Figures

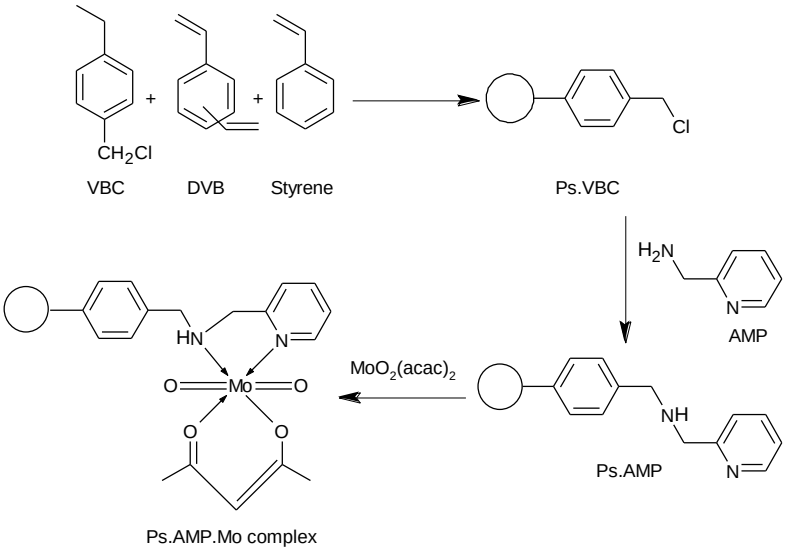

Fig. 1 Reaction scheme for the synthesis of polystyrene 2-(aminomethyl)pyridine supported molybdenum complex (Ps.AMP.Mo).

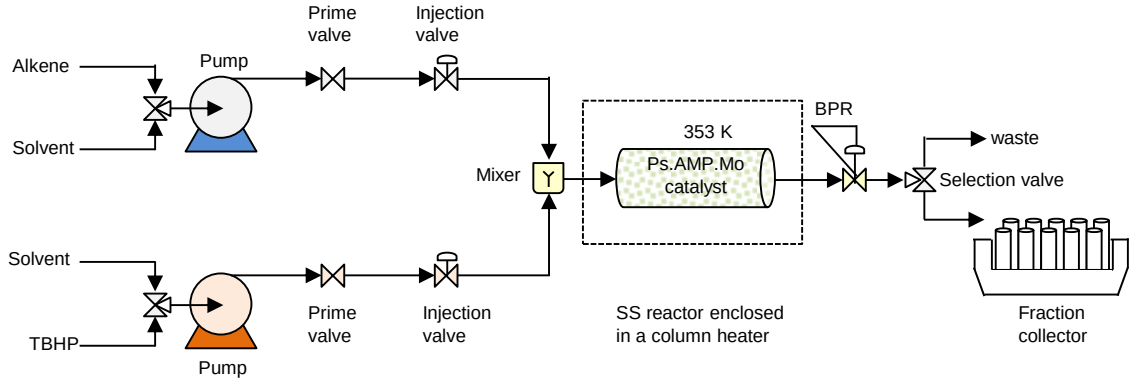

Fig.2 Schematic representation of continuous epoxidation of alkene using a FlowSyn reactor.

