DAFTAR PUSTAKA

1. Ju, Wei. Xia wang, Hong lian shi, Wen shu chen, Steven A. belinsky, Yong lin. *A Critical Role of Luteolin-Induced Reactive Oxygen Species in Blockage of Tumor Necrosis Factor-Activated Nuclear Factor-κB Pathway and Sensitization of Apoptosis in Lung Cancer Cells.Molecular Pharmacology* vol. 71 no. 5. 2007. Hal 1381-1388.

2. Chowdhury, Arnab Roy. Shalini sharma, Suparna mandal, Anindya goswami, Sibabrata mukhopadhyay, Hemanta K. majumder. *Luteolin, an emerging anti-cancer flavonoid, poisons eukaryotic DNA topoisomerase I.* Biochem. J. Vol 366. 2002. Hal 653-661.

3. Rifai, Yusnita. Midori A, Takashi koyano, Thaworn Kowithayakorn, Masami ishibasi. *New Hedgehog/GLI Signaling Inhibitors from* Excoecaria agallocha. Journal Bioorganic & Medicinal Chemistry Letters 21. 2011. hal 718-722.

4. Rifai, Yusnita. Midori A, Takashi koyano, Thaworn Kowithayakorn, Masami ishibasi. *Terpenoid and a Flavanoid Glycoside from Acacia pennata as Hedgehog/GLI-Mediated transcriptional Inhibotors.* J Nat Prod. Vol 73. 2010. hal 995-997.

5. Lodish H, Berk A, Zipursky SL, et al. *Molecular Cell Biology. 4th edition.* W. H. Freeman and company. New York. Section 23.2. 2000.

6. DB Lubahn. Anna slusarz, Nader shenouda, Mary S. Sakla. *Phytoesterogen as Regulators of Hedgehog Signaling and Methods of their use in cancer treatment.* US Patent App. Google Patent. 2008. Hal 16-17.

7. Marlina. N.M. Surdia, C.L. Radiman, S. Achmad. *Pengaruh Variasi Konsentrasi Asam Sulfat pada Proses Hidroksilasi Minyak Jarak (Castor Oil).* Jurnal Matematika dan Sains Vol. 9 No. 2. 2004. Hal 249-253.

8. Sastrohamidjojo, Hardjono. Harno D. P. *Sintesis Senyawa Organik.* Penerbit erlangga. Jakarta. 2009. Hal 24 – 71.

9. Pietta G. *Flavonoids as antioxidant.* J Nat Prod ; 63 (7). 2000. Hal : 1035-1042

10. Rao YK, Fang SH, Tzeng YM. *Synthesis, growth inhibition, and cell cycle of novel flavonoid derivatives*.

11. Lin Y, Shi R, Wang X and Shen HM. *Luteolin, a flavonoid with potential for cancer prevention and therapy*. Curr. Cancer Drug Targets. 8. 2008. hal 634-646

12. Jong. Eun Kim, Joe eun son, Yong jinjan, et al. *Luteolin, a Novel Natural Inhibitor of TPL-2 Kinase, Inhibits Tumor Necrosis Factor-α-Induced Cyclooxigenase-2 Expression in JB6 Mouse Epidermis Cells.* JPET Fast Forward No. 111.179200. 2011.

13. Anonym. *Solubility of luteolin in organic solvents*. Open Notebook Science Solubility Challenge. 2013.

14. Material Safety Data Sheet. Certified ISO 9002. 2004.

15. Sadik, C.D. Sies H, and Schewe, T. *Inhibition of 15-lipoxygenases by Flavonoids : structure-activity Relations and Mode of Action.* Biochem. Pharmacol, 65. 2003. Hal 733-781.

16. Deinstrop, Elke-Hahn. *Applied Thin Layer Chromatography*. Wiley-VCH: Jerman. 2007. Hal: 1-7

17. Hajnos MW, Sherma J, Kowalska T. *Thin Layer Chromatography in Phytochemistry*. CRC Press: Boca Raton. 2008. Hal: 5-6.

18. Cooke M dan Poole CF. *Encyclopedia of Separation Science*. Academic Press. USA. 2000. Hal: 2809

19. Leonardus Broto Sugeng Kardono. MDG; *sebentar lagi sanggupkah kita menghapus kemiskinan dunia,* KOMPAS. hal 123

20. Leach AR. *Molecular Modelling, Principle and Applications,* edisi-2. Pearson Edocation EMA. London. 2001

21. Purcell WP. *Quantitative Structure-Activity Relationship.* Bergman ED. Pulman B. Mol Quant Pharm. Reidel Publishing Company. 1974.

