

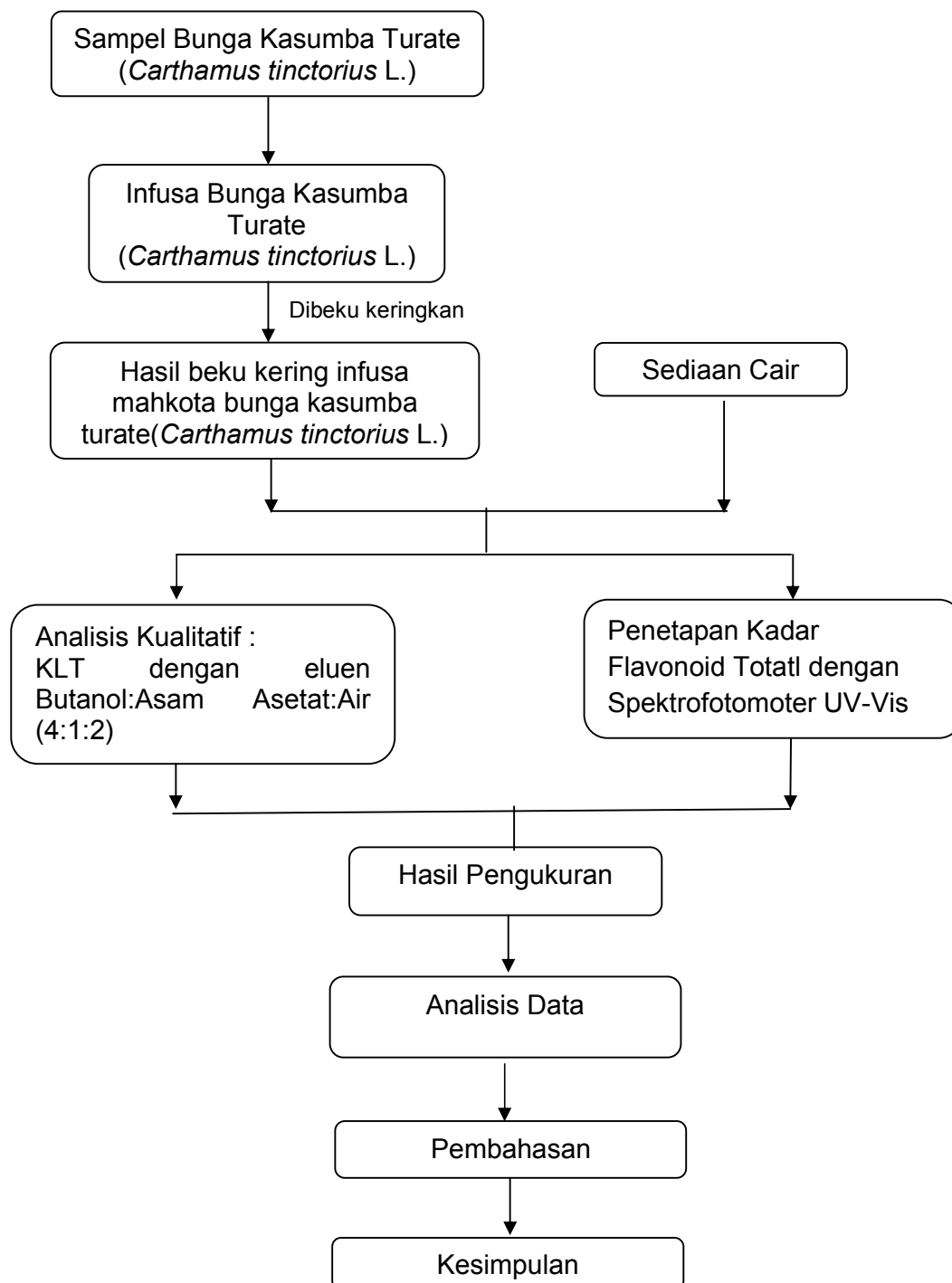
## DAFTAR PUSTAKA

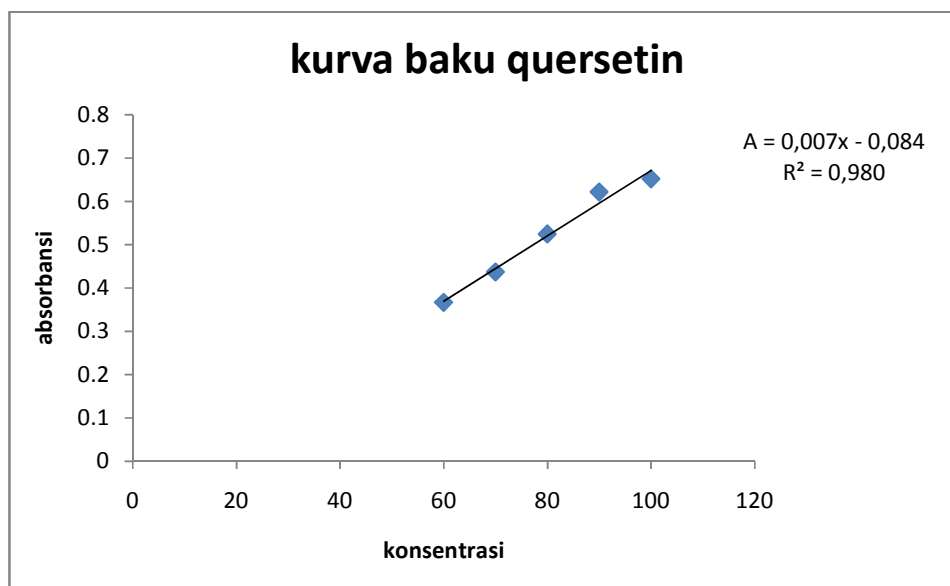
1. Kelompok Kerja Ilmiah Yayasan Pengembangan Obat Bahan Alam Phyto Medica. Penapisan Farmakologi, Pengujian Fitokimia dan Pengujian Klinik. Yayasan Pengembangan Obat Bahan Alam Phyto Medica. Jakarta. 1993. Hal.143-144
2. Usmar, Syukur R., Fatmawati A.. Uji Aktivitas Imunomodulator Kasumba Turate (*Carthamus tinctorius* L.) sebagai Upaya Pembuatan Sediaan Terstandar Menuju Prototipe Skala Industri Kecil. *Majalah Farmasi dan Farmakologi* Vol.14. No.1- Maret 2010. Fakultas Farmasi Universitas Hasanuddin. Makassar. 2010. Hal. 17-20
3. Dajue, Li & Mundle HH. *Safflower: Carthamus tinctorius* L. IPGRI. Italy. 1996. hal.9
4. Alfianti. Formulasi dan Uji Kestabilan Fisik Sirup Kasumba Turate (*Carthamus tinctorius* L). *Skripsi*. Fakultas Farmasi Universitas Hasanuddin. Makassar. 2011. Hal. 4, 7