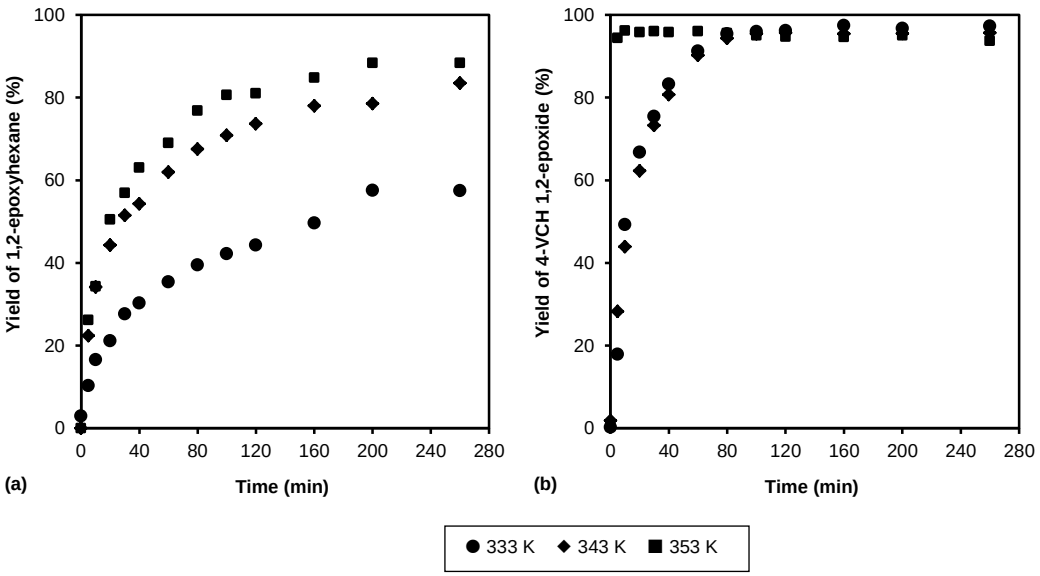

Fig.3 Effect of reaction temperature on the yield of epoxide for epoxidation of (a) 1-hexene and (b) 4-vinyl-1-cyclohexene catalysed by Ps.AMP.Mo at catalyst loading: 0.3 mol% Mo; feed molar ratio of alkene to TBHP: 5:1; stirrer speed: 400 rpm.

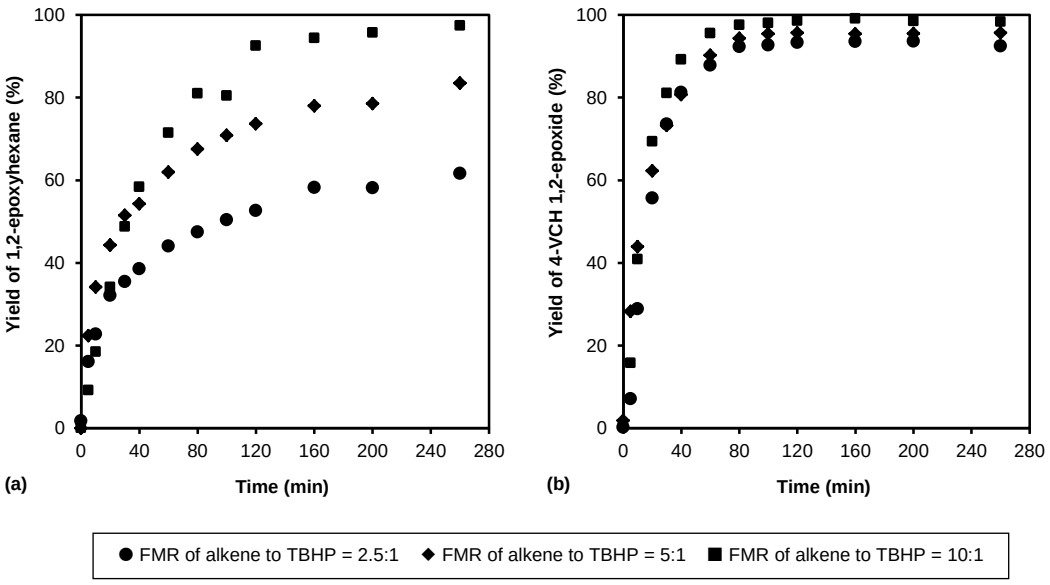

Fig. 4 Effect of feed molar ratio on the yield of epoxide for epoxidation of (a) 1-hexene and (b) 4-vinyl-1-cyclohexene catalysed by Ps.AMP.Mo at reaction temperature: 343 K; catalyst loading: 0.3 mol% Mo; stirrer speed: 400 rpm.

