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Flame Atomic Absorption Spectrometric Determination of Manganese in Alloys after Preconcentration onto Amberlite XAD-4 Loaded with *Saccharomyces carlsbergensis*

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Abstract: A sensitive and simple enrichment method using microorganisms as an adsorbent is described for the determination of trace manganese in alloys. Manganese was determined by flame atomic absorption spectrometry after preconcentration onto Amberlite XAD-4 loaded with *Saccharomyces carlsbergensis*. The optimum values of pH, amount of adsorbent, amount of microorganism, eluent type and volume of sample solution were determined for the quantitative recovery (>95%) of manganese. Results have been compared with those obtained without using microorganisms. Under optimum conditions, recoveries were 98 μm 3% with microorganisms and 68 μm 2% without microorganisms for manganese at a 95% confidence level. The limit of detection for manganese was 60 ng/mL and 197 ng/mL with and without microorganisms, respectively. The proposed method was applied to the determination of manganese in ferrosilicon alloy (NBS SRM 59a), aluminum alloy (NBS SRM 85b) and aluminum foil. Manganese was determined with a relative error lower than 5% in all samples.

Key Words: Manganese, preconcentration, flame atomic absorption spectrometry, alloy, *Saccharomyces carlsbergensis*

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