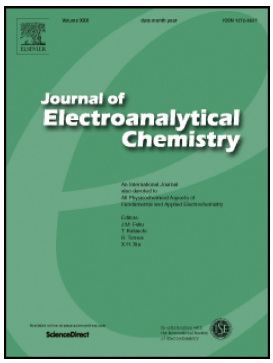

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PII: S1572-6657(18)30212-1
DOI: doi:10.1016/j.jelechem.2018.03.043
Reference: JEAC 3959

To appear in: *Journal of Electroanalytical Chemistry*

Received date: 5 January 2018
Revised date: 19 March 2018
Accepted date: 20 March 2018

Please cite this article as: Congcong Zhang, Yonghang Xu, Wenyan Chen, Luyi Sun, Donghui Xu, Yun Yan, Xiaoyuan Yu , Simple and low price of monodispersed rice-like Fe2O3 supported by modified bamboo charcoal with enhanced lithium storage. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Jeac(2017), doi:10.1016/j.jelechem.2018.03.043

Simple and Low Price of Monodispersed Rice-like Fe_2O_3 supported by modified bamboo charcoal with Enhanced Lithium Storage

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Abstract: Bamboo charcoal (BC) shows similar structure and property to the onion fullerene carbon and carbon nanotubes with hierarchical porous, microporous tunnel structure and good electrical conductivity. By simple treatment, a carbon substrate material with good electrochemical properties can be obtained. Monodispersed rice-like Fe_2O_3 supported by modified bamboo charcoal (MBC) are prepared via a facile precipitation of FeOOH anchored on carbon charcoal substrate combined with a high temperature calcination. The SEM results show that rice-like Fe_2O_3 uniformly anchored on hierarchical porous carbon-based microscopic structure with a size distribution between 80 and 100 nm. In addition, the hybrids exhibit good lithium storage property as anode materials. MBC shows stable cycle performance and the reversible capacity can still be maintained at 327 mAh g^{-1} after 150 cycles under 200 mA g^{-1}. When incorporated with rice-like Fe_2O_3, the composite delivered a specific capacity of 1094 mAh g^{-1} after150 cycles at 200 mA g^{-1} and a high capacity of 765 mAh g^{-1} even at 1600 mA g^{-1}.