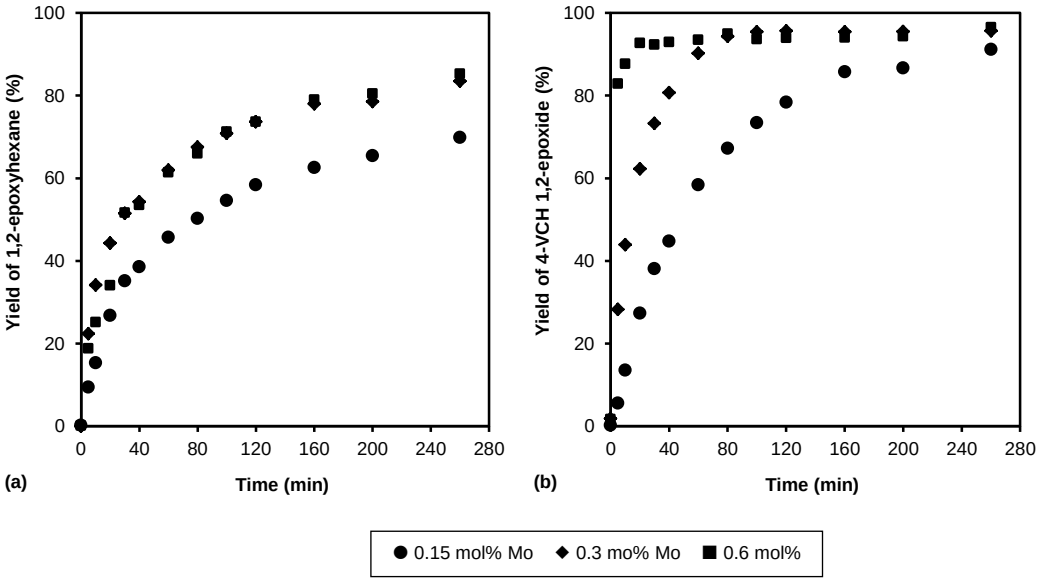

Fig. 5 Effect of catalyst loading on the yield of epoxide for epoxidation of (a) 1-hexene and (b) 4-vinyl-1-cyclohexene catalysed by Ps.AMP.Mo at reaction temperature: 343 K; feed molar ratio of alkene to TBHP: 5:1; stirrer speed: 400 rpm.

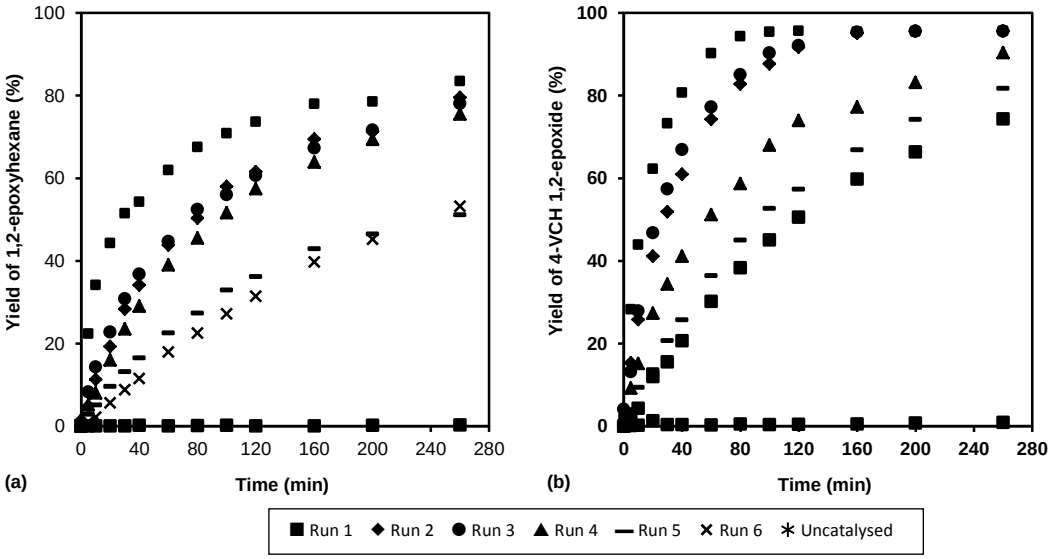

Fig. 6 Catalyst reusability studies for epoxidation of (a) 1-hexene and (b) 4-vinyl-1-cyclohexene (4-VCH) catalysed by Ps.AMP.Mo at reaction temperature: 343 K; catalyst loading: 0.3 mol% Mo; feed molar ratio of alkene to TBHP: 5:1, stirrer speed: 400 rpm.