22. Nicotra, Francesco. *Synthetic Organic Chemistry.* Organic and Biomolecular Chemistry Vol. 1. EOLSS.2010.

23. Noerdin D. *Elusidasi Struktur Senyawa Organik dengan Spektroskopi Ultarlembayung dan Infaramerah.* Penerbit Angkasa. Bandung. 1986. hal. 91-98.

24. Benny, R. F. *Kimia Material Spektroskopi Infra Merah (FT-IR) dan Sinar Tampak (UV-Vis).* Pascasarjana Universitas Andalas. Padang. 2011. hal. 4, 13

25. Williams, D., Fleming, I. *Spectroscopic Methods In Organic Chemistry Fourth Edition.* Mc Graw-Hill Book Company. 1987.

26. Gritter RJ *et al*. *Pengantar kromatografi.* Terjemahan oleh Kosasih PK. Penerbit ITB. Bandung.1991. hal 64

27. Adnan M. *Teknik Kromatografi untuk Analisis Bahan Makanan*. Penerbit ANDI. Yogyakarta. 1997. hal. 36, 38

28. Wahyuni T. *HPLC Prinsip Dasar dan Peralatan*. Puslitkimia. LIPI. 2003.

29. Mulja M & Suharman. *Analisis Instrumental*. Airlangga University Press. Surabaya. 1995. hal. 236-241

30. Mulja, M. *Aplikasi Spektrofotometer UV-VIS*. Mecphiso. Surabaya. 1990. Hal 3.

31. Bruno, Thomas J. *Handbook of Basic Tables for Chemical Analysis 2nd edition.* CRC Press. United States. 2003. Hal 363-404

32. Sitorus, M. *Spektroskopi Elusidasi Struktur Molekul Organik*. Graha Ilmu. Yogyakarta. 2009. hal.36

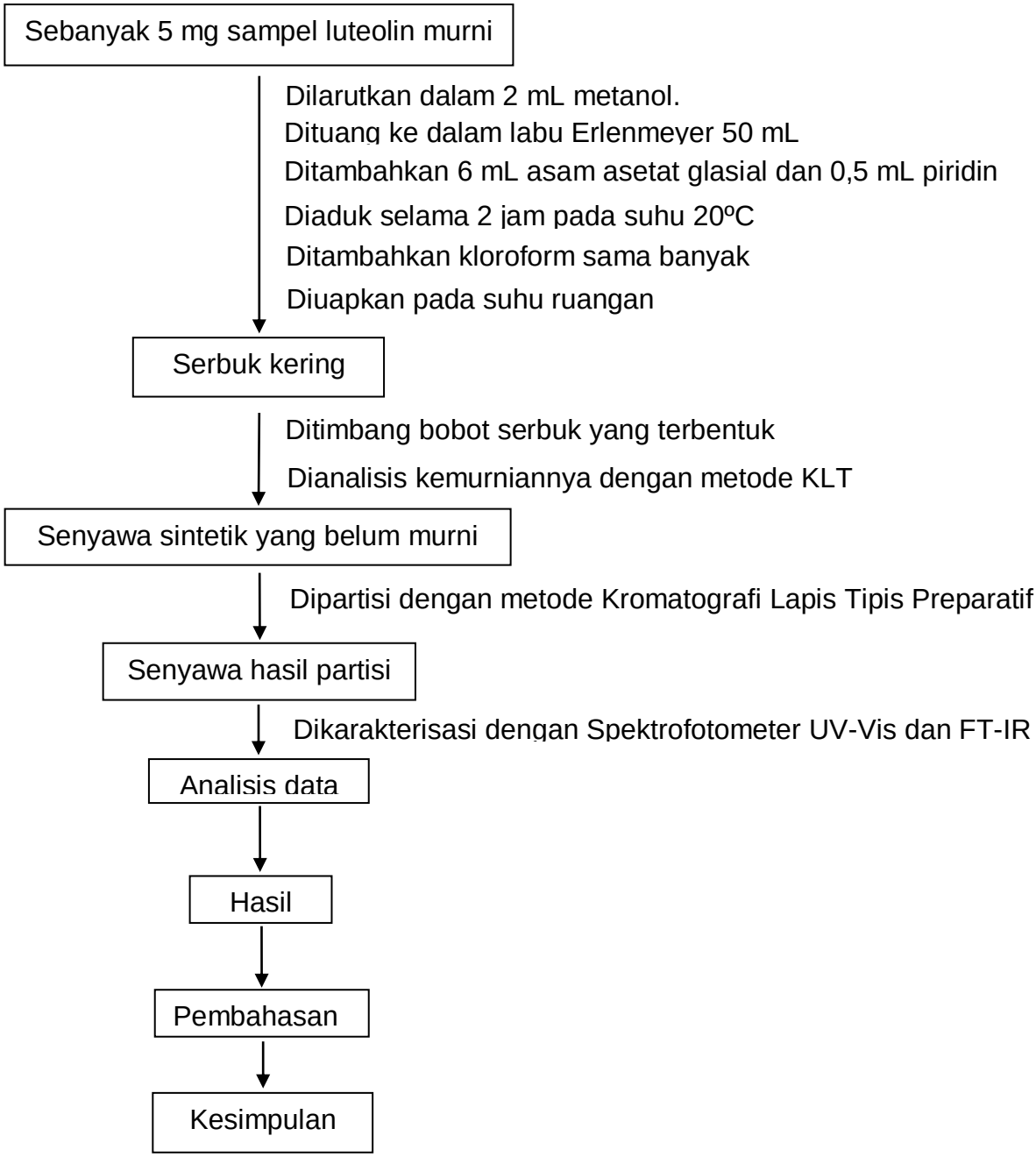
33. Cresne., Clifford J., Olaf A. Runquist., Malcon M. Campbell. *Analisis Spektrum Senyawa Organik*. Penerbit ITB. Bandung. 1982. hal: 85-93.

