

Electrochromism of O- and S-esters

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Eleven O- and thioic S- esters were synthesized and investigated using cyclic voltammetry, controlled potential electrolysis and *in situ* electrochemical-UV-vis spectroscopy over a range of temperatures to determine which one-electron reduced esters were the most long-lived. The goal was to synthesize and study an extensive series of esters, which are reduced at relatively low negative potentials, and to select esters that display either red, green or blue colours in their one-electron reduced states. Nine of the compounds were found to exhibit vibrant colour changes from a colourless state in their neutral forms to brightly coloured upon electrochemical reduction in acetonitrile. Subsequently, the electrochromic (EC) properties of those reduced esters will be studied in order to fabricate a multi-colour EC cell², which includes a colourless transparent state. The generation of these primary colours can potentially be useful in electronic devices that require colour changes (computer screens, electric windows, etc).