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[\[PDF \(726K\)\]](#) [\[References\]](#)**Solid-Phase Extractors Based on 8-Aminoquinoline and 2-Aminopyridine Covalently Bonded to Silica Gel for the Selective Separation and Determination of Calcium in Natural Water and Pharmaceutical Samples**[Ezzat M. SOLIMAN](#)<sup>1)</sup> and [Salwa A. AHMED](#)<sup>2)</sup>1) *Chemistry Department, Faculty of Science, King Abdul-Aziz University*2) *Chemistry Department, Faculty of Science, El-Minia University*

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Two new silica-gel phases were produced directly *via* the chemical interaction of 3-chloropropyltrimethoxysilane modified silica gel with 8-aminoquinoline, phase I and 2-aminopyridine, phase II under reflux conditions. The selectivity properties exhibited by the phases under investigation for the uptake of Ca(II), Mg(II), Fe(III), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Pb(II) were determined at different pH values and shaking times under static conditions. The immobilization process and binding of metal ions to the phases were proved *via* infrared spectra. The phases showed high performance towards Ca(II) extraction at pH 10.00. The equilibrium data were better fitted with a Langmuir model ( $r^2 = 0.985$ ). The adsorption kinetics data were best fitted with the pseudo-second-order type. Good validation was obtained on applications of the two phases for the separation and determination of Ca(II) in natural water and pharmaceutical samples with no matrix interferences at pH 10.00 under dynamic conditions prior to determination by AAS.

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