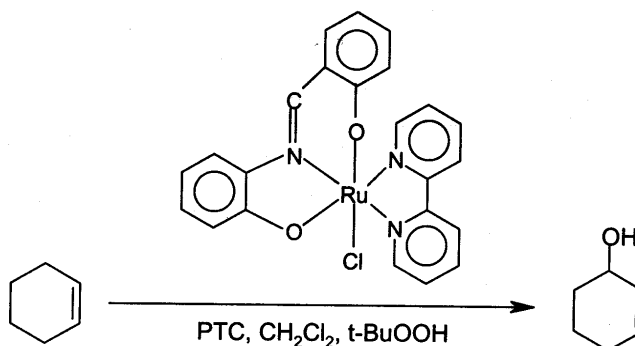


Selective oxo-functionalisation of C–H bond with *t*-BuOOH catalysed by [Ru^{III}(amp)(bipy)Cl] complex

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[Ru^{III}(amp)(bipy)Cl] complex (**1**) (H₂amp = N-(hydroxyphenyl)salicyldimine, bipy = 2,2′-bipyridyl) has been synthesised and characterised by physico-chemical methods. Complex (**1**) is found to be an effective catalyst¹ in the oxidation of cyclohexene to cyclohexene-1-ol, cyclohexane to cyclohexanol and cyclohexanone using *tert*-butylhydroperoxide (*t*-BuOOH). A high-valent Ru(V)-oxo species as catalytic intermediate formed in the reaction of complex (**1**) with *t*-BuOOH is proposed as the source of oxygen atom in the oxidised product. Kinetic data suggest that the formation of Ru(V)-oxo species is substitution-controlled. The results of the product distribution in the present investigation clearly indicate the highly electrophilic nature of Ru=O bond in the [Ru^V(amp)(bipy)O]⁺ intermediate complex which leads to the high affinity for hydrogen atom/hydride abstraction.



Acknowledgement

We gratefully acknowledge the financial support from the Department of Science & Technology, Government of India. We are thankful to Shri Hardyal Singh for his encouragement.

Reference

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