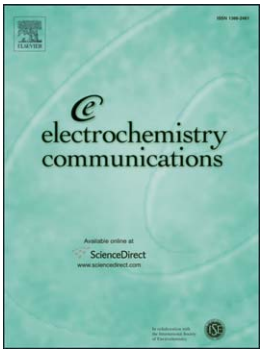

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Nitrogen, cobalt-codoped carbon electrocatalyst for oxygen reduction reaction using soy milk and cobalt salts as precursors

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Abstract

Nitrogen and cobalt codoped carbon electrocatalyst using soy milk and cobalt salts as precursors has been examined for its electrocatalytic activity toward oxygen reduction reaction (ORR). Carbon dots (C-d) were first synthesized via hydrothermal treatment of soy milk. Then, cobalt (II) nitrate was incorporated with C-d via heat treatment to generate nitrogen and cobalt codoped carbon composites (Co/C). When polypyrrole was introduced in the synthetic process, carbon composites with higher nitrogen and cobalt contents (Co/N/C) than Co/C were obtained, which exhibited high electrocatalytic activity, excellent methanol crossover effect, and good stability toward ORR in alkaline solutions.