E2-11: A new oxine derivative for the determination of aluminium in trace level

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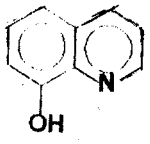
The oxine, (I) and its derivatives in the analysis of metal ions appear to have great promise for increasing the sensitivity of detection for spectrofluorometry. However the sensitivity was limited because of the fluorescence of the unchelated oxine. The aim of this project was to synthesise an oxine derivative which does not fluoresce in unchelated form but highly fluoresces on chelation. 5-hydroxymethyl-8-quinolinol (II) was synthesised.

It was found that (II) was about 50% better in sensitivity compared to 8-hydroxyquinolinol (I) for the determination of aluminium at very low concentration. The measurements were done after the extraction of the chelated complex into the methylene chloride. The $pH_{½}$ was found to be 6.2 and the maximum extraction occurred at pH = 9.0. Eventhough the newly synthesised oxine derivative had a higher sensitivity, the ultimate aim of the synthesis of a non-fluorescent oxine derivative was not successful.



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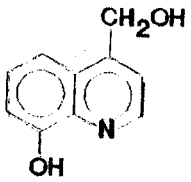

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