

An electrochemical sensor based on three-dimensional porous carbon for determination of gallic acid

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We report an electrochemical sensor based on three-dimensional porous amorphous carbon (3DPAC) for the sensitive and selective determination of gallic acid (GA). When employed as an electrochemical sensor, 3DPAC exhibited remarkable sensitivity ($0.1045 \mu\text{A} \mu\text{M}^{-1} \text{cm}^{-2}$) with a lower detection limit of 0.434 pM at a signal-to-noise ratio of 3 and a linear response up to 1-150 pM for determination of GA. In addition, ascorbic, uric, and caffeic acids did not interfere with the voltammetric detection of GA in terms of selectivity, stability, and repeatability. We envision that 3DPAC can provide a promising platform for the development of electrochemical sensors.