Supporting Information

Electrochemical pinacol coupling of aromatic carbonyl compounds in a [BMIM][BF_4]/H_2O mixture

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General Information

All reactions were conducted under nitrogen atmosphere. All reagents were obtained from commercial suppliers and used without further purification. Ionic liquids, [BMIM][BF_4] and [BMIM][PF_6] were synthesized according to the literature.[1] NMR experiments were conducted in chloroform-*d*.

General procedure for the electrochemical pinacol coupling reaction

The carbonyl compound (0.35 mmol) and a mixture of 80% [BMIM][BF_4]/H_2O (4.0 mL of [BMIM][BF_4] and 1.0 mL of H_2O) were placed in an electrochemical cell fitted with a tin foil anode (1.0 cm^2), a platinum plate cathode (1.0 cm^2) and a Ag/AgCl reference electrode. The mixture was stirred and degassed by bubbling nitrogen for 30 minutes. A controlled potential of 2.0 V was applied under nitrogen atmosphere for 5 hours. The resultant solution was extracted with diethyl ether (2 × 5 mL). The ether extract was dried with anhydrous sodium sulfate, filtered and concentrated in vacuo. When necessary, the residue was purified via silica gel flash column chromatography (10% ethyl acetate in hexane eluent) to afford the final product.

References

1. Dupont, J.; Consorti, C.; Suarez, P.; Souza, R. *Org. Syn. Coll. Vol*. **2004**, *79*, 236.

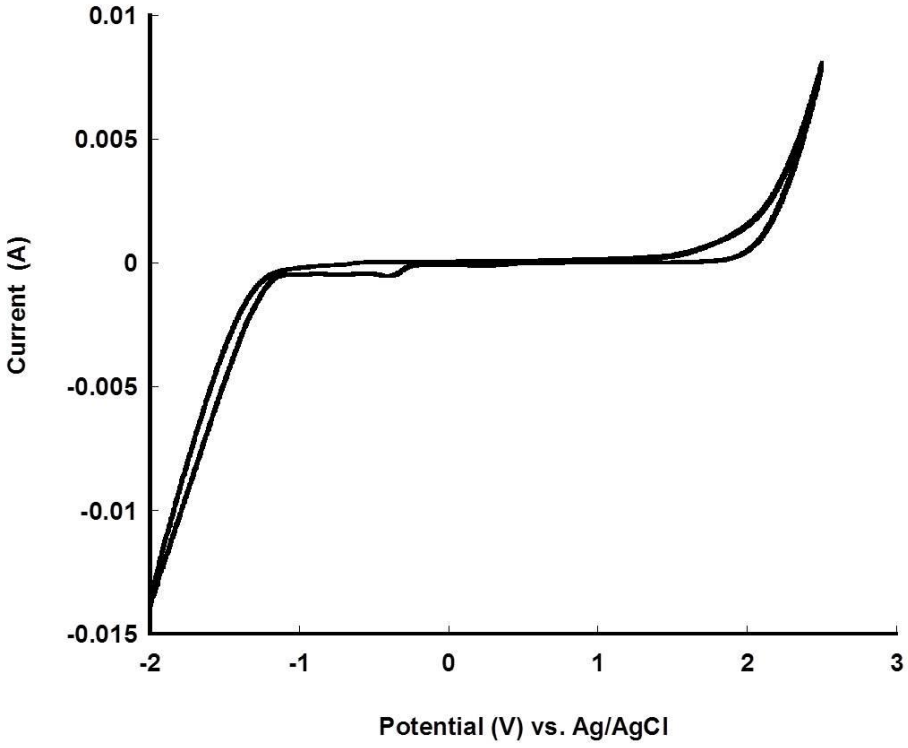
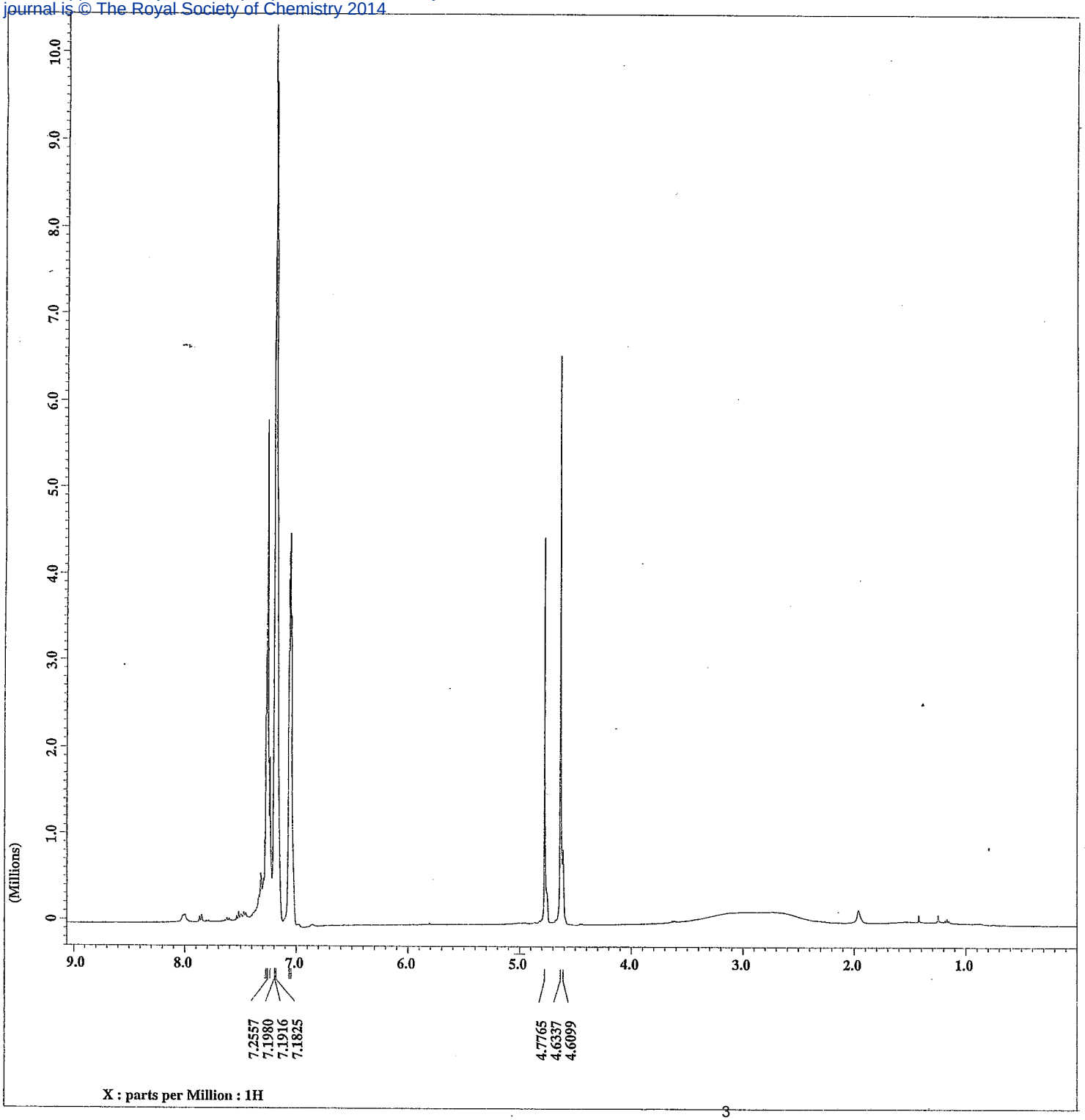
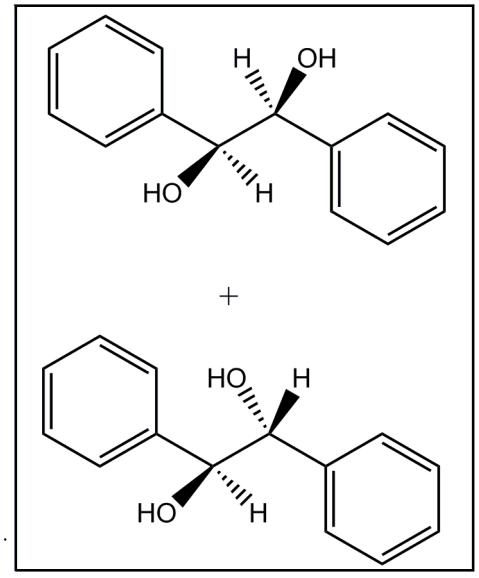
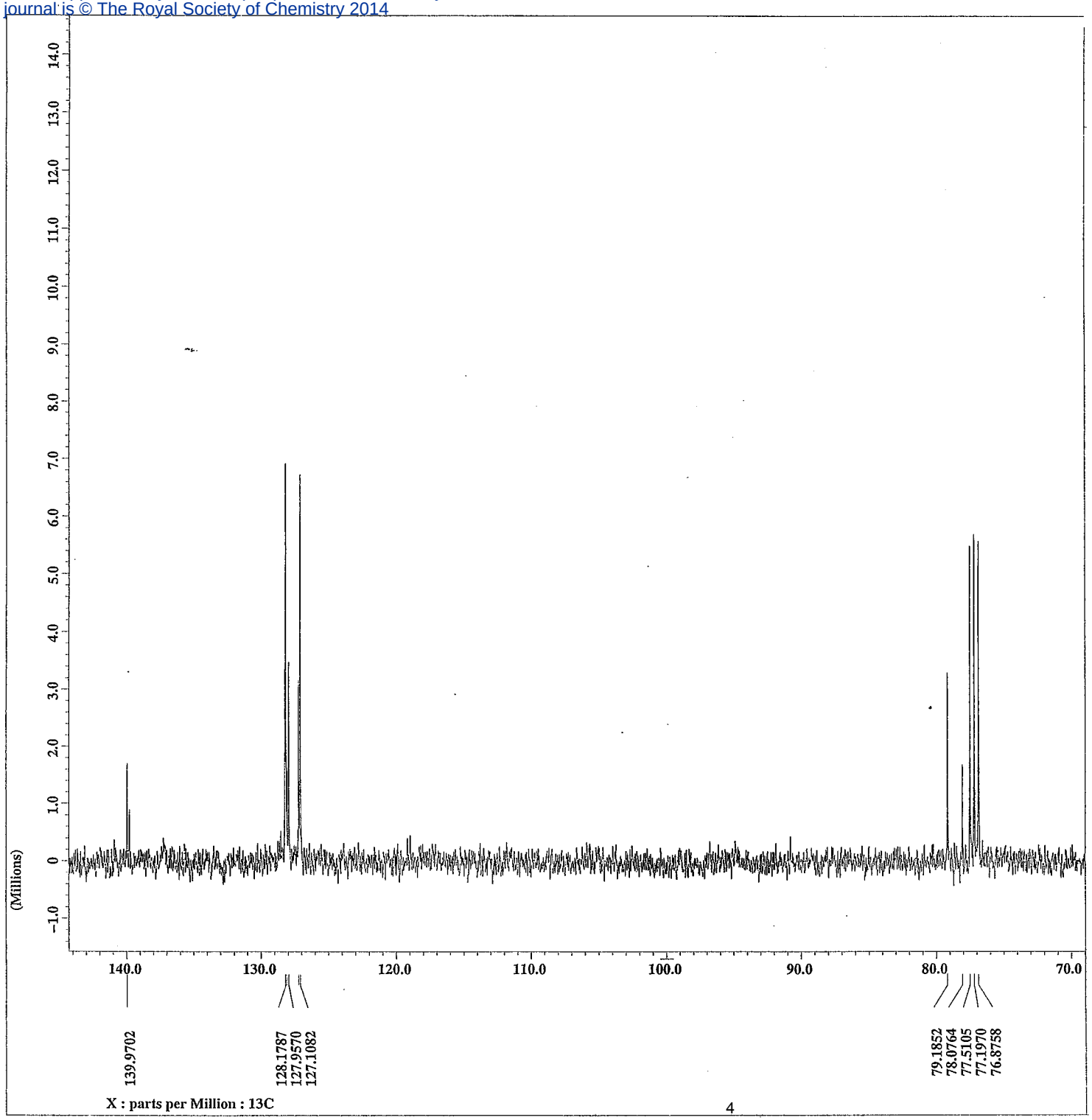
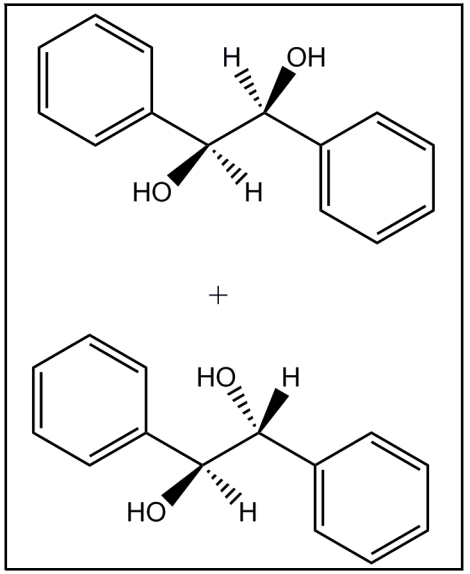


