ASYMMETRIC EPOXIDATION OF ALKENES USING SUGAR KETONES AS HOMOGENEOUS CATALYSTS

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Readily available arabinose-derived ketones, containing a tunable butane-2,3-diacetal as the steric blocker, displayed increasing enantioselectivity (up to 90% ee) with the size of the acetal alkyl group in catalytic asymmetric epoxidation of *trans*-disubstituted and trisubstituted alkenes.[1] The sugar ketone[2] catalysts **1** (R_5 = isobutyl, neopentyl, benzyl, or cyclohexylmethyl) were prepared in high yields from L-arabinose in 3 or 4 steps, involving Fischer glycosidation with benzyl alcohol, transacetalization with an appropriate alcohol and oxidation reactions.[2-4] The chiral induction capabilities of these ketones are compared and reported in this poster. Since D-arabinose is also available commercially in large quantities, both enantiomeric ketone catalysts are therefore easily accessible, making the present protocol particularly attractive.

References

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