34. Kealey D. & P.J. Haines. *Instant notes Analytical Chemistry.* BIOS Scientific Publishers Limited ltd. United Kingdom. 2002. Hal 242-247.

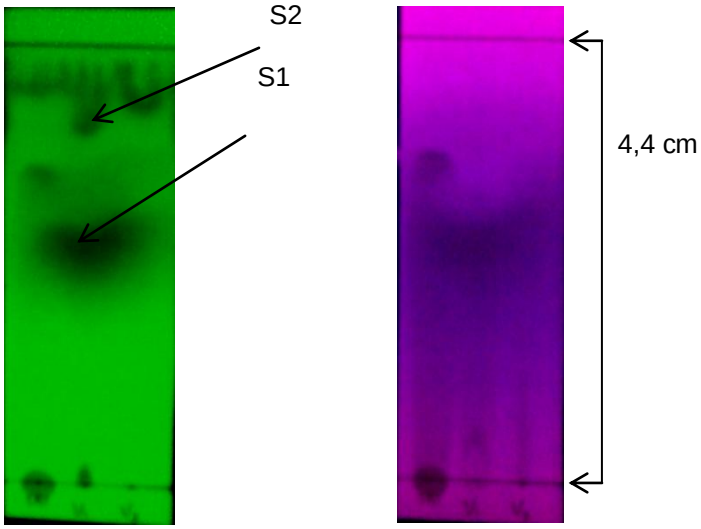
35. Ahmad F., M. S. Hj. Idris, A. M. Adib. *Synthesis and Characterization Some Flavonoids Derivates.* UTM Press. Malaysia. 2006. Hal 9-16.