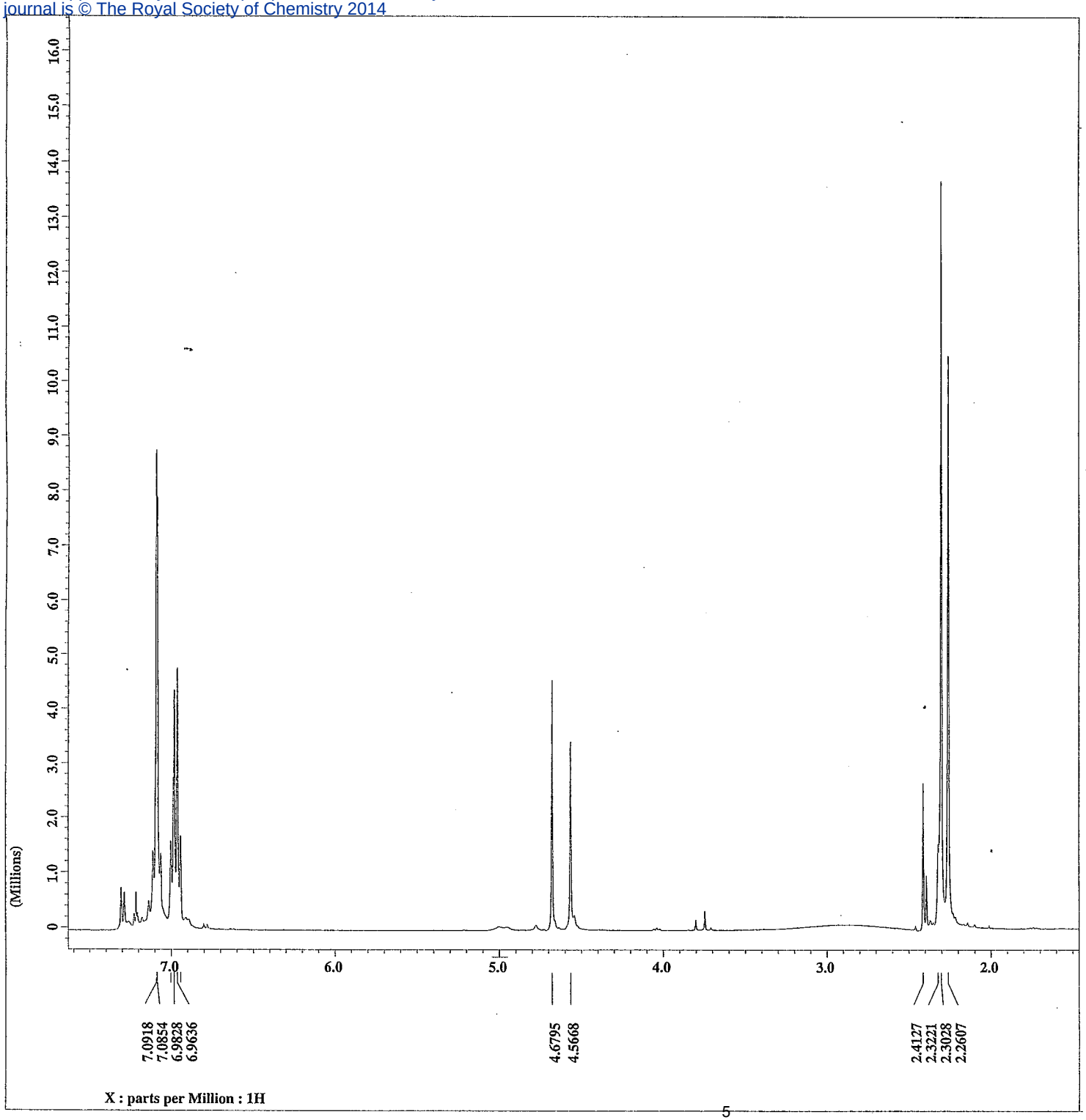
Figure 1: Cyclic voltammogram of the 80% [BMIM][BF_4]/H_2O system. Recorded at a Pt cathode against Ag/AgCl reference. The scan rate was 0.025 Vs^{-1}.