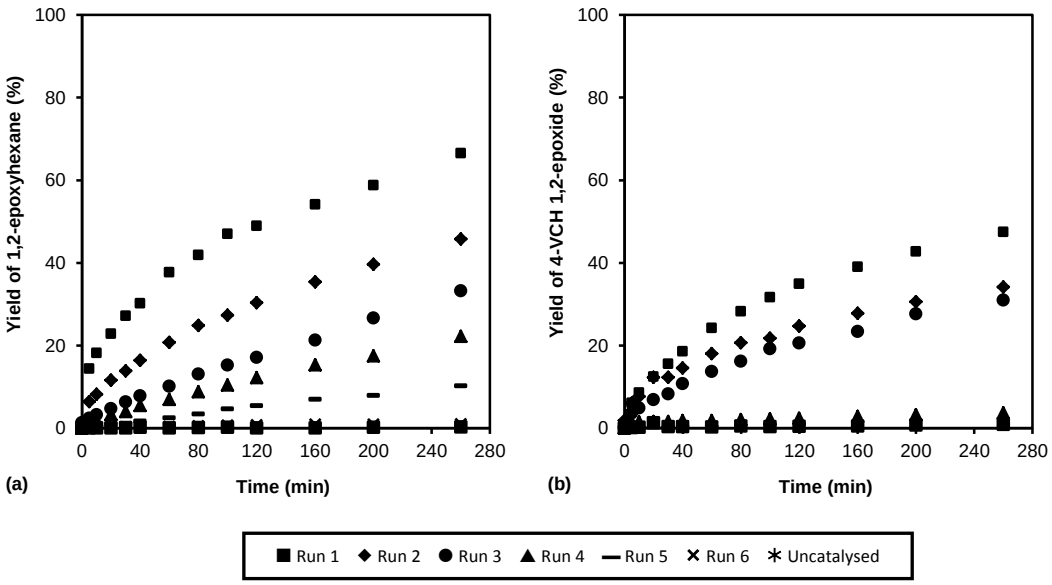

Fig. 7 Supernatant studies for epoxidation of 1-hexene and 4-VCH catalysed by residue isolated from supernatant solutions where Ps.AMP.Mo catalyst is reused at reaction temperature: 343 K; feed molar ratio of alkene to TBHP: 5:1; stirrer speed: 400 rpm.

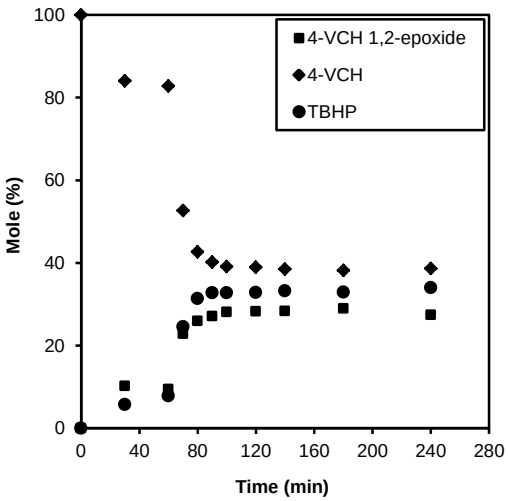

Fig. 8. Mole fractions of the various constituents in the reaction mixture for continuous epoxidation of 4-vinyl-1-cyclohexene (4-VCH) with TBHP as an oxidant.

