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## Highly sensitive voltammetric determination of dexamethasone on amalgam film electrode

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### Abstract

A new, simple and highly sensitive method of dexamethasone (DM) voltammetric determination was successfully developed. Low limit of detection has been obtained using amalgam film silver based electrode (Hg(Ag)FE) as the working electrode. The electrochemical behaviour of dexamethasone reduction on Hg(Ag)FE was investigated using cyclic voltammetry. A linear voltammetric response was obtained for DM in the concentration range from  $2.50 \cdot 10^{-9} \text{ mol L}^{-1}$  ( $9.16 \cdot 10^{-7} \text{ g L}^{-1}$ ) to  $2.25 \cdot 10^{-7} \text{ mol L}^{-1}$  ( $8.83 \cdot 10^{-5} \text{ g L}^{-1}$ ), with a detection limit of  $1.6 \cdot 10^{-9} \text{ mol L}^{-1}$  for preconcentration time of 45 s. Repeatability of method was determined as RSD % for dexamethasone concentration of  $0.1 \cdot 10^{-6} \text{ mol L}^{-1}$  as 1.6 % ( $n = 5$ ). The proposed method was successfully applied and validated by studying the recovery of dexamethasone in commercially available drugs.

**Keywords:** Dexamethasone; voltammetry; steroids; amalgam film electrode.

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