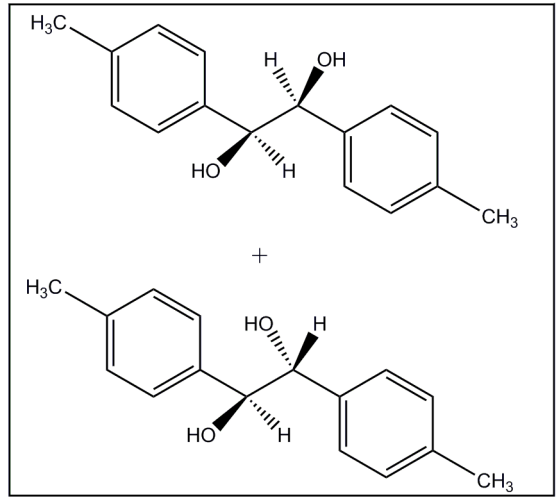


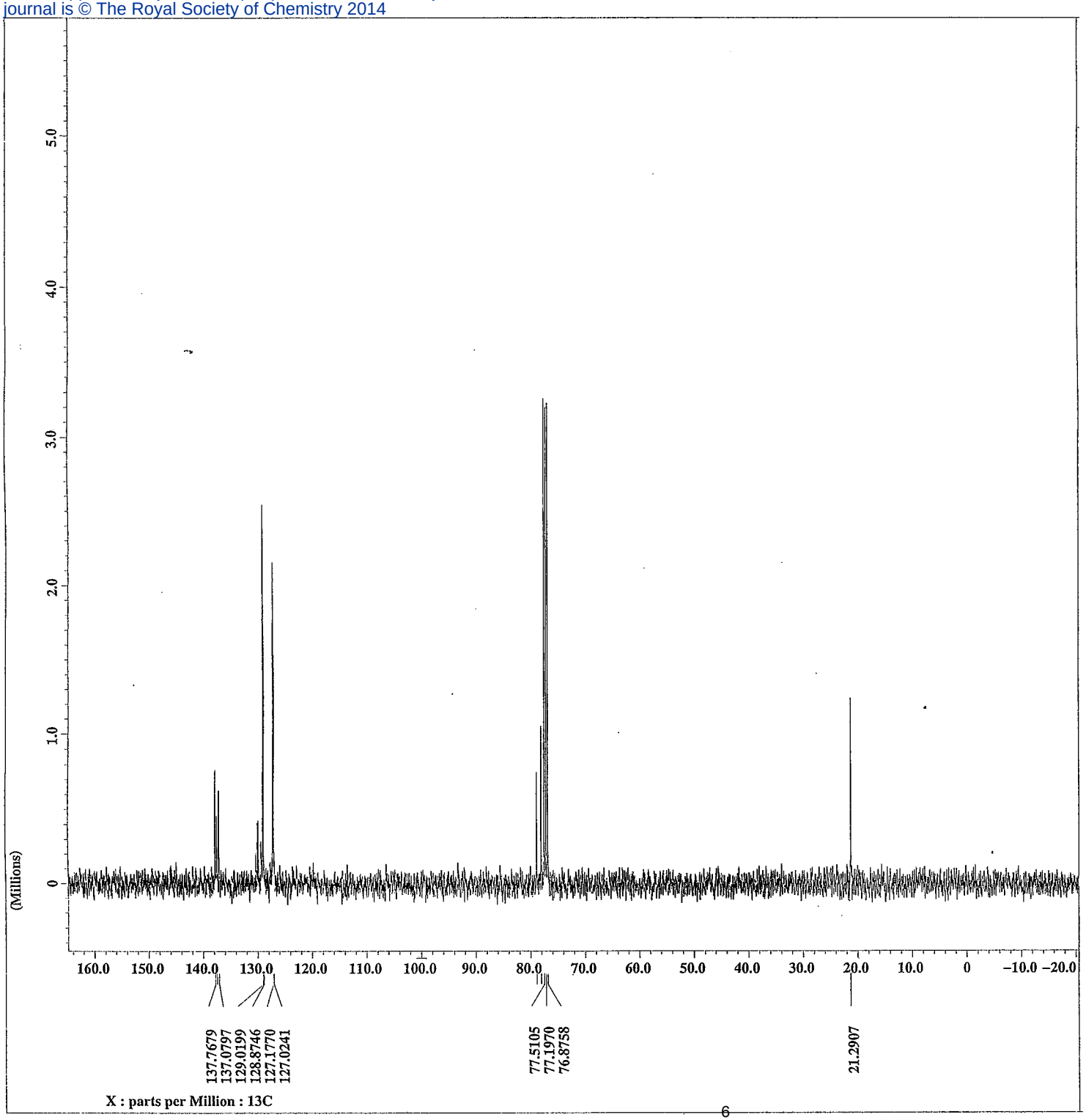


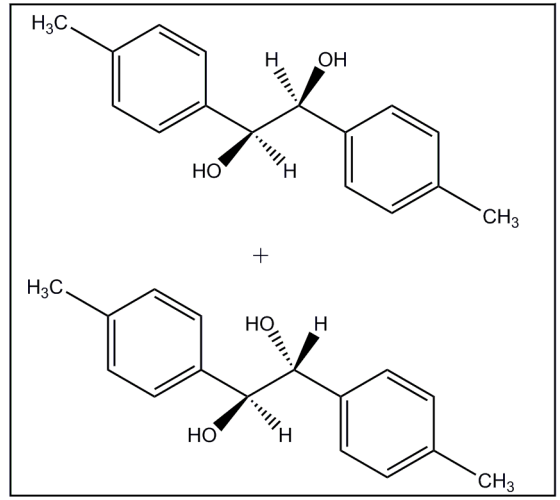


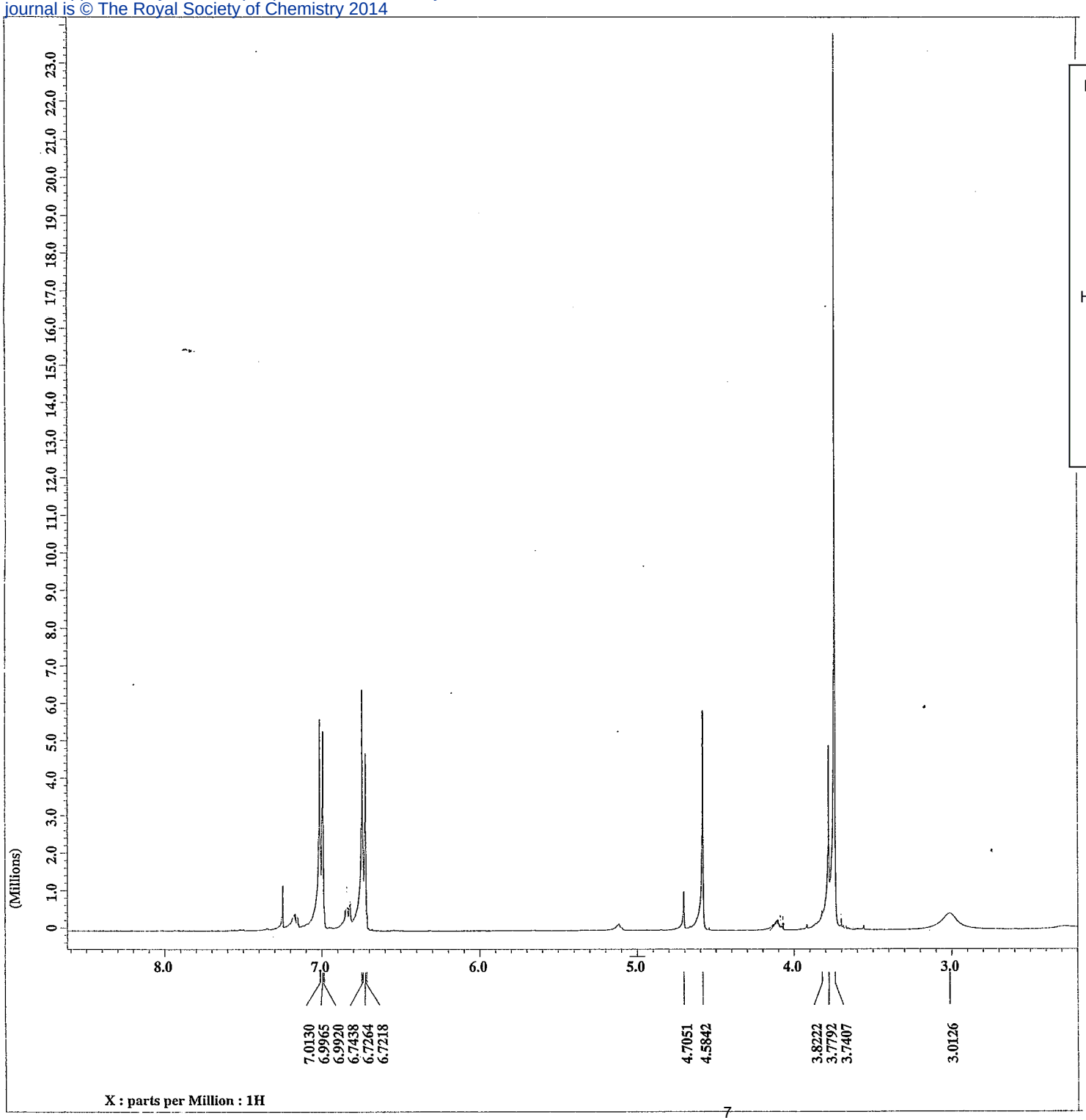


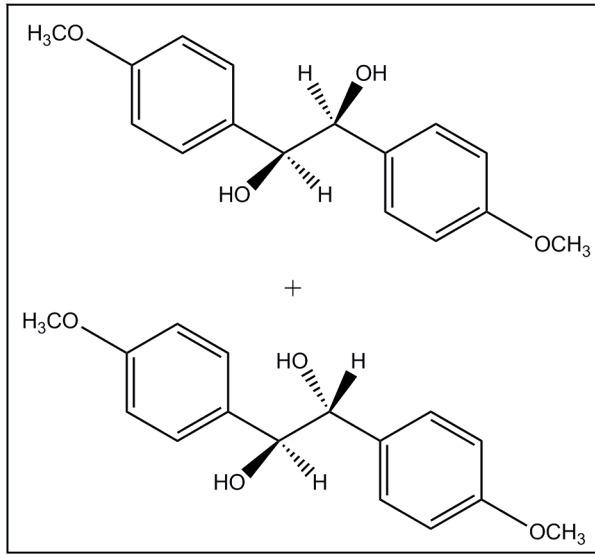


