YENİ BİR 2-BENZİMİDAZOLİNON SENTEZİ

A NEW SYNTHESIS OF 2-BENZIMIDAZOLINONE

Emre DÖLEN* - Mürsüt PEKİN*

SUMMARY

In this work, 2-benzimidazolinone is obtained with a high yield and high purity by condensation of 1,2-diaminobenzene with urea under normal pressure using isoamyl alcohol as the solvent.

ÖZET

Bu çalışmada, 2-benzimidazolinon üreticisi olarak izoamıl alkol kullanılarak 1,2-diaminobenzene ile üre nin normal basınçta kondenasyonu ile yüksek verim ve saflıkta elde edilmiştir.

INTRODUCTION

2-benzimidazolinones are useful as intermediates for the preparation of pharmaceuticals, plant protecting agents, plant growth stimulants and azo dyes. These chemicals were prepared in 87-97% yield and with high purity by condensation of 1,2-diaminobenzene derivatives with urea in aqueous medium at 150-160°C. (1).

\[
\text{R}_1\text{R}_2\text{NH}_2 + \text{H}_2\text{N}_2\text{C} = \text{O} \rightarrow \text{R}_1\text{R}_2\text{NH}_2 \text{O} - 2\text{NH}_3
\]

There are, R = H or CH₃; R₁, R₂ = H or Cl; R₂ = H, CH₃, CH₃O, COOH, SO₃H, C₂H₅O, C₂H₅S, Cl, OH, F, Br or CH₃CO. 1,2-diaminobenzene derivatives were optionally prepared from the corresponding 2-nitroanilines by hydrogenation during the condensation.

In this work, 2-benzimidazolinone is obtained by condensation of 1,2-diaminobenzene with urea under normal pressure using isoamyl alcohol as the solvent.

* Marmara Üniversitesi Eczacılık Fakültesi, Analitik Kimya Anabilim Dalı,
Nişantaşı / ISTANBUL.
EXPERIMENTAL

0.10 mole (10.8 g) 1,2-diaminobenzene and 0.05 mole (3.0 g) urea were added to 25 mL isoamyl alcohol. The reaction mixture was refluxed for about 25 minutes until ammonia evolution ceased. After the mixture was cooled. The white crystalline precipitate formed was filtered and washed with very dilute hydrochloric acid solution to solve the unreacted reactants. The crude product was purified by recrystallization for ethanol.


DISCUSSION

Mistry and Guha with a similar procedure obtained a compound with a melting point of 311°C and they proposed the name of this compound as 2,2'-diaminocarbanilide (2). Upon investigation of the IR and NMR spectrums and the elemental analysis of this compound should be named as 2-benzimidazolinone. In conclusion Mistry and Guha were wrong on naming this compound.

REFERENCES