5. Ekin, Zehra. Novel Resurgence of Safflower (*Carthamus tinctorius* L) Utilization: A Global View. *Journal of Agronomy*. 2005; **4** (2). hal.84
6. Baff Global. Safflower Yellow. [serial on the internet]. 16 Juni 2009 [dikutip 9 Mei 2012]. Available from : <http://www.bkwell.com/bkherbwell/natural-food-color/Yellow-color/Safflower-Yellow/12.html>
7. Fatahi N., Carapetian J., Heidari R. Spectrophotometric Measurement of Valuable pigments from Petals of Safflower (*Carthamus tinctorius* L.) and their identification by TLC Method. *Research Journal of Biological Sciences*. 2008. 3(7). Hal.761-763
8. Departemen Kesehatan Republik Indonesia. *Materia Medika Indonesia* jilid V. Direktorat Jenderal Pengawasan Obat dan Makanan. Jakarta. 1989.
9. Saifuddin A, Rahayu V, dan Teruna HY. *Standardisasi bahan obat alam*. Edisi I. Graha Ilmu. Yogyakarta. 2010. Hal.4-5,22,26-28,45
10. Van der Vosen, H.A.M., Umali, B.E. "*Plant Resources of South-East Asia: Vegetables oils and fats*. Volume 14. Backhuys Publishers. Leiden. 2001. 70-72.

