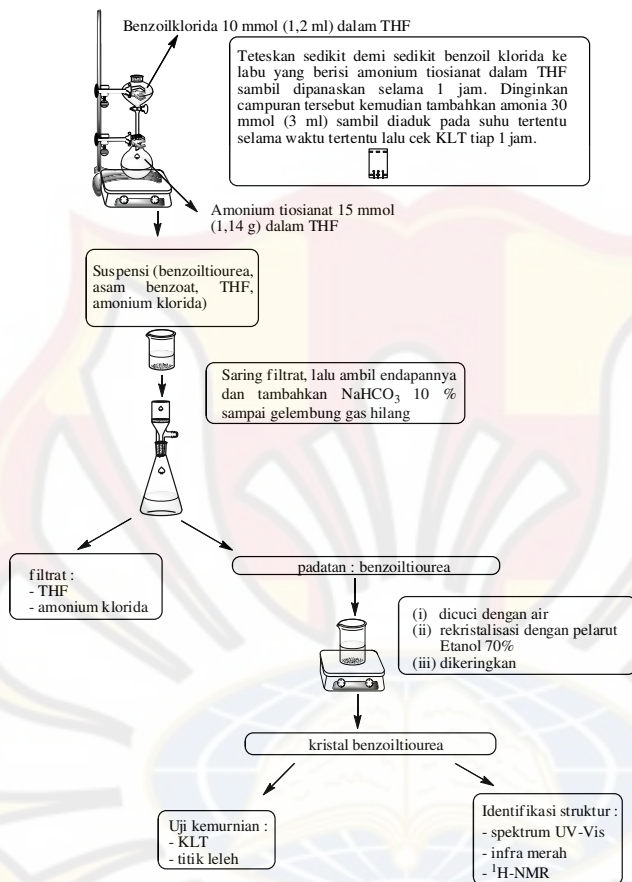


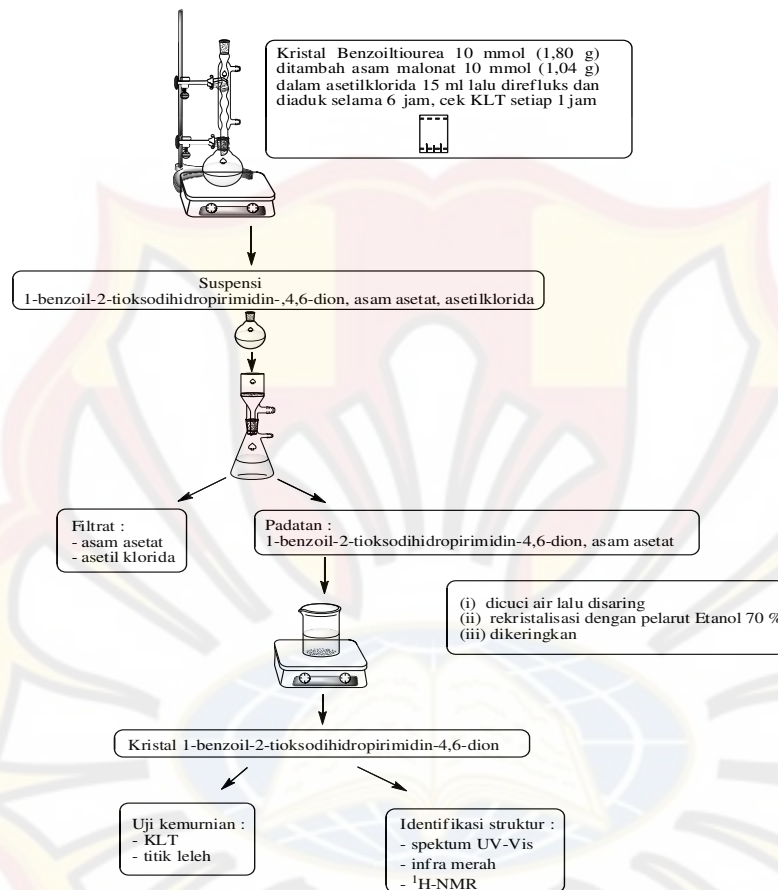
LAMPIRAN A

BAGAN ALIR SINTESIS BENZOILTIOUREA



LAMPIRAN B

BAGAN ALIR SINTESIS 1-BENZOIL-2-TIOKSODIHIPIRIMIDIN-4,6-DION



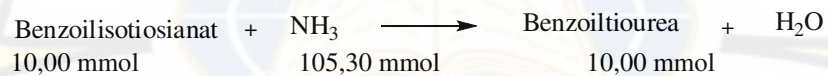
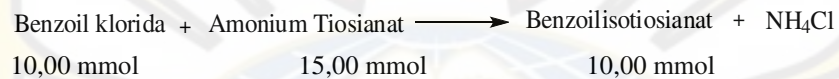
LAMPIRAN C

