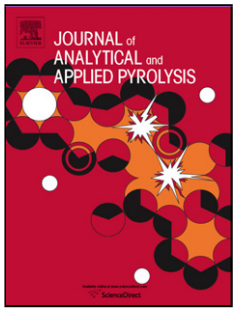

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Ru incorporation Enhanced electrochemical performance of spray deposited Mn: Co_3O_4 nano-composite: Electrochemical approach

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Highlights

- Ru-incorporated Mn-Co_3O_4 electrode is possible via chemical spray pyrolysis.
- Crystalline with granular crack free mixed nano-structures.
- Electrode shows mixed capacitive behaviour.
- Mn-Co_3O_4 electrode with 20 % Ru incorporation exhibited as high as 1440 F/g specific capacitance at 1mV/s, nearly 3000 cycles chemical stability in 1 M KOH electrolyte at 100 scan.
- Nyquist plot exhibits 1.12 Ω internal resistance.

Abstract

Paper highlights, enhanced electrochemical performance of spray pyrolysed ruthenium (Ru) incorporated manganese-cobalt oxide (Mn: Co_3O_4) thin films, prepared via non aqueous route on to stainless-steel at 623±2 K. In the 1st phase of the work, prepared samples were characterized by XRD, SEM, TEM, SAED, EDAX and XPS and in the 2nd phase, samples were analyzed electrochemical characterizations. CV study shows mixed capacitive behaviour for all electrodes.