11. Stalikas, D.C. Extraction, Separation, and Detection Method for Phenolic Acid and Flavonoid. *Journal Sep. Sci.* 2007. 30, 3268-3295
12. Crozier, A., Clifford, M.N., Ashihara, H. *Plants Secondary Metabolite: Occurance, Structure, and Role in The Human Diet.* Iowa : Blackwell Publishing. 2006. Hal 2-20
13. Smirnoff, N. *Antioxidant and Reactive Oxygen Species in Plants.* Iowa : Blackwell Publishing. 2005. Hal 142-145
14. Hakkinen, S. *Flavonols and Phenolic Acids in Berries and Berry Product.* University of Kuopio : Kuopio. 2000. Hal 17-20
15. Waji AR. Sugrani A. Flavonoid (Quercetin). *Makalah Kimia Organik Bahan Alam.* Program S2 Kimia Fakultas MIPA. Universitas Hasanuddin. Makassar. 2001. Hal.16-17
16. Departemen Kesehatan Republik Indonesia. *Sediaan Galenik.* Direktorat Jenderal Pengawasan Obat dan Makanan. Jakarta. 1986. Hal. 8-9
17. Swarbrick. *Encyclopedia of Pharmaceutical Technology* 3<sup>rd</sup> Ed. Informa Healthcare USA Inc. New York. 2007. Hal. 1807, 2216, 2217, 2223-2227, 2222. Available as PDF file
18. Saifuddin A, Rahayu V, dan Teruna HY. *Standardisasi bahan obat alam.* Edisi I. Graha Ilmu. Yogyakarta.2010. Hal.4,22,26-28,48-51
19. Menteri Kesehatan RI. *Keputusan Menteri Kesehatan Republik Indonesia No.121.* Jakarta.2008
20. Ansel, Howard C. *Pengantar Sediaan Farmasi.* Edisi IV. Universitas Indonesia Press. Jakarta. 2005. Hal.304
21. Gandjar, IG dan Abdul Rohman. *Kimia Analisis Farmasi* . Pustaka Pelajar. Yogyakarta. 2007. Hal.220-262, 367
22. Sudjadi, A. *Metode Pemisahan.* Fakultas Farmasi Universitas Gajah Mada. Yogyakarta. 1988.
23. Hahn-Deinstrop E. *Applied Thin-Layer Chromatography Best Practice and Avoidance Mistakes.* Ed.2. Wiley-VCH. 2007, 154

24. Basset J., Denney R.C., Jeffery G.H., Mendham J. *Buku Ajar Vogel Kimia Analisis Kuantitatif Anorganik*. EGC. Jakarta. 1994. Hal.3, 809-810, 818
25. Underwood AL. *Analisa Kimia Kuantitatif*. Ed.IV. Erlangga. Jakarta. Hal.383.
26. Kar, A. *Pharmaceutical Drug Analysis 2<sup>nd</sup> Ed. : Methodology, Theory, Instrumentation, Pharmaceutical Assays, Cognate Assays*. New Delhi : New Age International Publisher. 2005
27. Hollas, M.J. *Modern Spectroscopy 4<sup>th</sup> Ed*. USA : John Willey and Sons Publisher. 2004
28. Wall Peter E. *Thin Layer Chromatography ; A Modern Practical Approach*. VWR International Ltd., Poole, Dorset.
29. Harborne, J.B. *Metode Fitokimia*. Penerbit ITB. Bandung. 1987. Hal.93
30. Hutabarat R.C., karsinah, A.Manshur. Markisa Asam (*Passiflora edulis* Sims.) Buah Eksotik Kaya *Jurnal Iptek Hortikultura Agustus*. 2010, (6) : 33-34
31. Kandaswami, C., Perkins, E. Ascorbic Acid Enhanced Antiproliferative Effect of Flavonoid on Squamous Cell Carcinoma in Vitro. *Anticancer Drug*. 1993, (13):2277-2280

## LAMPIRAN

**Lampiran 1. Analisis Kandungan Flavonoid Total dalam Sediaan Cair Kasumba Turate (*Carthamus tinctorius* Linn.) secara Spektrofotometri UV-VIS**

**Lampiran 2. Kurva Baku Kuersetin**

Gambar 17. Kurva baku Kuersetin

| Konsentrasi (bpj) | Serapan (A) |
|-------------------|-------------|
| 100               | 0.65205     |
| 90                | 0.62183     |
| 80                | 0.52463     |
| 70                | 0.4369      |
| 60                | 0.36661     |