PERHITUNGAN BERAT TEORITIS BENZOILTIOUREA

Amonium Tiosianat (BM = 76,12)
Penimbangan amonium tiosianat : 1,14 gram
mmol amonium tiosianat : $\frac{1,14}{76,12} \times 1000 = 15,00 \text{ mmol}$

Benzoil klorida (BM = 140,57; BJ = 1,2070)
Volume benzoil klorida : 1,2 ml
mmol benzoil klorida : $\frac{1,2 \times 1,2070}{140,57} \times 1000 = 10,0 \text{ mmol}$

Amonia (BM = 17; BJ = 0,5967)
Volume hidrazin hidrat : 3 ml
mmol hidrazin hidrat : $\frac{3 \times 0,5967}{17} \times 1000 = 105,30 \text{ mmol}$



Benzoiltiourea (BM = 180,2)
mmol teoritis = 10,00 mmol
Berat teoritis = $10,00 \times 180,2 = 1802 \text{ mgram}$

Perhitungan Persentase Hasil Sintesis Benzoiltiourea

Berat molekul Benzoiltiourea = 180,2

mmol teoritis = 10,00 mmol

Sintesis I : Berat praktis = 1340 mgram
mmol praktis = $\frac{1340}{180,2} = 7,43$ mmol
Persentase hasil = $\frac{7,43}{10,00} \times 100 \% = 74 \%$

Sintesis II : Berat praktis = 1330 mgram
mmol praktis = $\frac{1330}{180,2} = 7,38$ mmol
Persentase hasil = $\frac{7,38}{10,00} \times 100 \% = 74 \%$

Sintesis III : Berat praktis = 1320 mgram
mmol praktis = $\frac{1320}{180,2} = 7,32$ mmol
Persentase hasil = $\frac{7,32}{10,00} \times 100 \% = 73 \%$

Persentase hasil rata-rata : $\frac{74 \% + 74 \% + 73 \%}{3} = 74 \%$

3

LAMPIRAN D

PERHITUNGAN BERAT TEORITIS 1-BENZOIL-2-TIOKSODIHIDROPIRIMIDIN-4,6-DION

- # Benzoiltiourea (BM = 76,12)
Penimbangan benzoiltiourea : 1,80 gram
mmol benzoiltiourea : $\frac{1,80}{180,2} \times 1000 = 10,00 \text{ mmol}$
- # Asam malonat (BM = 104)
Penimbangan asam malonat : 1,04 g
mmol asam malonat : $\frac{1,04}{104} \times 1000 = 10,0 \text{ mmol}$
- # Asetil klorida (BM = 78,50; BJ = 1,104)
Volume asetil klorida : 15 ml
mmol asetil klorida : $\frac{15 \times 1,104}{78,50} \times 1000 = 210 \text{ mmol}$
- | | | | | |
|----------------|---|--------------|--|---|
| Benzoiltiourea | + | Asam malonat | $\xrightarrow{\text{CH}_3\text{COCl}}$ | 1-benzoil-2-tioksodihidropirimidin-4,6-dion |
| 10,00 mmol | | 10,00 mmol | | 10,00 mmol |
- # 1-benzoil-2-tioksodihidropirimidin-4,6-dion (BM = 236)
mmol teoritis = 10,00 mmol
Berat teoritis = $10,00 \times 236 = 2360 \text{ mg}$

Perhitungan Persentase Hasil Sintesis 1-benzoil-2-tioksodihidropirimidin-4,6-dion

Berat molekul 1-benzoil-2-tioksodihidropirimidin-4,6-dion = 236

mmol teoritis = 10,00 mmol

Sintesis I : Berat praktis = 500 mgram
mmol praktis = $\frac{500}{236} = 2,11 \text{ mmol}$

$$\text{Persentase hasil} = \frac{2,11}{10,00} \times 100 \% = 21 \%$$

Sintesis II : Berat praktis = 490 mgram
mmol praktis = $\frac{490}{236} = 2,07 \text{ mmol}$

$$\text{Persentase hasil} = \frac{2,07}{10,00} \times 100 \% = 21 \%$$

Sintesis III : Berat praktis = 490 mgram
mmol praktis = $\frac{490}{236} = 2,07 \text{ mmol}$

$$\text{Persentase hasil} = \frac{2,07}{10,00} \times 100 \% = 21 \%$$

Persentase hasil rata-rata : $\frac{21 \% + 21 \% + 21 \%}{3} = 21 \%$

LAMPIRAN E

MEKANISME REAKSI SIKLISASI

Mekanisme reaksi dari reaksi Biginelli adalah suatu reaksi bimolekular untuk membentuk senyawa dihidropirimidinon yang diawali dengan kondensasi aldol dari etilasetoasetat (1) dan aril aldehida membentuk ion karbonium (2). Adisi nukleofilik oleh urea memberikan senyawa antara (4) yang kemudian mengalami proses dehidrasi menjadi senyawa yang dikehendaki (5) (Kappe, 1997).