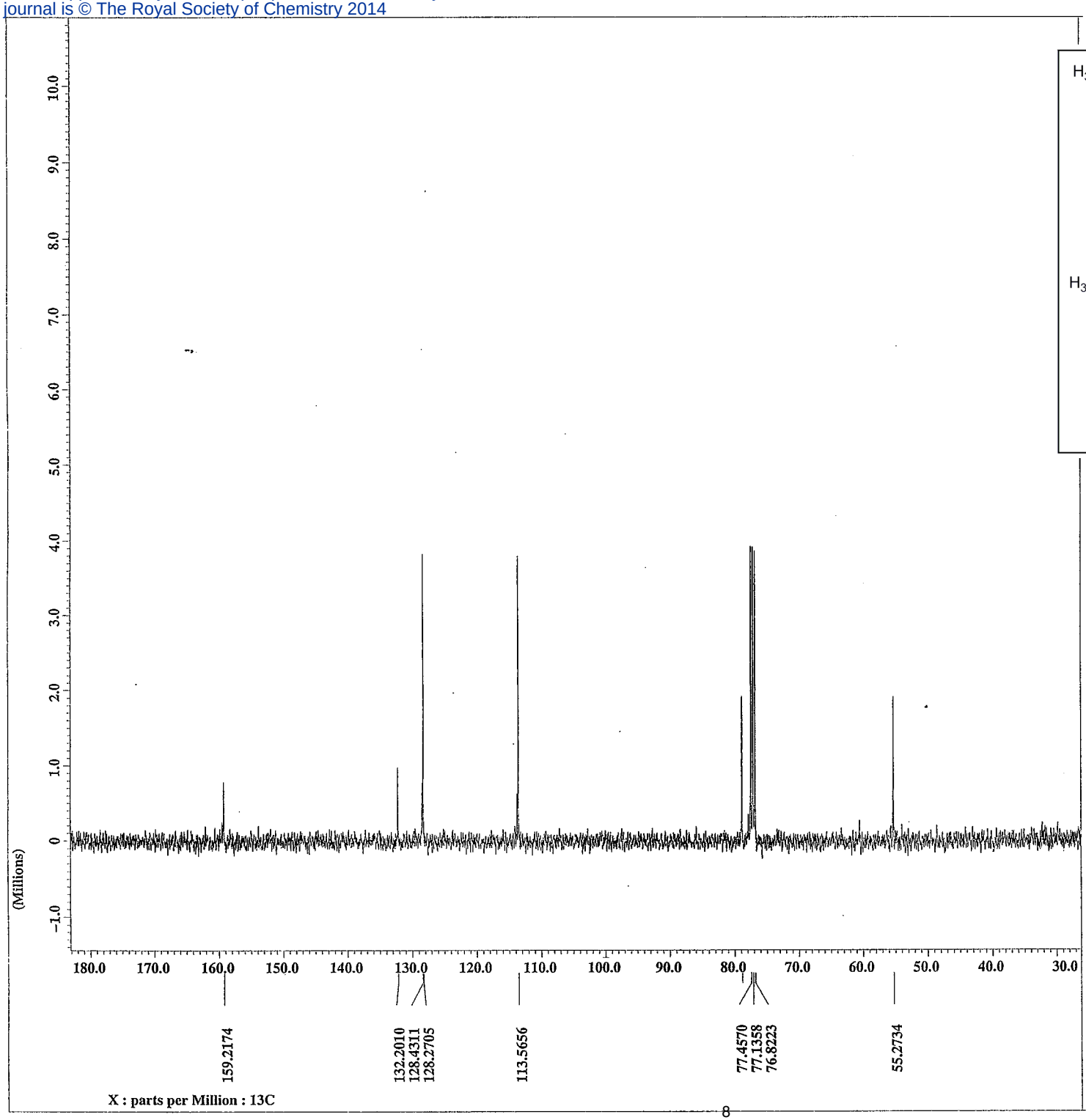


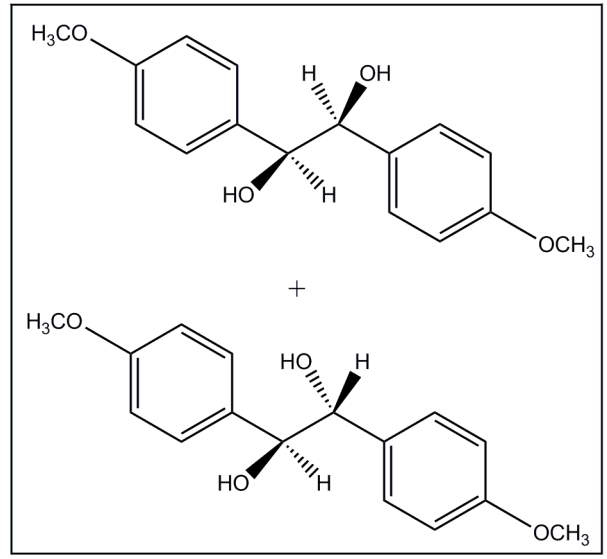


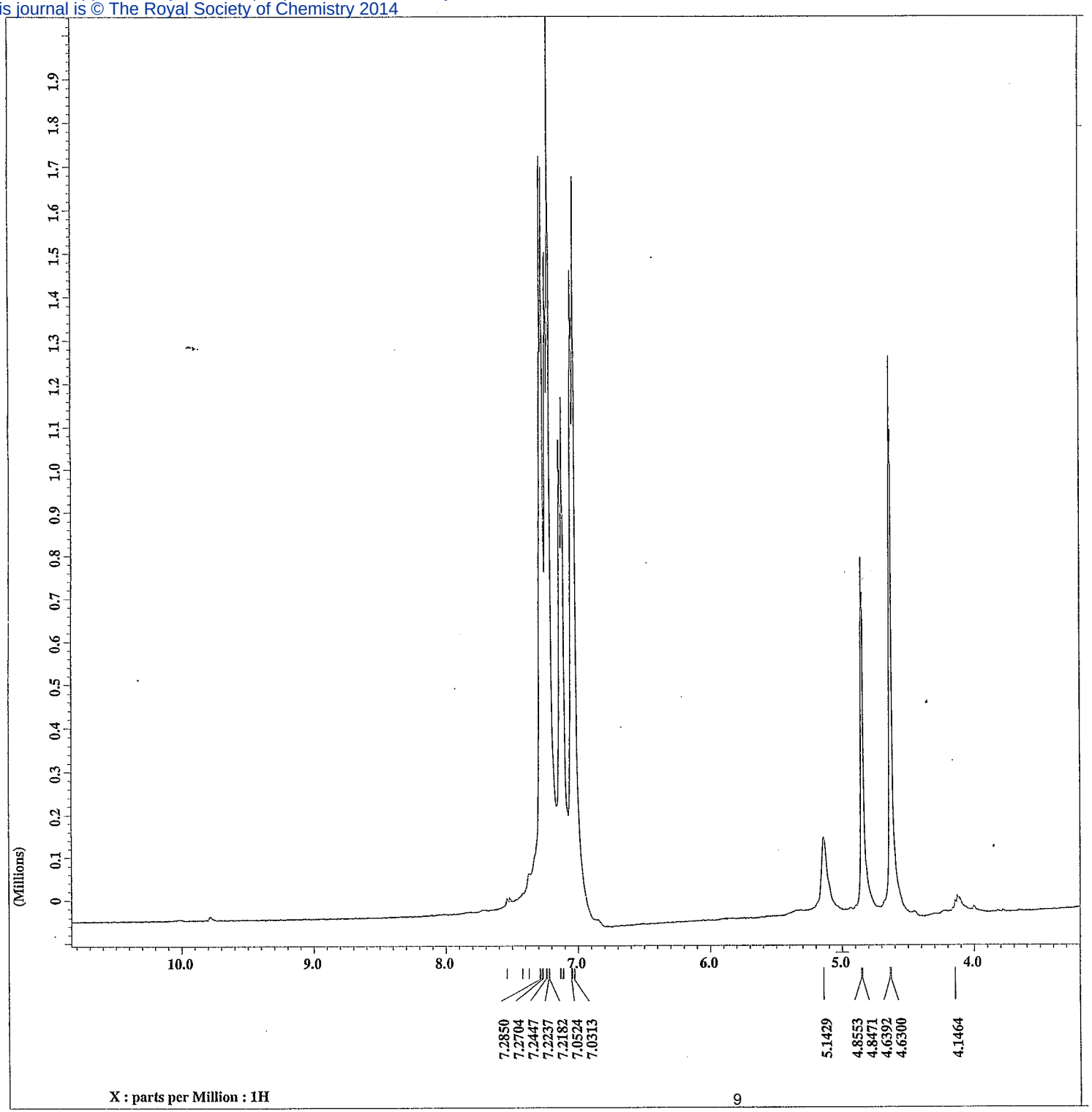


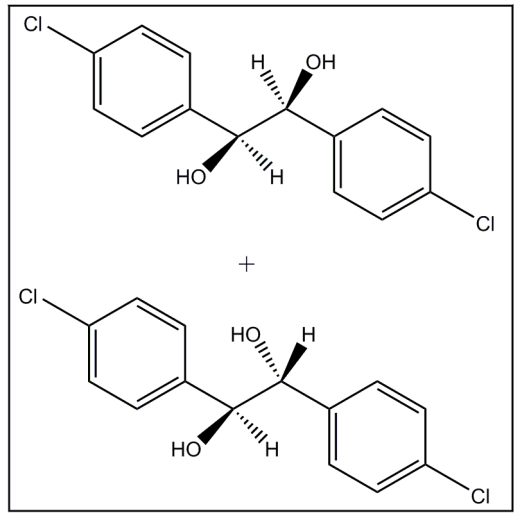


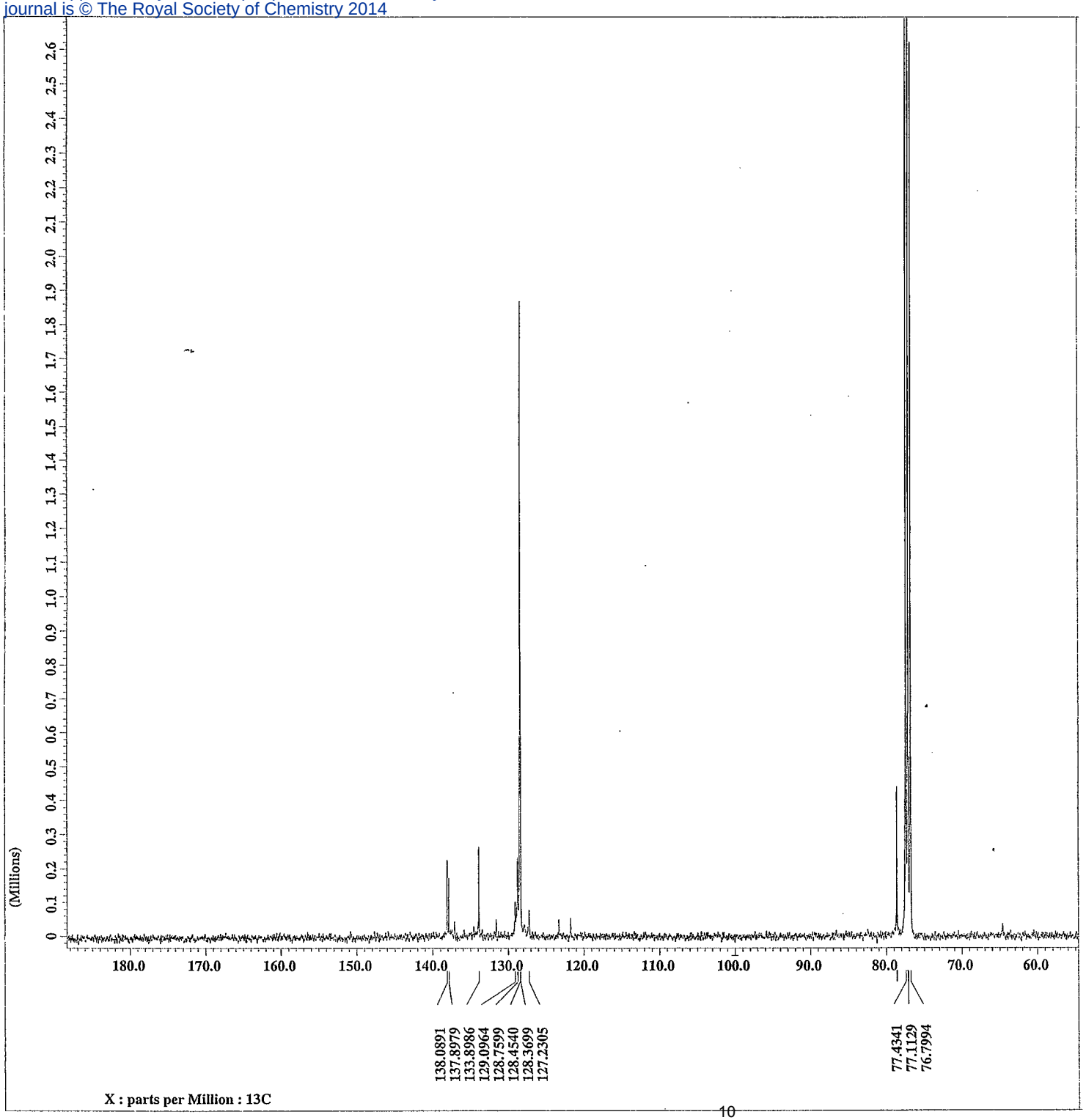


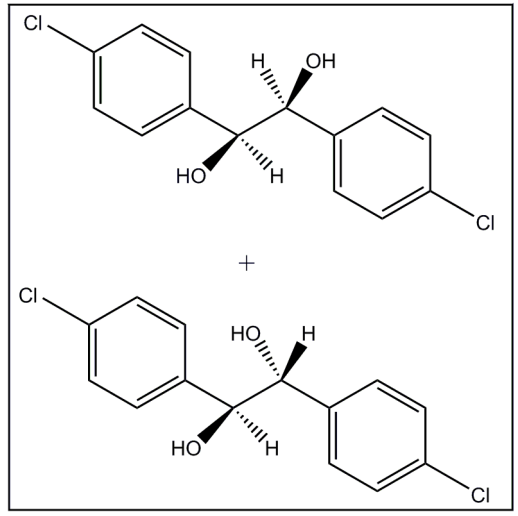


