Lanthanum triflate catalyzed rapid oxidation of secondary alcohols using hydrogen peroxide urea adduct (UHP) in ionic liquid

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SUPPORTING INFORMATION

General procedure for the oxidation of 1,2-diols (1a-i) to 1,2-diketones (2a-i).

A mixture of 1,2-diol (1) (1.0 mmol), UHP (2.0 mmol), 10 mol% (CF₃SO₃)₃La and [bmim]BF₄ (5 mmol) was placed in a 50 mL RB flask fitted with a calcium chloride guard tube. The reaction mixture was stirred magnetically in an oil-bath maintained at 70°C for an appropriate time as mentioned in Table 2. The progress of the reaction was monitored by TLC using petroleum ether:ethyl acetate (70:30). After completion of the reaction, the reaction mixture was cooled to room temperature and washed with diethyl ether (3×10 mL). The combined ethereal layer was washed with water (2×10 mL) and dried over anhyd. Na₂SO₄. The ethereal extract was concentrated on a rotary evaporator to give corresponding 1,2-diketone.

General procedure for the oxidation of α-hydroxyketones (3a-f) to 1,2-diketones (2a-f).

A mixture of α-hydroxyketone (3) (1.0 mmol), UHP (2.0 mmol), 10 mol% (CF₃SO₃)₃La and [bmim]BF₄ (5 mmol) was placed in a 50 mL RB flask fitted with a calcium chloride guard tube. The reaction mixture was stirred magnetically in an oil-bath maintained at 70°C for an

appropriate time as mentioned in Table 2. The progress of the reaction was monitored by TLC using petroleum ether:ethyl acetate (70:30). After completion of the reaction, the reaction mixture was cooled to room temperature and washed with diethyl ether (3×10 mL). The combined ethereal layer was washed with water (2×10 mL) and dried over anhyd. Na₂SO₄. The ethereal extract was concentrated on a rotary evaporator to give corresponding 1,2-diketone.

General procedure for the oxidation of aliphatic or aromatic secondary alcohols (4a-l) to ketones (5a-l).

A mixture of secondary alcohol (4) (1.0 mmol), UHP (2.0-3.0 mmol), 10 mol% (CF₃SO₃)₃La and [bmim]BF₄ (5 mmol) was placed in a 50 mL RB flask fitted with a calcium chloride guard tube. The reaction mixture was stirred magnetically in an oil-bath maintained at 70°C for an appropriate time as mentioned in Table 2. The progress of the reaction was monitored by TLC using petroleum ether:ethyl acetate (70:30). After completion of the reaction, the reaction mixture was cooled to room temperature and washed with diethyl ether (3×10 mL). The combined ethereal layer was washed with water (2×10 mL) and dried over anhyd. Na₂SO₄. The ethereal extract was concentrated on a rotary evaporator to give corresponding ketone.