

# The convenient determination of palladium at a solid electrode via adsorptive stripping voltammetry at a glassy carbon electrode modified with a random array of mercury nanodroplets

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## Abstract

The detection of palladium using adsorptive stripping voltammetry reported by Wang et al. (J. Wang, K. Varughese *Anal. Chim. Acta* 1987, 199, 185 [3]) at a hanging mercury drop electrode is extended to a more convenient solid electrode. To this end a random array of  $3.5 \times 10^8$  mercury nanodroplets per  $\text{cm}^2$  (65 nm average diameter) was electrodeposited on a glassy carbon substrate. Adsorptive stripping voltammetry was performed using  $2 \times 10^{-4}$  M dimethylglyoxime as a chelating agent for the Pd(II) ion, with accumulation at -0.20 V vs. SCE for 120 s and a linear detection range of 5 - 150  $\mu\text{M}$  was determined with a limit of detection of 1.6  $\mu\text{M}$ .

## Author keywords

Adsorptive stripping voltammetry; Dimethylglyoxime; Glassy carbon; Mercury; Nanoelectrode array; Palladium