LAMPIRAN I

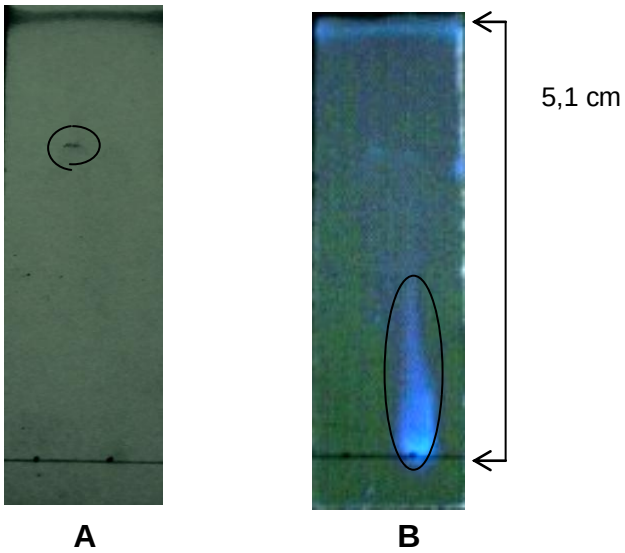
Skema Kerja Sintesis derivat luteolin



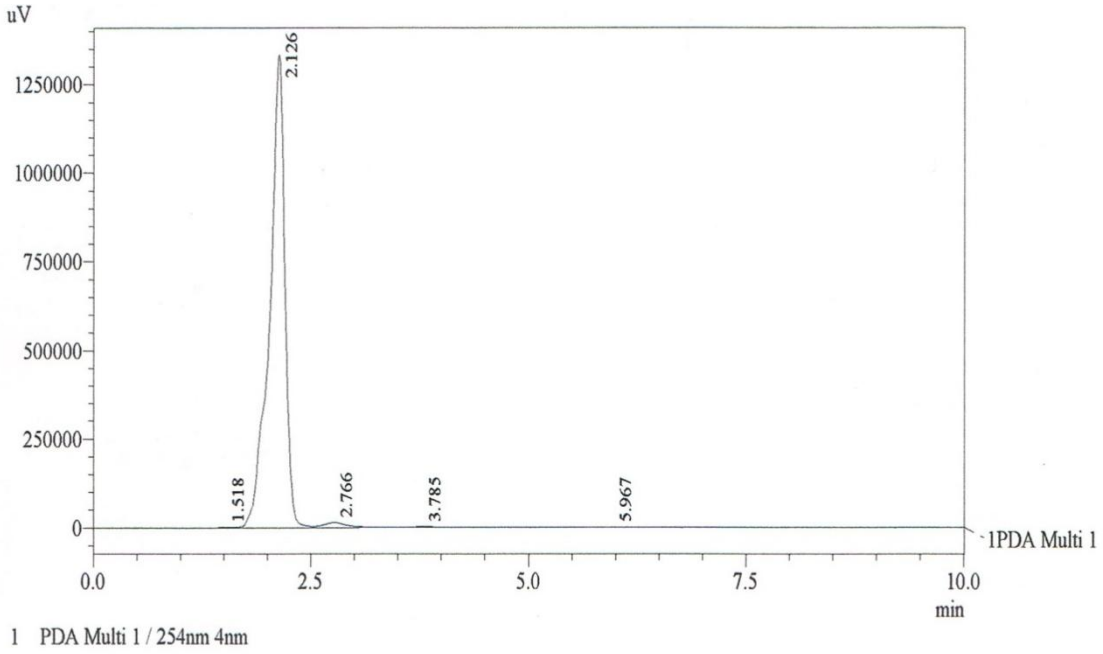
LAMPIRAN II
Gambar danTabel Hasil Penelitian



Gambar 3. Profil Kromatogram Hasil Sintesis Senyawa Derivat Luteolin (Senyawa 3',4'-Diasetil-5,7-Dihidroksiflavon). Fase diam silika gel dan fase gerak heksan-etil asetat (1:3), A : visualisasi dengan UV 254 nm dan B : Visualisasi dengan UV 366 nm. Rf SM=0,72; Rf S1=0,57; Rf S2=0,87



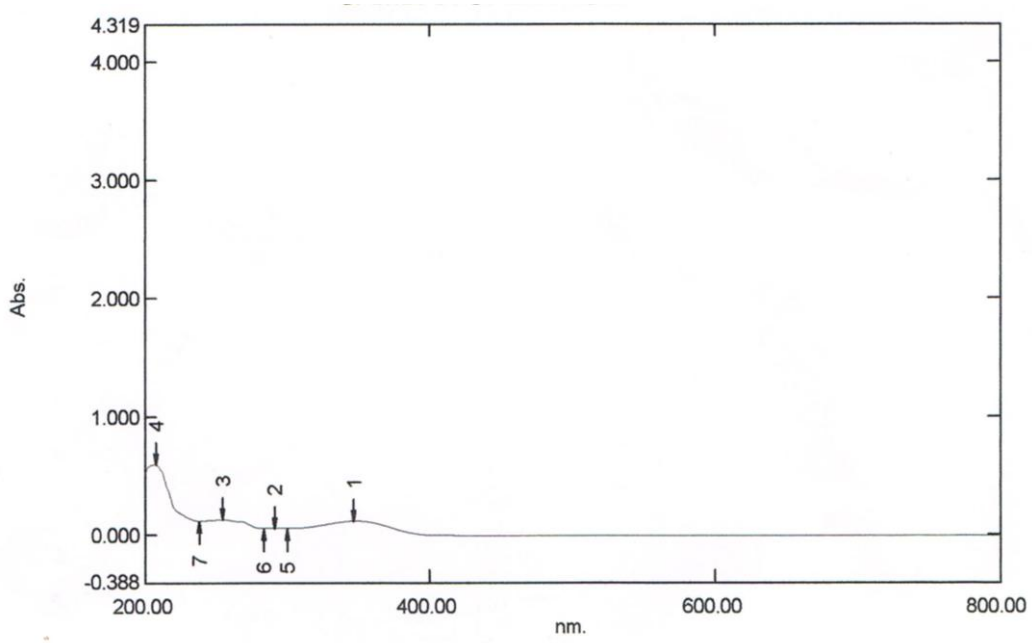
Gambar 4. Profil Kromatogram Hasil Separasi Senyawa Derivat Luteolin (Senyawa 3',4'-Diasetil-5,7-Dihidroksiflavon). Fase diam silika gel dan fase gerak heksan-etilasetat-metanol (3:1:1), A : visualisasi dengan UV 254 nm, B : Visualisasi dengan UV 366 nm.Rf A = 0,7 ; Rf B = 0,14.