Tabel 4. Nilai serapan baku Kuersetin

### Lampiran 3. Perhitungan Kandungan Senyawa Flavonoid Sampel

#### 1. Sediaan Cair Bunga Kasumba Turate (*Carthamus tinctorius* Linn.)

##### a. Replikasi I

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,412

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,412 + 0,084}{0,007}$$

$$= 70,857 \text{ bpj}$$

$$= 70,857 \text{ mg/l}$$

$$= 0,070857 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0708 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,708 \% \end{aligned}$$

## b. Replikasi II

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,402

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,402 + 0,084}{0,007}$$

$$= 69,428 \text{ bpj}$$

$$= 69,428 \text{ mg/l}$$

$$= 0,069428 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0694 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,694 \% \end{aligned}$$

## c. Replikasi III

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,404

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$ 

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,404 + 0,084}{0,007}$$

$$= 69,714 \text{ bpj}$$

$$= 69,714 \text{ mg/l}$$

$$= 0,069714 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0697 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,697\% \end{aligned}$$

$$\begin{aligned} \text{Rata-rata \% kadar flavonoid total} \\ \text{dalam sediaan cair} &= \frac{0,708\% + 0,694\% + 0,697\%}{3} \\ &= 0,699 \% \end{aligned}$$



2. Infusa Bunga Kasumba Turate (*Carthamus tinctorius* Linn.)

a. Replikasi I

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,387

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,387 + 0,084}{0,007}$$

$$= 67,285 \text{ bpj}$$

$$= 67,285 \text{ mg/l}$$

$$= 0,067285 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0672 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,672 \% \end{aligned}$$

## b. Replikasi II

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,389

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$ 

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,389 + 0,084}{0,007}$$

$$= 67,571 \text{ bpj}$$

$$= 67,571 \text{ mg/l}$$

$$= 0,067571 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0675 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,675 \% \end{aligned}$$

## c. Replikasi III

Berat Sampel : 1 g

Volume Sampel : 0,08 ml

Faktor Pengenceran : 1250 ml

Serapan : 0,388

Persamaan kurva baku kuersetin adalah :  $y = 0,007x - 0,084$ 

Sehingga, kandungan flavonoid sampel adalah :

$$C = \frac{0,388 + 0,084}{0,007}$$

$$= 67,428 \text{ bpj}$$

$$= 67,428 \text{ mg/l}$$

$$= 0,067428 \text{ mg/ml}$$

$$\begin{aligned} \text{Kadar flavonoid sampel (\%)} &= \frac{V \text{ (ml)} \cdot C \text{ (mg/ml)} \cdot Fp}{Bs \text{ (mg)}} \times 100 \% \\ &= \frac{0,08 \text{ ml} \cdot 0,0674 \text{ mg/ml} \cdot 1250}{1000 \text{ mg}} \times 100 \% \\ &= 0,674 \% \end{aligned}$$

$$\begin{aligned} \text{Rata-rata \% kadar flavonoid total} \\ \text{Infusa bunga kasumba turate} &= \frac{0,672\% + 0,675\% + 0,674\%}{3} \\ &= 0,673\% \end{aligned}$$

**Lampiran 4. Formula Sediaan Cair dari Liofilisat Bunga Kasumba Turate (*Carthamus tinctorius* Linn.)**

| No | Nama Bahan                      | (%b/v, %v/v) |
|----|---------------------------------|--------------|
| 1  | Liofilisat bunga Kasumba Turate | 1            |
| 2  | Sirupus Simpleks                | 25           |
| 3  | Na.Alginat                      | 0,1          |
| 4  | Sari Markisa                    | 5            |
| 5  | Na.Benzoat                      | 0,1          |
| 6  | Air Suling ad                   | 100          |

(Sumber : Alfianti. Pengaruh Natrium Alginat Terhadap Kestabilan Fisik Sirup Kasumba Turate (*Carthamus tinctorius* Linn.). *Skripsi*. Jurusan Farmasi. Fakultas Farmasi. UNHAS. Makassar. 2011)

### Lampiran 5. Tanaman Kasumba Turate



Foto Tanaman Bunga Kasumba Turate (*Carthamus tinctorius* Linn.)