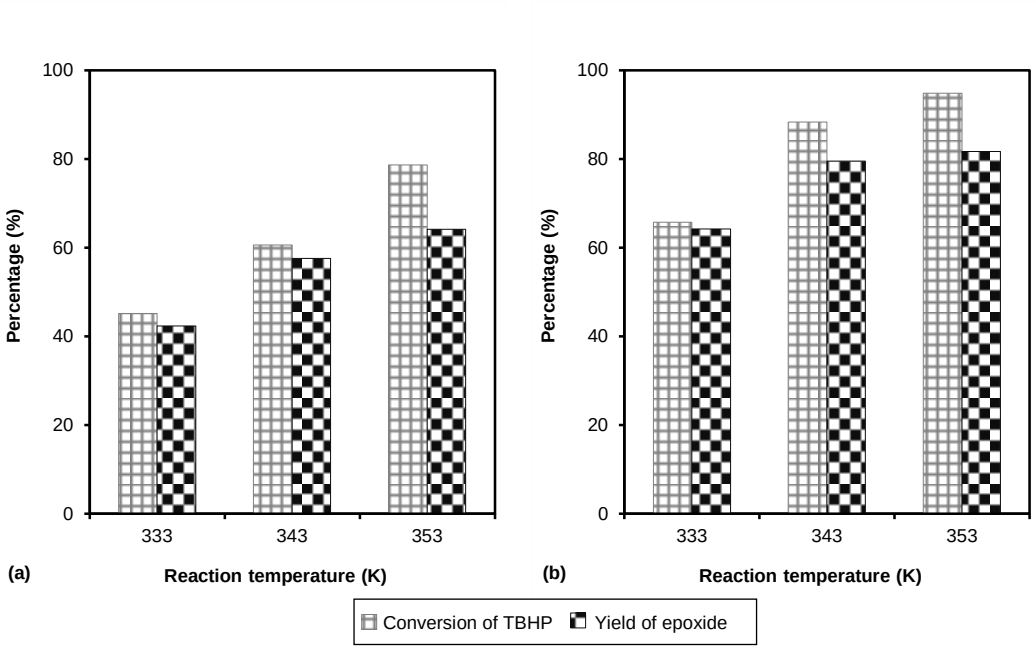

Fig. 9. Effect of reaction temperature on the conversion of TBHP and the yield of epoxide at steady state for continuous epoxidation of (a) 1-hexene and (b) 4-VCH with TBHP using a FlowSyn continuous flow reactor in the presence of Ps.AMP.Mo catalyst (~1.5 g) at feed flow rate: 0.1 mL/min; feed molar ratio of alkene to TBHP: 5:1.

