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Analytical methods

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Teslima Daşbaşı 1, Şerife Saçmacı, Nevin Çankaya, Cengiz Soykan

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1 **Synthesis, characterization and application of a new chelating resin for**
2 **solid phase extraction, preconcentration and determination of trace metals**
3 **in some dairy samples by flame atomic absorption spectrometry**

4 **Teslima Daşbaşı^{a*}, Şerife Saçmacı^b, Nevin Çankaya^c, Cengiz Soykan^c**

5 *^aCumhuriyet University, Department of Food Technology, Gemerek Vocational School, TR-58840,*
6 *Sivas, TURKEY*

7 *^bErciyes University, Department of Chemistry, Faculty of Science, TR-38039, Kayseri, TURKEY*

8 *^cUşak University, Department of Material Science and Nanotechnology, Faculty of Engineering, TR-*
9 *64200, Uşak, TURKEY*

10 **ABSTRACT**

11 In this study, a simple and rapid solid phase extraction/preconcentration procedure was
12 developed for determination of Cd(II), Co(II), Cr(III), Cu(II), Fe(III), Mn(II), Pb(II), and
13 Zn(II) trace metals by flame atomic absorption spectrometry (FAAS). A new chelating resin,
14 poly(N-cyclohexylacrylamide-co-divinylbenzene-co-2-acrylamido-2-methyl-1-
15 propanesulfonic acid) (NCA-co-DVB-co-AMPS) (hereafter CDAP) was synthesized and
16 characterized. The influences of the analytical parameters such as pH of the sample solution,
17 type and concentration of eluent, flow rates of the sample and eluent, volume of the sample
18 and eluent, amount of chelating resin, and interference of ions were examined. The limit of
19 detection (LOD) of analytes were found (3s) to be in the range of 0.65 to 1.90 $\mu\text{g L}^{-1}$.
20 Preconcentration factor (PF) of 200 and the relative standard deviation (RSD) of $\leq 2\%$ were
21 achieved ($n = 11$). The developed method was applied for determination of analytes in some
22 dairy samples and certified reference materials.

23 *Keywords:* Solid phase extraction, Trace Metals, Chelating resin, FAAS, Dairy Samples

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