

Fluorescent characteristics of p-benzoquinone and Ce (III); problems encountered in designing a fluorimetric method for the determination of active ingredient in paracetamol preparations.

Both Ce (III) and p-benzoquinone are fluorescent active species. p-benzoquinone is the oxidized product of the active ingredient of paracetamol, N-acetyl p-amino phenol. The concentration of the active ingredient can be determined fluorimetrically if it can be oxidized to p-benzoquinone. If Ce (IV) is used for this oxidation there is a possible interference from the resulting Ce (III) ions. Fluorescent characteristics of these two compounds were studied under the conditions that were found most suitable for this reaction by the previous authors. This study suggests that there is a possibility of interference by Ce (III) in analyzing p-benzoquinone in the presence of excessive amounts of Ce (III). The emission spectra overlap, as they are broad. In addition to this the apparent shift of the emission spectrum of p-benzoquinone with the addition of Ce (III) also indicates the interference. Therefore in designing a fluorimetric method to analyze the active ingredient in paracetamol, this interference has to be accounted for. As a solution to this problem, the fluorescent maxima of p-benzoquinone could be shifted by converting to the di-cyano derivative, which has excitation and emission maxima at longer wavelengths. This will enable the fluorimetric analysis to be performed with minimal interference from Ce (IV).