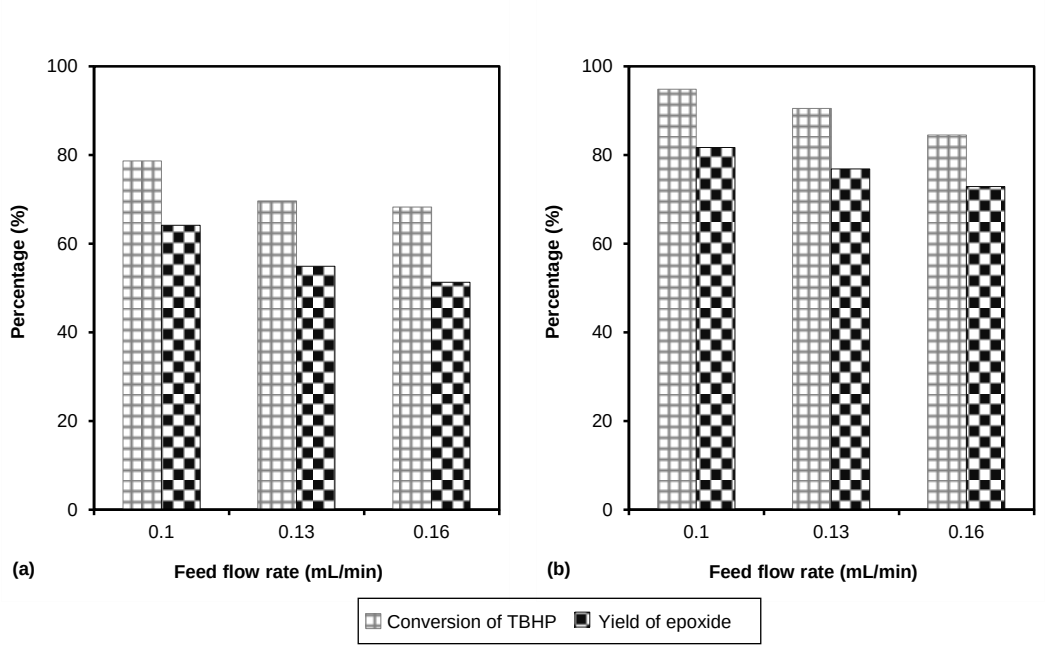

Fig. 10. Effect of feed flow rate on the conversion of TBHP and the yield of epoxide at steady state for continuous epoxidation of (a) 1-hexene and (b) 4-VCH with TBHP using a FlowSyn continuous flow reactor in the presence of Ps.AMP.Mo catalyst (~1.5 g) at reaction temperature: 353 K; feed molar ratio of alkene to TBHP: 5:1.

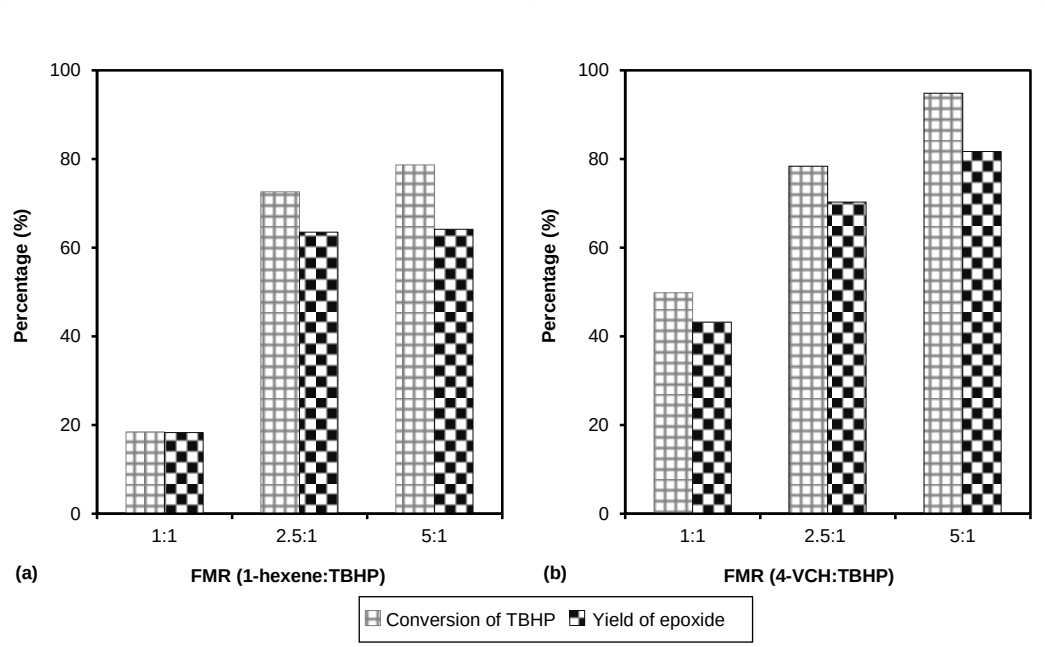

Fig. 11. Effect of feed molar ratio on the conversion of TBHP and the yield of epoxide at steady state for continuous epoxidation of (a) 1-hexene and (b) 4-VCH with TBHP using a FlowSyn continuous flow reactor in the presence of Ps.AMP.Mo catalyst (~1.5 g) at reaction temperature: 353 K; feed flow rate: 0.1 mL/min.

Table 1 Physical and chemical properties of Ps.AMP.Mo catalyst

Catalyst properties	Values
Average density (g cm^{-3})	1.44
BET surface area (m^2 g^{-1})	53.5
Mo loading (mmol Mo g^{-1} resin)[a]	0.74
Ligand loading (mmol g^{-1} resin)[b]	0.5
Ligand to Mo ratio	0.68:1
Particle size (μm)	119–153
Total pore volume (cm^3 g^{-1})	0.08
Average pore diameter (nm)	6.0

[a]From AAS analysis of digested resin

[b]From N% elemental analysis of Mo loaded resins assuming ligand = 2-(aminomethyl) pyridine