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# **Metal-Free Assemblage of Four C–N and Two C–C Bonds via a Cascade Five Component Diastereoselective Synthesis of Pyrido[1,2-a]Pyrimidines**

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## **Abstract**

An efficient heteroannulation synthesis of N-fused, pyrido[1,2-a]pyrimidines was successfully achieved via a sequential, one-pot five-component reaction, involving primary amines, diketene (DK), differently substituted aromatic aldehydes, nitro ketene dithioacetal and propanediamine in ethanol at 70 °C. This new protocol constructs two rings through the formation of four C–N and two C–C bonds via a one pot sequential reaction involving ring-opening/ Knoevenagel condensation, /nucleophilic substitution (SN)/ Michael addition followed by imine–enamine tautomerization and final N-heterocyclization. The method is particularly attractive due to the advantages such as: atom economy, optimum convergence, commercially available or readily accessible starting materials, high bond-forming efficiency, free metal-catalyst and mild reaction conditions. The products were isolated by just decantation of the solvent and purification without using column chromatography method.

**Keywords:** Diastereoselective, Pyrido[1,2-a]pyrimidines, Diketene, Nitro ketene dithioacetal, Five-component reaction