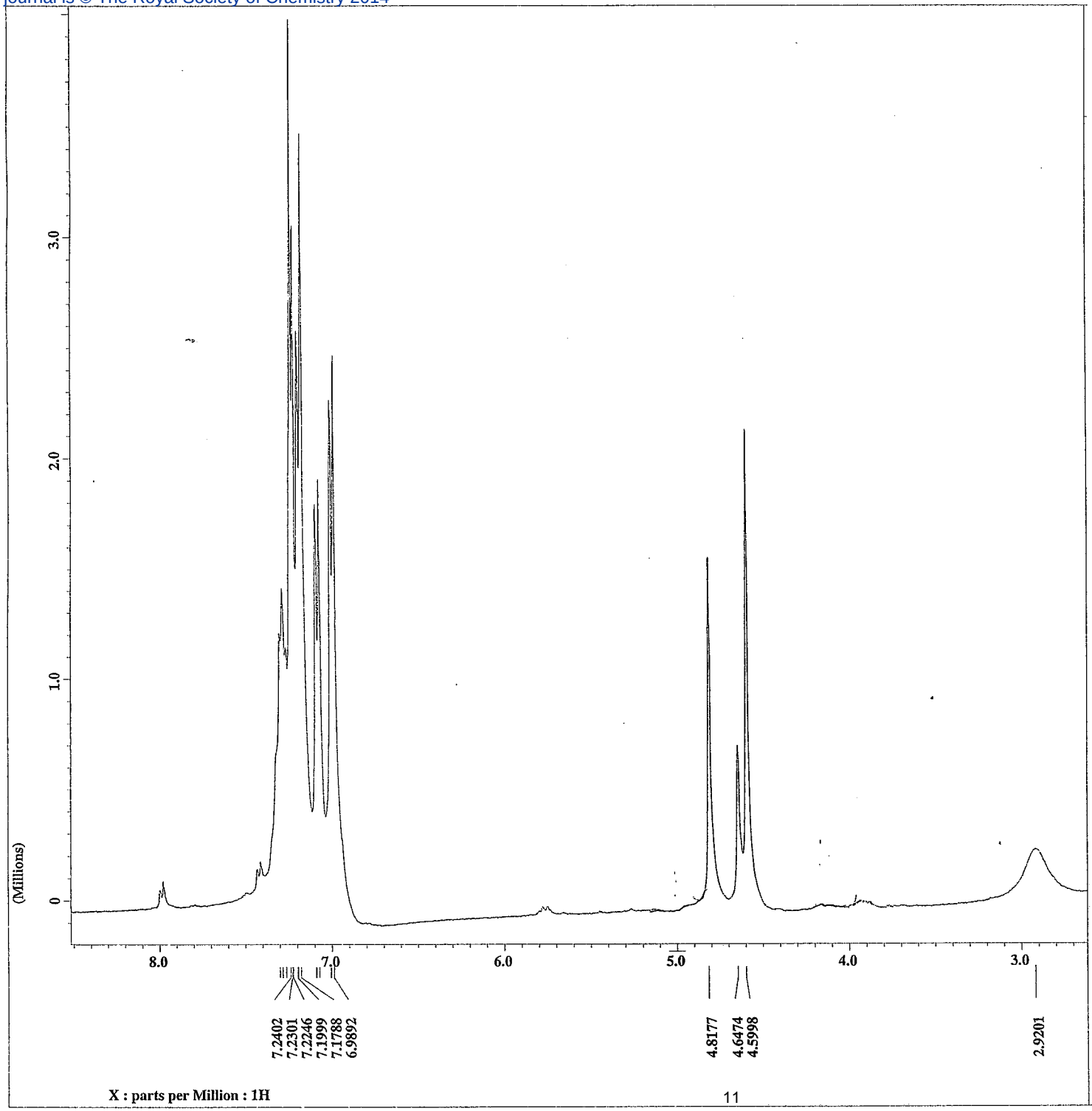


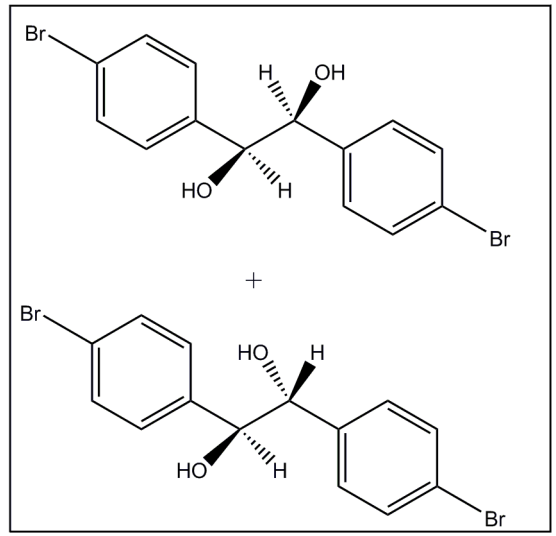


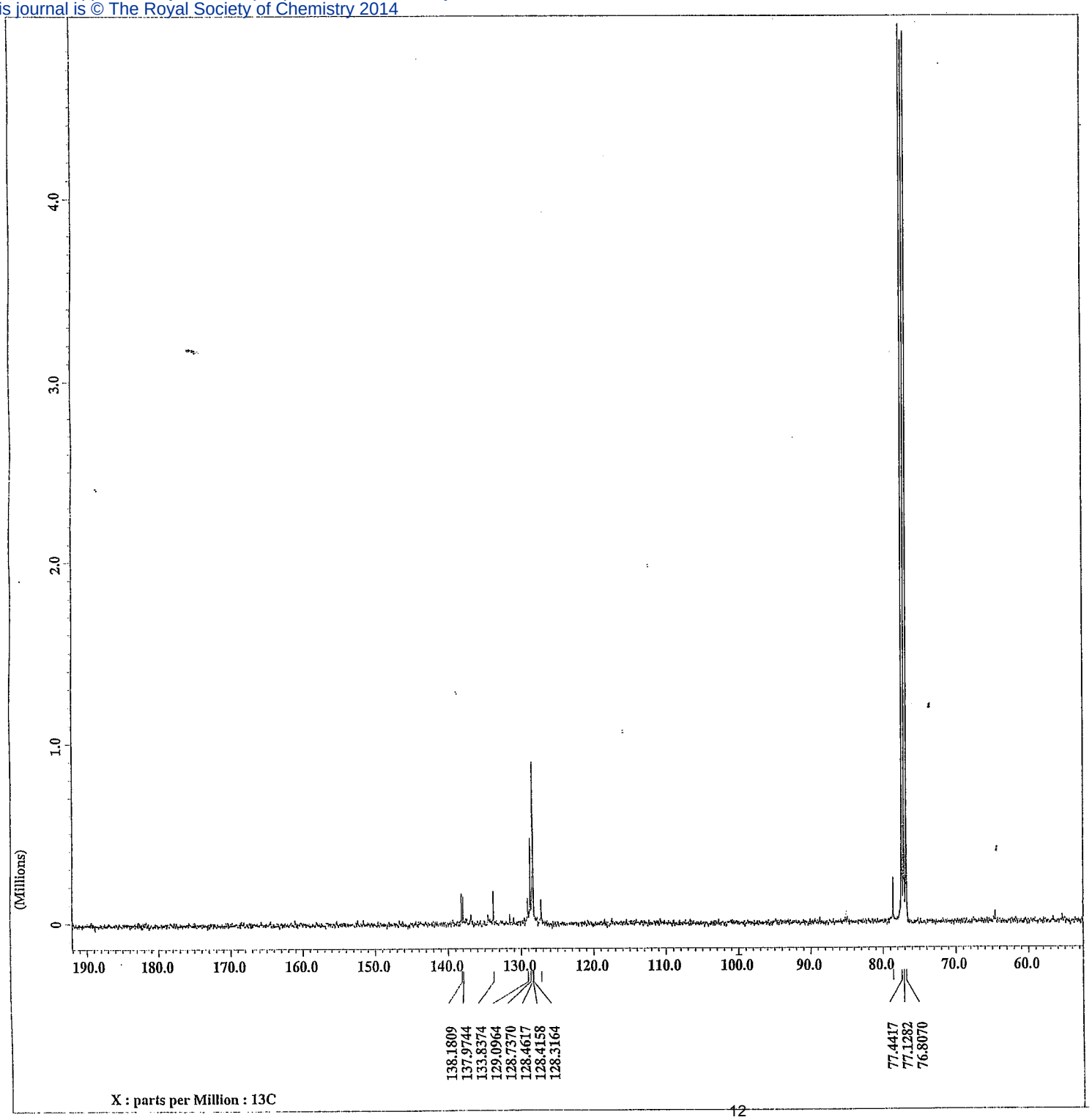


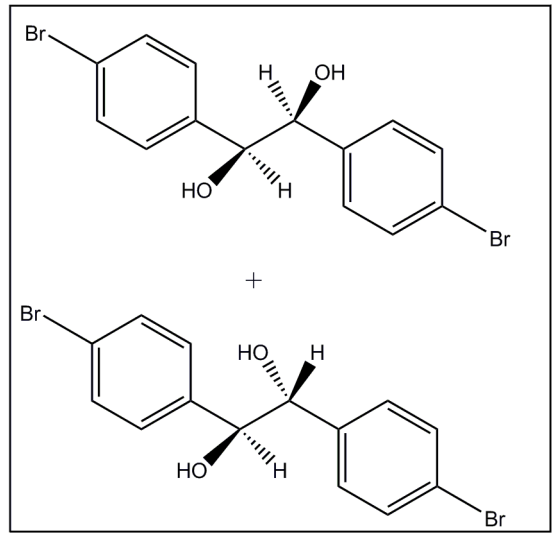


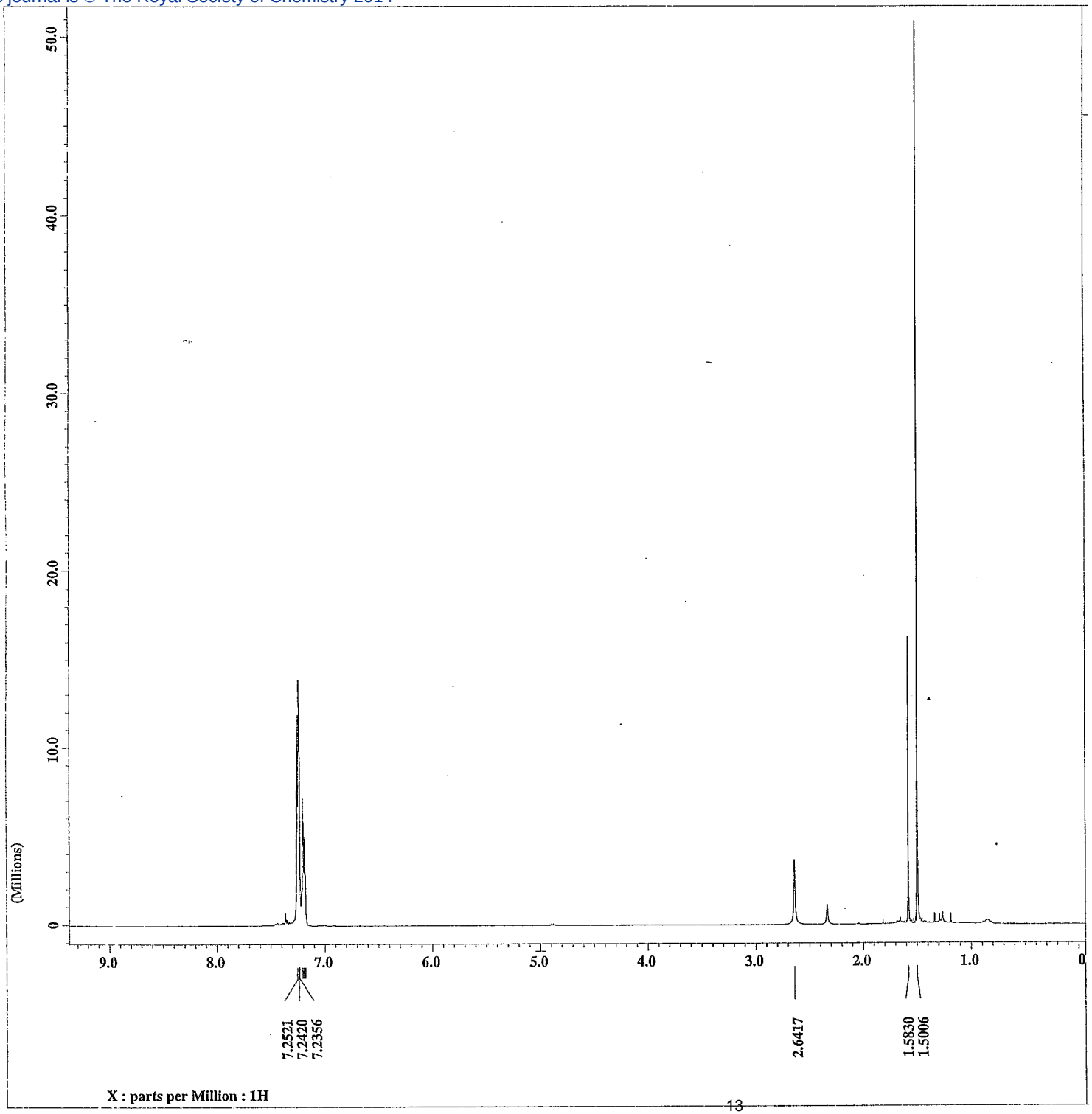