Gambar 5. Spektra UFLC Senyawa Hasil Sintesis

ID#	Name	Ret. Time	Area	Height	Conc.
1	RT1.518	1.518	7652	1661	0.000
2	RT2.126	2.126	16267271	1333689	0.000
3	RT2.766	2.766	279754	14848	0.000
4	RT3.785	3.785	46986	2892	0.000
5	RT5.967	5.967	8036	304	0.000

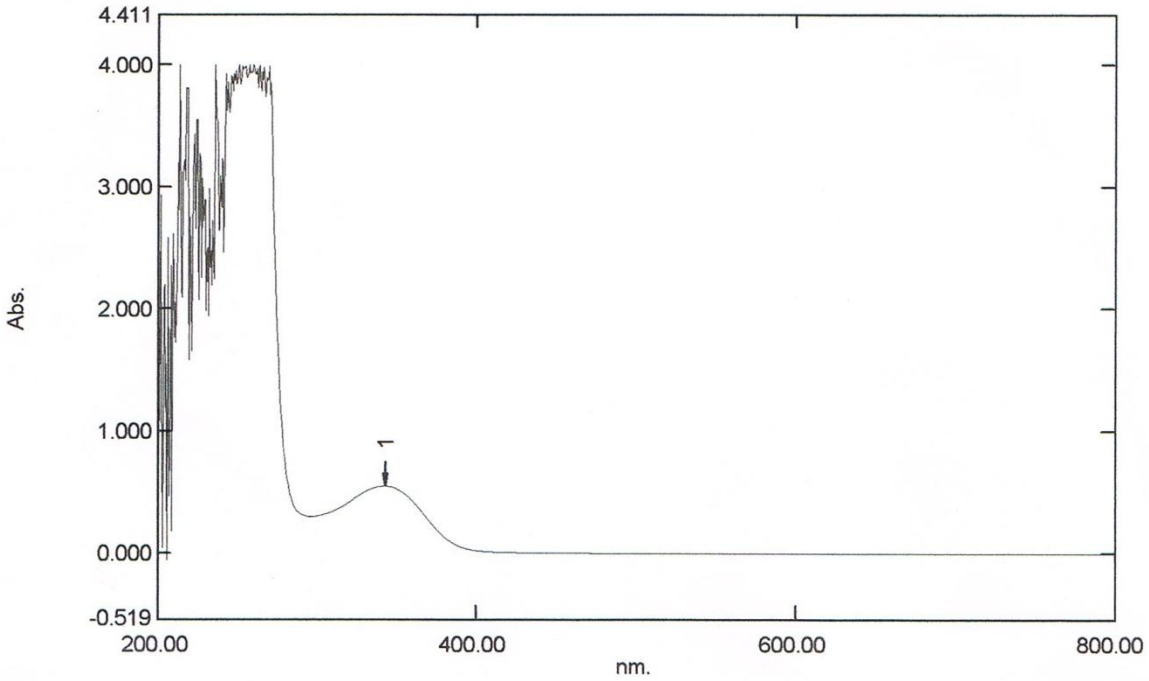
Tabel 5. Data Spektra UFLC Senyawa Hasil Sintesis



Gambar 6. Spektra UV-Vis Luteolin Murni

No.	P/V	Wavelength	Abs.	Description
1	↑	347.00	0.116	
2	↑	291.50	0.057	
3	↑	254.00	0.129	
4	↑	207.00	0.600	
5	↓	299.50	0.055	
6	↓	283.00	0.055	
7	↓	238.50	0.117	

