantification ranging between 1 x 10-8 M and 1 x 10-6 M. Repeatability studies showed average variation coefficients lower than 1% for a photodiode array detector. No significant differences between the detectors in sensitivity and selectivity were found. Also, we used different degradation trials to test the selectivity of the methods. Results of these experiments revealed that the developed methods exhibited a good selectivity.