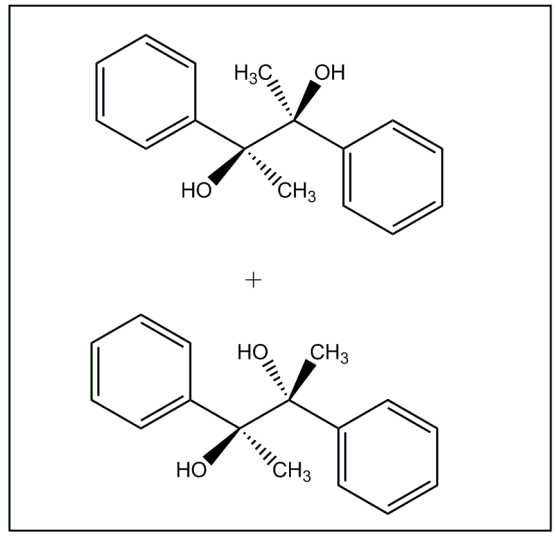


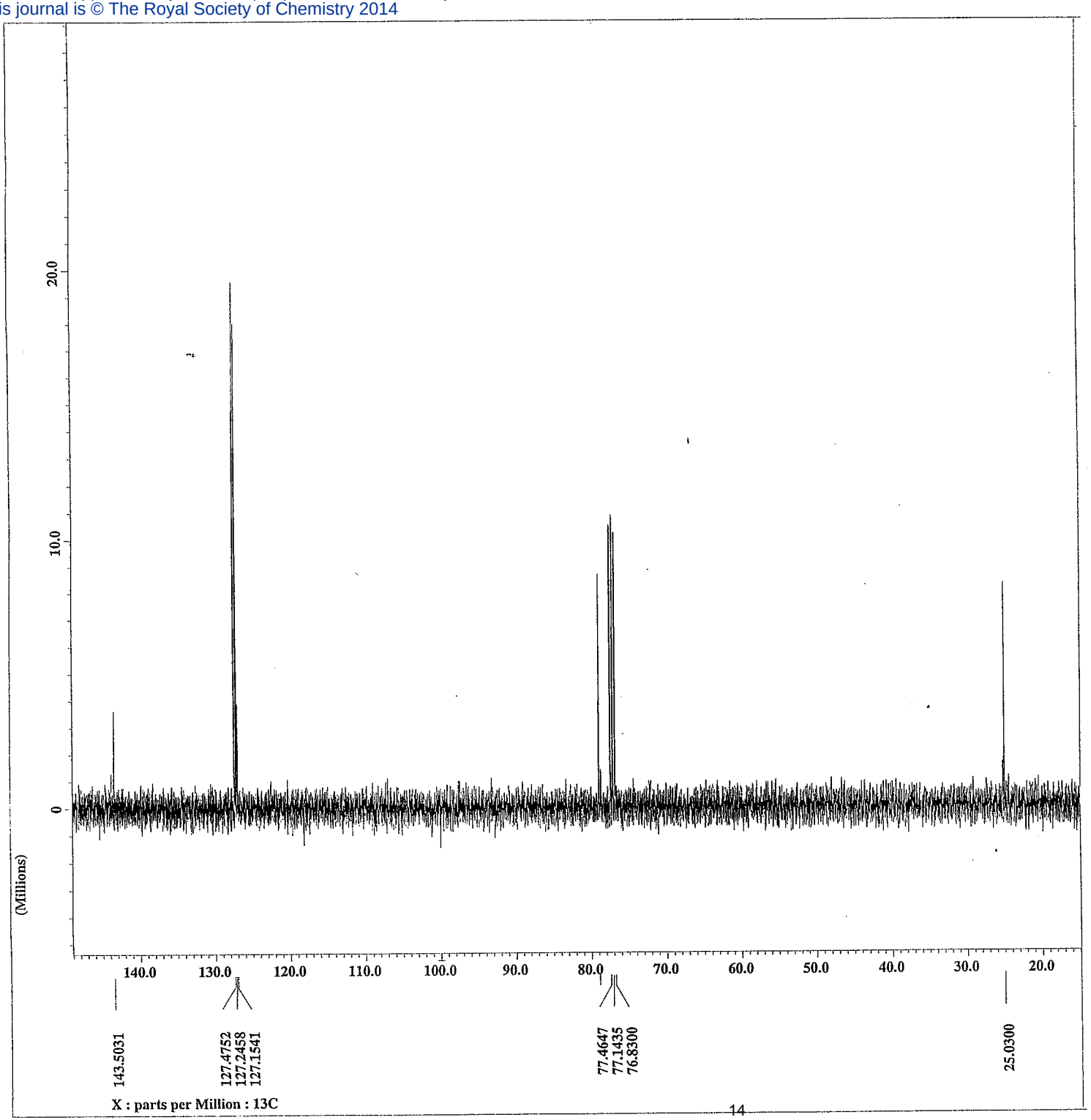


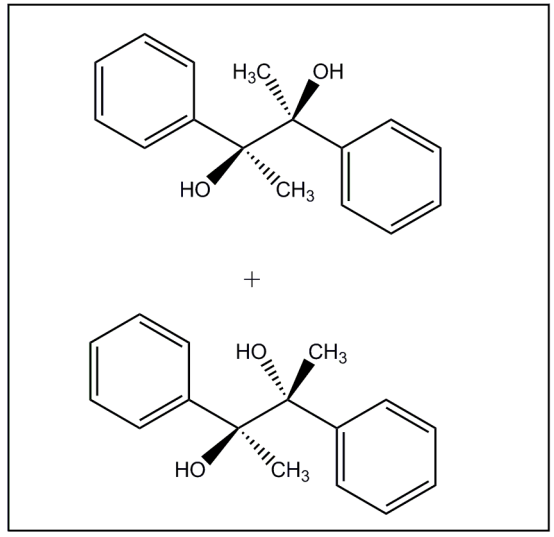


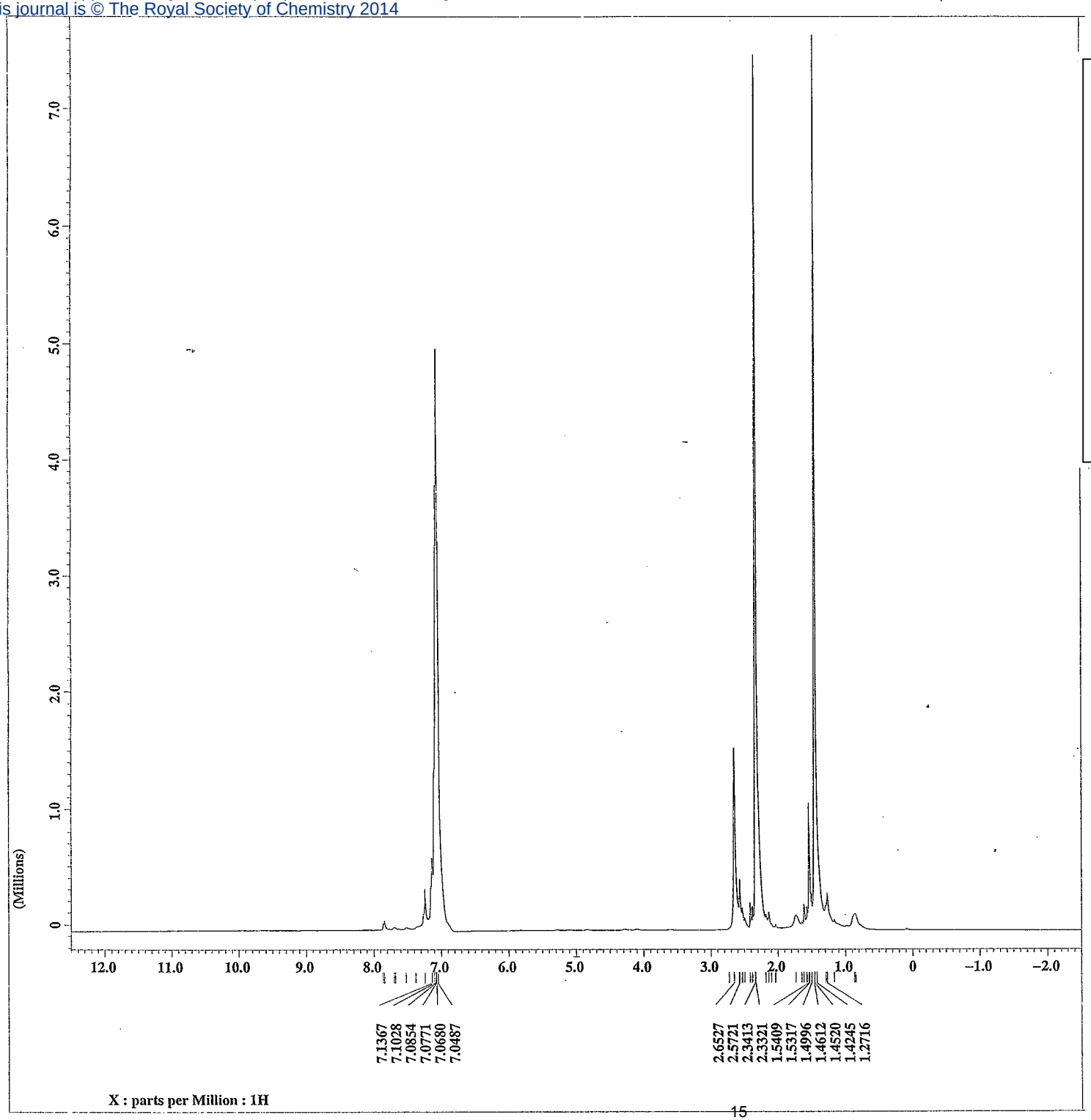


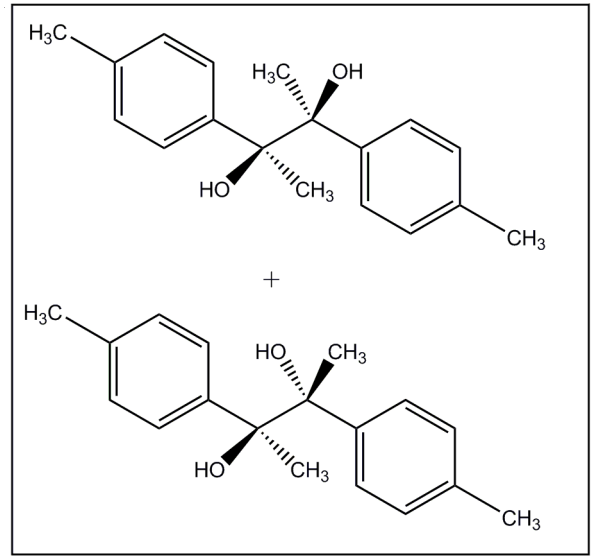


