**Simultaneous determination of DTPA, EDTA, and NTA by UV-visible spectrometry and HPLC.**

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**Abstract**

In this study, UV-visible spectrophotometry (UV-Vis) and high-performance liquid chromatography (HPLC) were used for simultaneous analysis of chelating agents diethylenetriamine pentaacetic acid (DTPA), ethylenediamine tetraacetic acid (EDTA), and nitrilotriacetic acid (NTA), as their metal chelates in dishwashing detergents, natural waters, and pulp mill water. The total amounts of the chelating agents in dishwashing detergents were verified by potentiometric titration with Fe(III) solution. Nickel(II) chelates were determined by UV-Vis and iron(III)chelates by HPLC and titration. Recoveries of DTPA, EDTA, and NTA from a standard mixture of analytes by UV-Vis were 107+/-7, 101+/-12 and 94+/-13%, respectively, and the recovery of the total amount of complexing agents was 99+/-4%. The limits of detection for DTPA, EDTA, and NTA were 667, 324, and 739 micromol L(-1), respectively. In HPLC measurements the optimized mobile phase contained 0.03 mol L(-1) sodium acetate, 0.002 mol L(-1) tetrabutylammonium bromide, and 5% methanol at pH 3.15 and the detection was by UV-Vis detection at 254 nm. All three complexing agents could be separated from each other in a simultaneous analysis in less than 5 min. The limits of detection were 0.34, 0.27, and 0.62 micromol L(-1) for DTPA, EDTA, and NTA, respectively. The total amounts of the analytes measured in the dishwashing detergents by the three techniques were found to be highly comparable (ANOVA: F=0.04, P=0.96). R(2) values were 0.99 for EDTA, 0.99 for NTA, and 0.99 for all the results when UV-Vis and HPLC determinations were compared using regression lines. The UV-Vis and HPLC methods were proved to be viable also for analyses of natural and pulp mill waters. The absence of matrix interferences was verified by the standard addition technique.

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**Low-level determination of ethylenediaminetetraacetic acid in complex matrices.**

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**Abstract**

A method for the determination of ethylendiaminetetraacetic acid (EDTA) in foodstuffs by high performance liquid chromatography (HPLC) and gas chromatography (GC) is described. This method is applied to foodstuffs rich in sugars and polysaccharides for which aqueous extraction cannot be directly used in chromatographic analysis. EDTA, in its iron chelate form, is extracted with water from the defatted foodstuff. The extract is then purified by ion-exchange chromatography. At this stage of purification, the quantitative level of EDTA can be estimated by HPLC and the result can be confirmed by GC. The detection level of our samples of tinned beans was under 5 mg/kg.