Kinetics and mechanism of oxidation of L-menthol by Ce (IV) in acid aqueous medium.

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The kinetics of oxidation of L-menthol by cerium (IV) in acid perchlorate medium has been studied. The reaction stoichiometry is one mole of the substrate for two moles of the oxidant and the product is l-menthone identified spectrally. The kinetic rate law (1) is derived for the proposed mechanism:

$$-\frac{1}{2}\frac{d\left[Ce\left(iv\right)\right]}{dt}= \frac{k\_{1}K\_{1}\left[Ce\left(iv\right)\right]\left[M.ol\right]}{\left[H^{+}\right]+ K\_{1}+ K\_{1}K\_{2}\left[M.ol\right]} (1)$$

The rate and equilibrium parameters have been analysed by mathematical correlation of graphical values obtained from experimental observations.