

Abstract

Reaction of 2,3-diketoquinoxaline in presence of ferric chloride and hydrazine hydrate gives 2-hydrazino-

Keywords: 2,3-diketoquinoxaline; ferric chloride; hydrazine hydrate; 2-hydrazino-

Introduction

2,3-diketoquinoxaline (1) is a heterocyclic compound containing two carbonyl groups at the 2 and 3 positions of the quinoxaline ring system. It is a white crystalline solid with a melting point of 133-135°C. It is soluble in water and ethanol. It is used in the synthesis of various quinoxaline derivatives. The reaction of 2,3-diketoquinoxaline with hydrazine hydrate in the presence of ferric chloride as a catalyst yields 2-hydrazinoquinoxaline (2) in 82% yield. The molecular weight of 2-hydrazinoquinoxaline is 194.17 g/mol. The IR spectrum shows a strong absorption at 1658 cm⁻¹ (C=O) and a weak absorption at 3350 cm⁻¹ (N-H). The ¹H NMR spectrum shows a broad peak at 10.28 ppm (NH) and a multiplet at 7.3-7.8 ppm (aromatic protons).

Experimental

2,3-Diketoquinoxaline

2,3-diketoquinoxaline (0.25 g, 0.001 mol), ferric chloride (0.36 g, 0.001 mol) and hydrazine hydrate (0.1 g, 0.001 mol) were dissolved in 10 mL of water. The mixture was stirred at 80°C for 2 hours. The product was isolated by filtration and dried under vacuum. Yield: 82%; mp: <300°C. IR (KBr): 3350, 2928, 1658, 1593, 1028 cm⁻¹.

3-chloroquinoxaline-2-ol

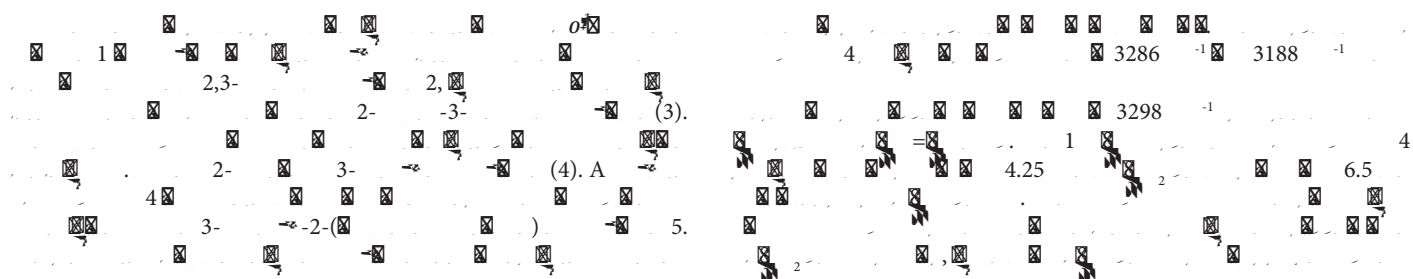
2,3-diketoquinoxaline (0.01 g, 0.0001 mol) and 3-chloroquinoxaline-2-ol (0.01 g, 0.0001 mol) were dissolved in 10 mL of water. The mixture was stirred at 80°C for 2 hours. The product was isolated by filtration and dried under vacuum. Yield: 82%; mp: <300°C. IR (KBr): 3350, 2928, 1658, 1593, 1028 cm⁻¹.

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