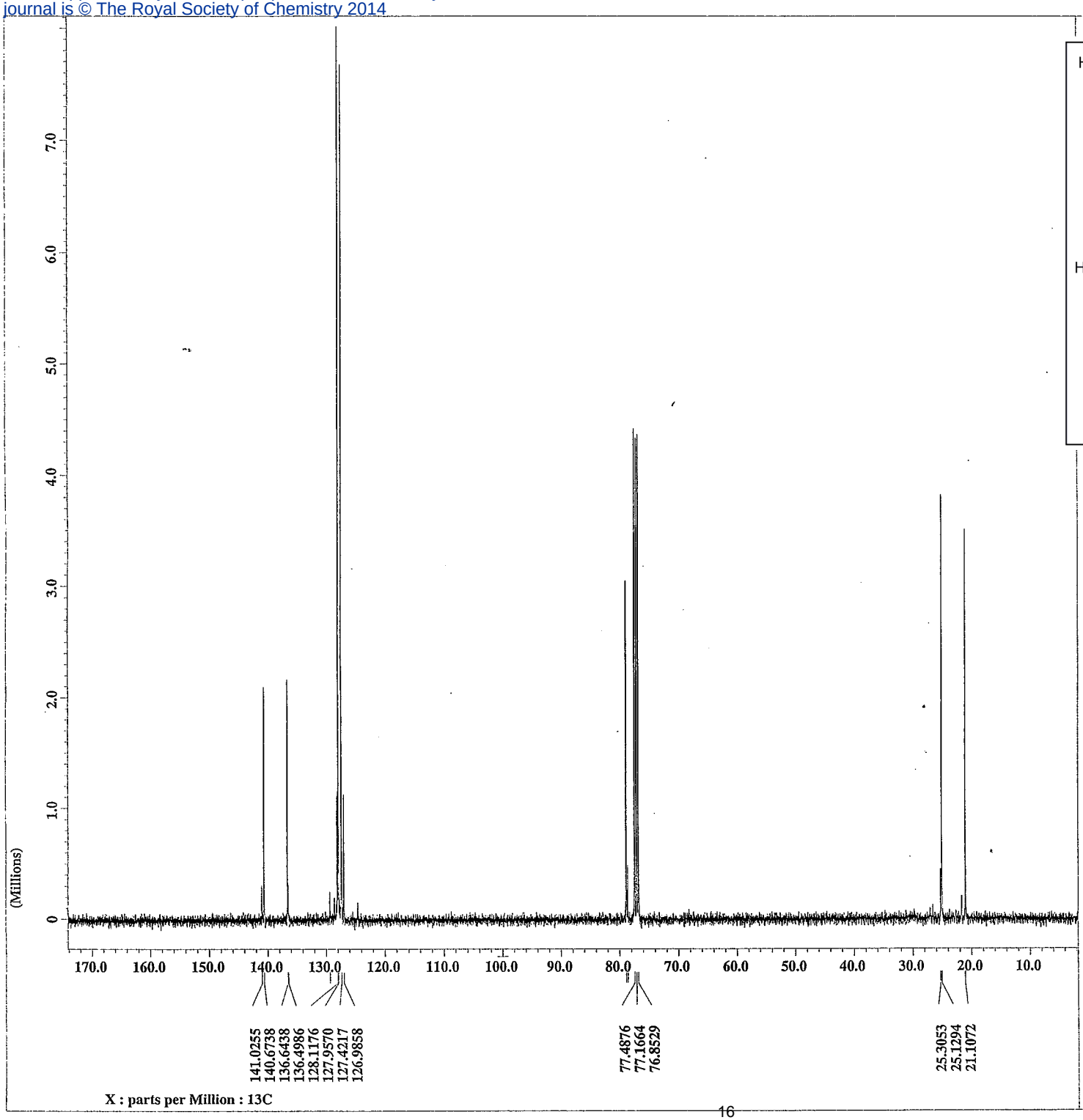








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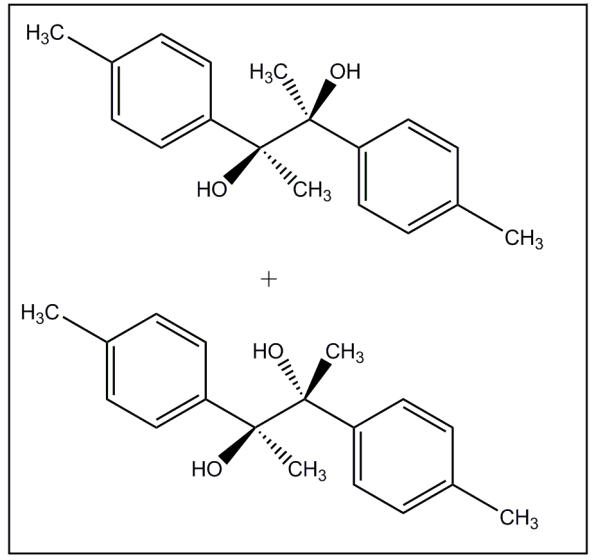
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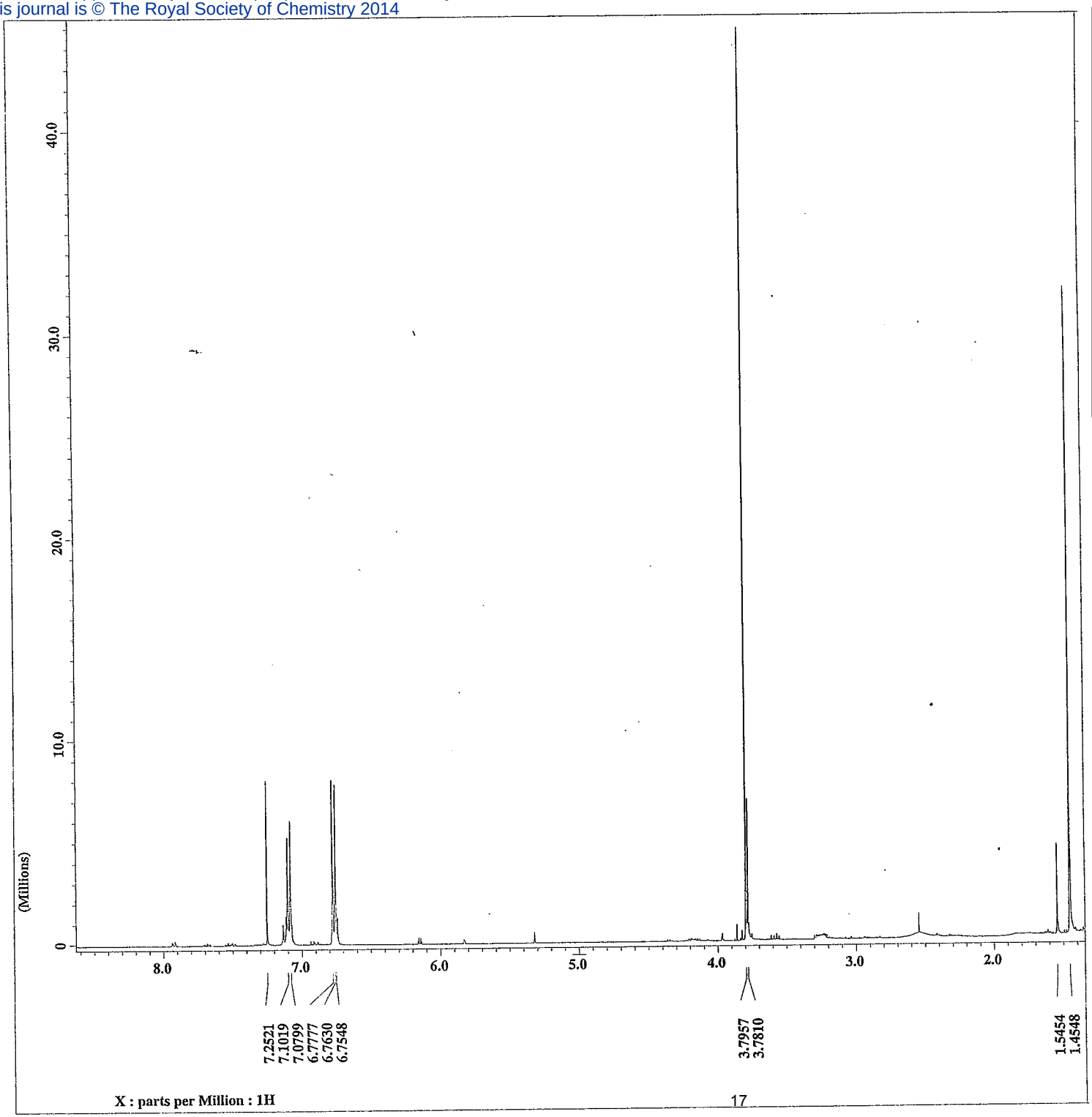