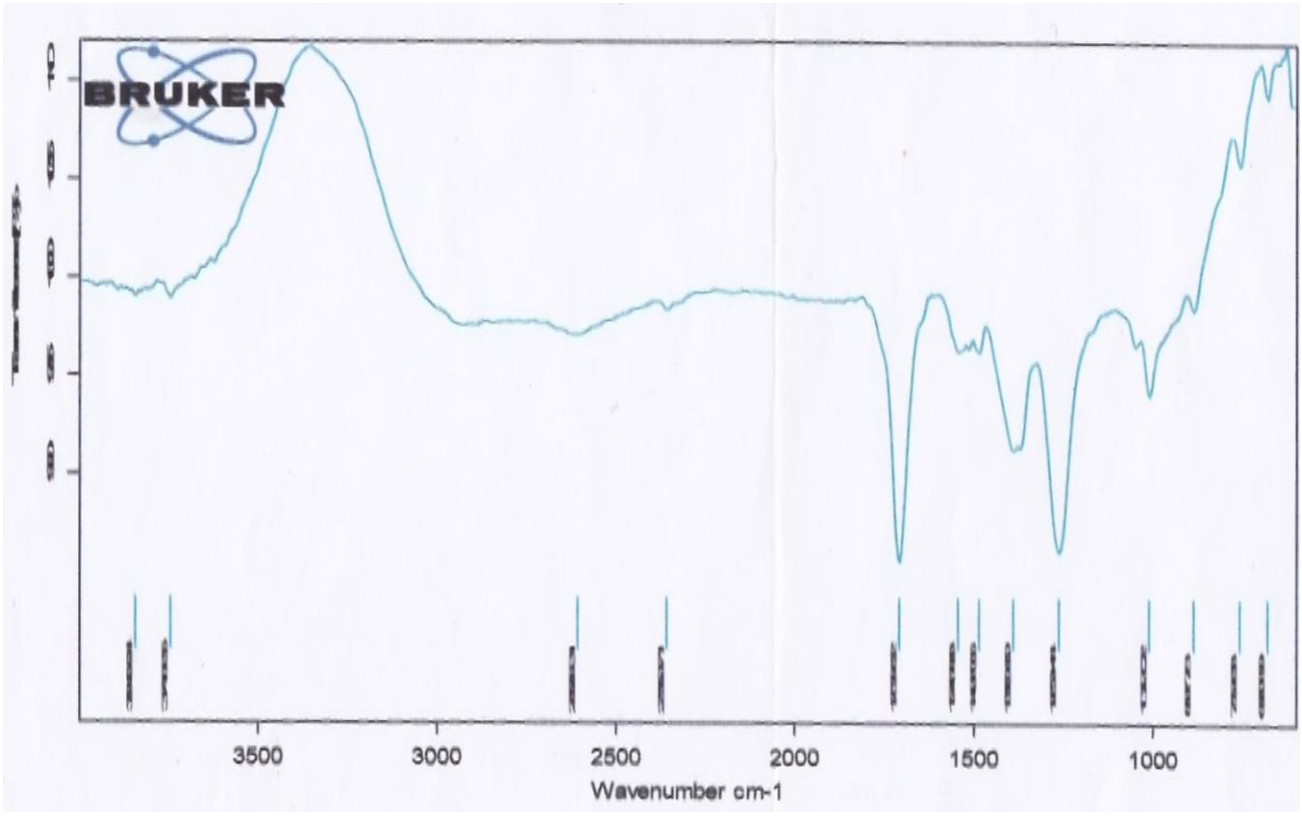
Tabel 6. Data Spektra UV-Vis Luteolin Murni



Gambar 7. Spektra UV-Vis Senyawa Hasil Sintesis

No.	P/V	Wavelength	Abs.	Description
1		342.50	0.554	

Tabel 7. Data Spektra UV-Vis Senyawa Hasil Sintesis



Gambar 8. Spektra FT-IR Senyawa Hasil Sintesis

Bilangan Gelombang (cm^{-1})	Kemungkinan Gugus Fungsi
3844	C-H (siklik)
3746	C-H (siklik)
2608	Dimer –COOH (aromatik)
2360	N-H (tersier)
1710	C=O (karbonil)
1546	C=C (aromatik)
1487	C=C (aromatik)
1391	C-H (metil)
1263	C-O (terkonjugasi)
1012	C-O (terkonjugasi)
888	N-H
759	N-H
681	N-H

Tabel 8. Data Spektra FT-IR Senyawa Hasil Sintesis