M. TOBISU,* K. KOH, T. FURUKAWA, N. CHATANI* (OSAKA UNIVERSITY, JAPAN) Modular Synthesis of Phenanthridine Derivatives by Oxidative Cyclization of 2-Isocyanobiphenyls with

Organoboron Reagents

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Synthesis of Phenanthridine Derivatives via Oxidative Cyclization

76% yield

51% yield

Significance: A straight-forward synthesis of a broad range of phenanthridine derivatives via a manganese-mediated annulation of 2-isocyanobiaryls with organoboronic acids has been disclosed. This rapid and divergent reaction furnishes the corresponding phenanthridine derivatives in good yield.

68% yield

65% yield

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Comment: The reported reaction shows a simple pathway for the synthesis of phenanthridine frameworks out of readily accessible starting materials. Furthermore, mechanistic studies indicate that the reaction proceeds by the intramolecular homolytic aromatic substitution of an imidoyl radical intermediate.

76% yield

68% yield

Category

Metal-Mediated Synthesis

Key words

phenanthridine derivatives

organoboron reagents

oxidative cyclization

manganese