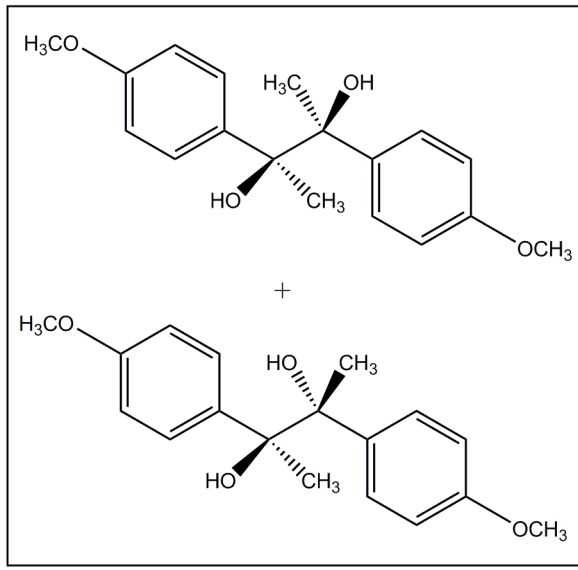

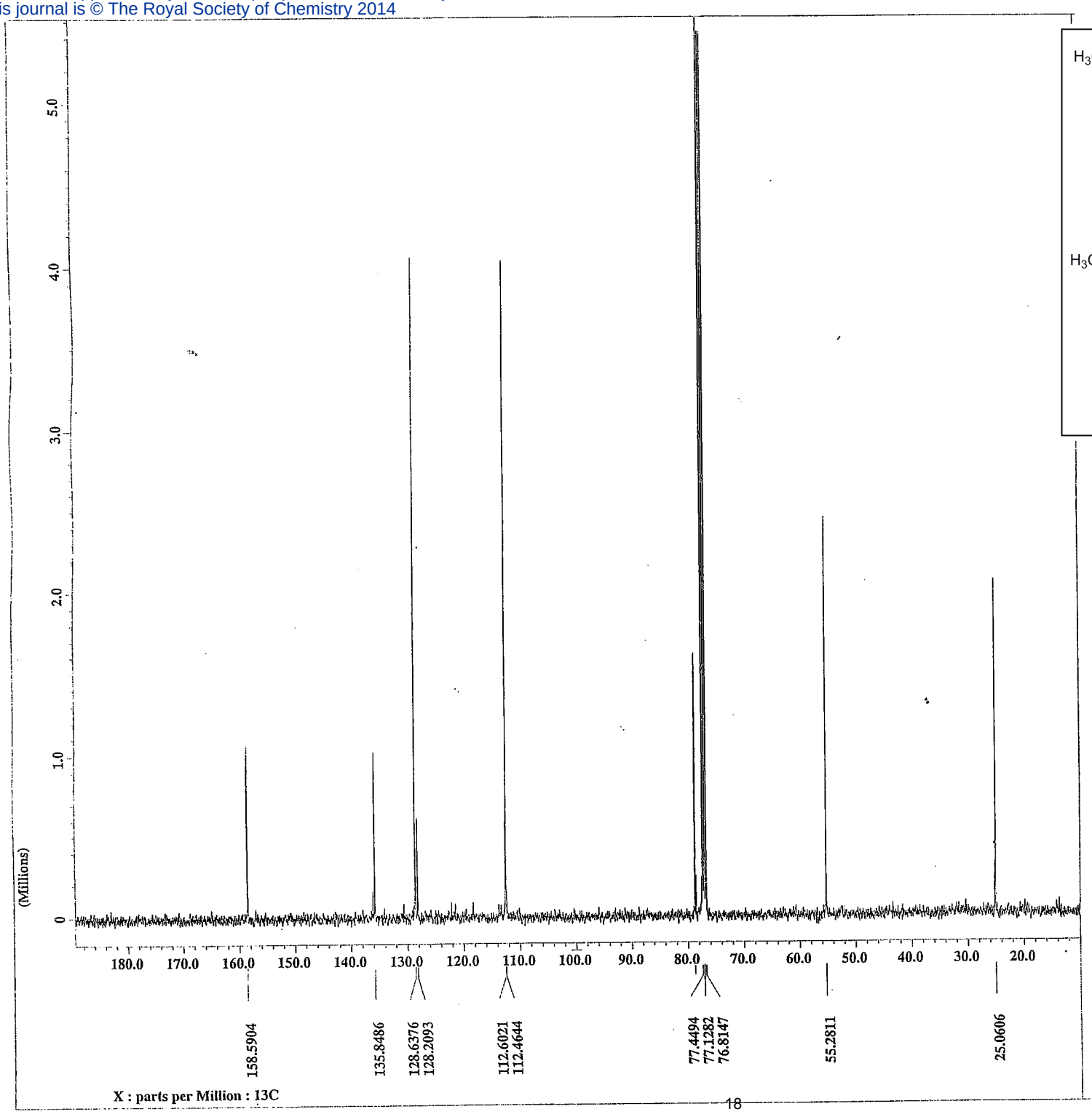

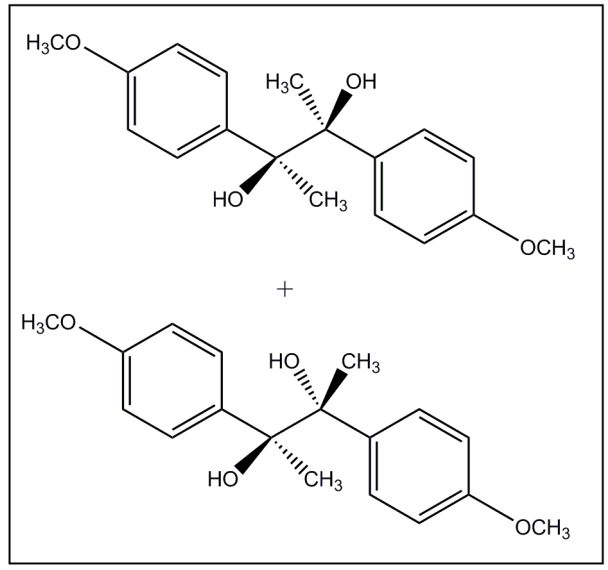

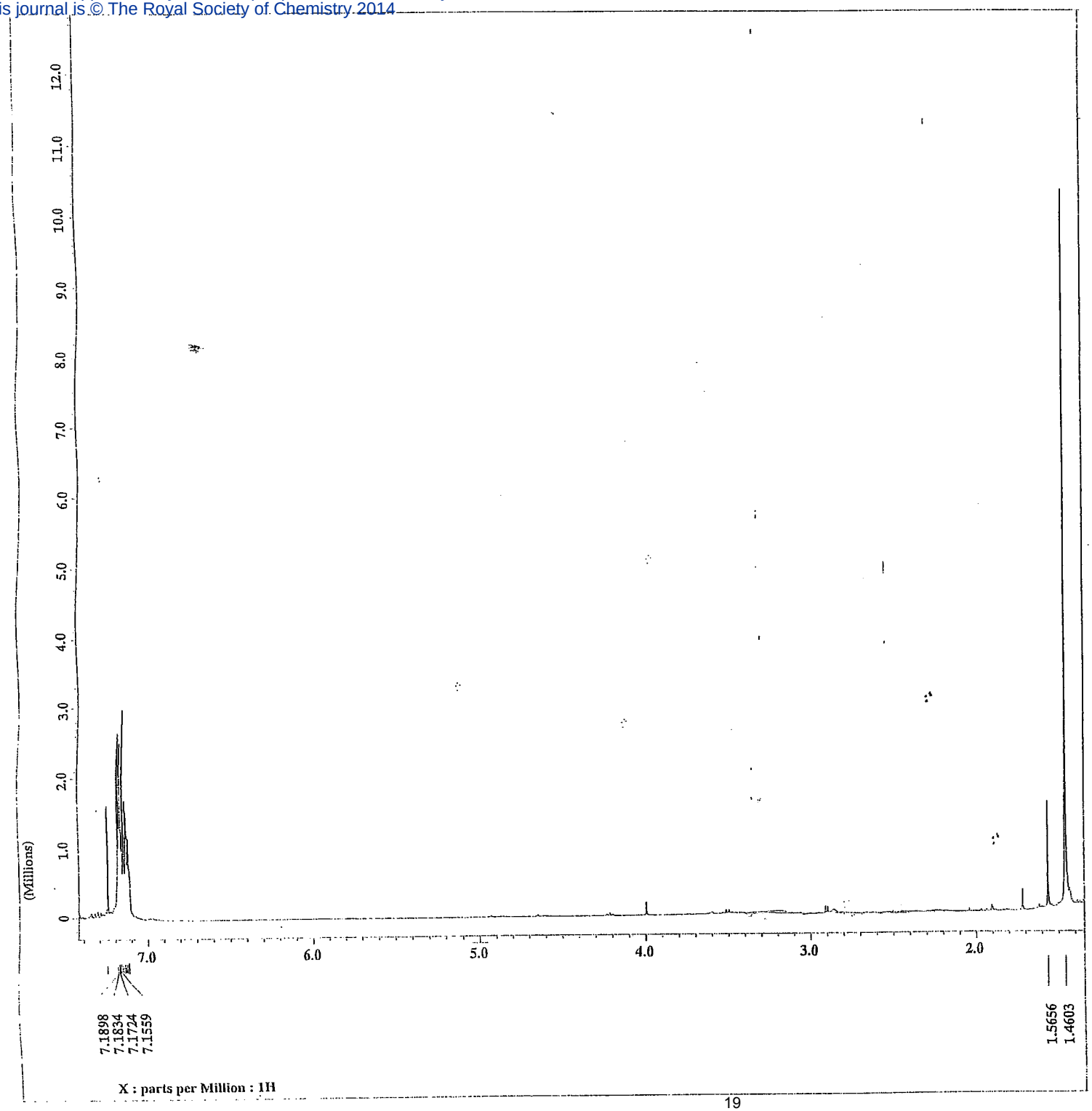

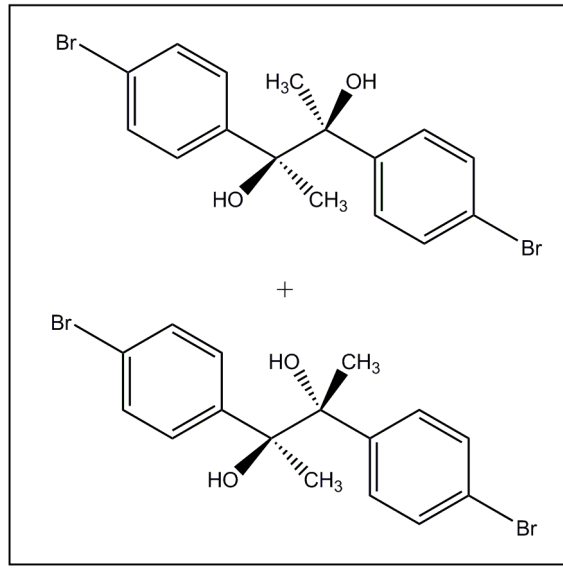

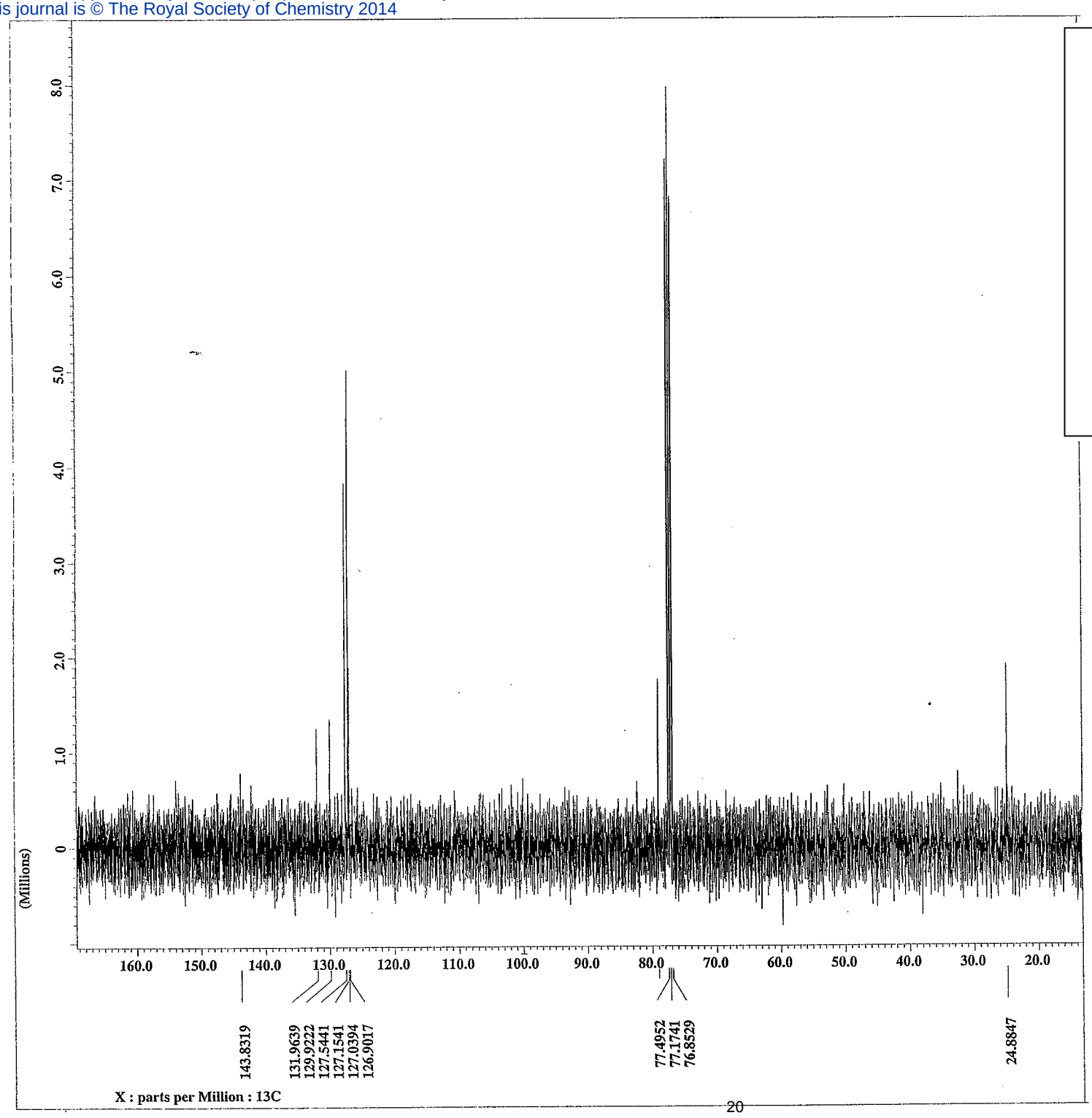
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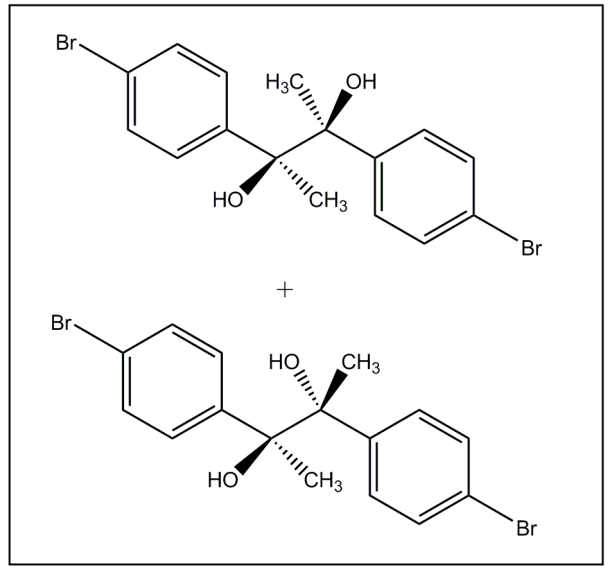
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CH3
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