

Supplemental Materials

Antioxidant and Cytoprotective Effects of *Tibetan Tea* and its Phenolic Components

Hong Xie ^{1,2,†}, Xican Li ^{1,2,*†}, Zhenxing Ren ^{3,4}, Weimin Qiu ¹, Jianlan Chen ¹, Qian Jiang ^{1,2}, Ban Chen^{1,2} and Dongfeng Chen ^{3,4,*}

¹ School of Chinese Herbal Medicine, Guangzhou University of Chinese Medicine, Guangzhou 510006, China; xiehongxh1@163.com (H.X.); lixican@126.com (X.L.); 657216262@qq.com (W.Q.); 790992174@qq.com (J.C.); jiangqiande920711@163.com (Q.J.); 1002363510@qq.com (B.C.)

² Innovative Research & Development Laboratory of TCM, Guangzhou 510006, China;

³ School of Basic Medical Science, Guangzhou University of Chinese Medicine, Guangzhou 510006, China; 251351061@qq.com (Z.R.)

⁴ The Research Center of Basic Integrative Medicine, Guangzhou University of Chinese Medicine, Guangzhou 510006, China.

*Corresponding author. E-mail: lixican@126.com (X.L.); chen888@gzucm.edu.cn (D.C.). Tel: +86-20-39358076

†Equal contributors



Figure S1: The photo of Tibetan tea (Kangzhuan).

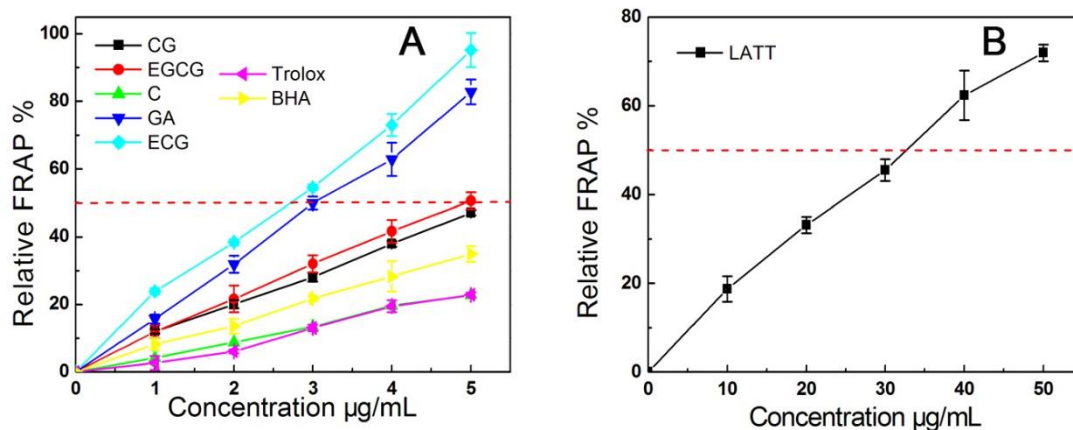


Figure S2 (A) The dose response curves of catechins and Trolox in FRAP assay. (B) The dose response curves of LATT in FRAP assay. Each value is expressed as mean $\pm$ SD ($n = 3$).

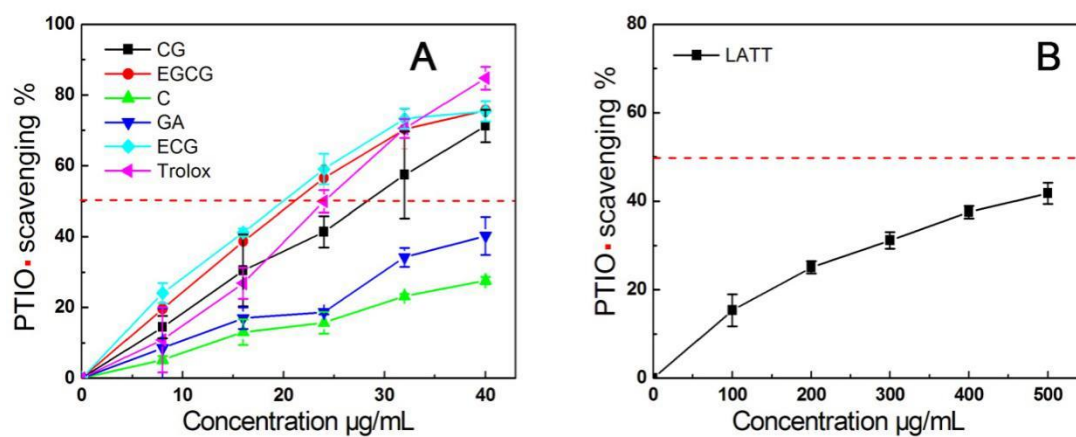


Figure S3. (A) The dose response curves of catechins and Trolox in PTIO• scavenging. (B) The dose response curves of LATT in PTIO• scavenging. Each value is expressed as mean $\pm$ SD ($n = 3$).

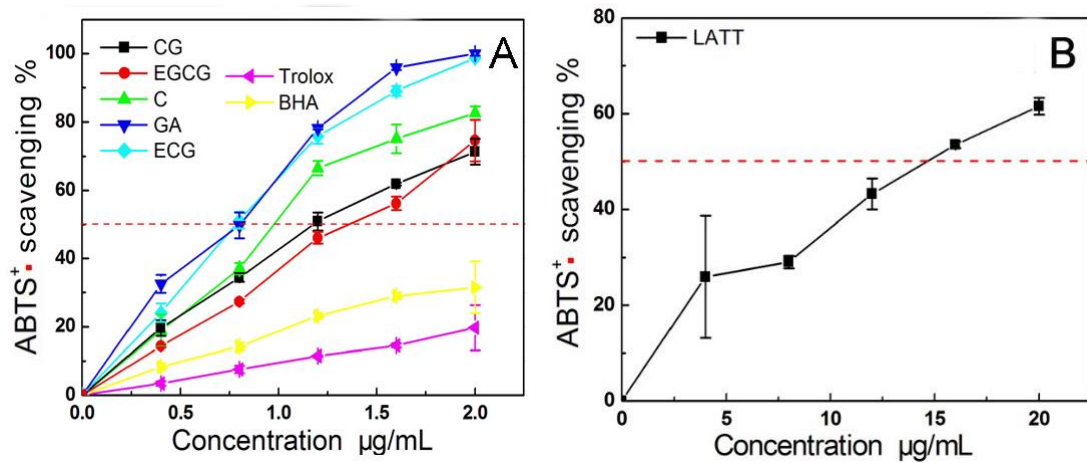


Figure S4. (A) The dose response curves of catechins and Trolox in ABTS⁺• scavenging. (B) The dose response curves of LATT in ABTS⁺• scavenging. Each value is expressed as mean $\pm$ SD ($n = 3$).

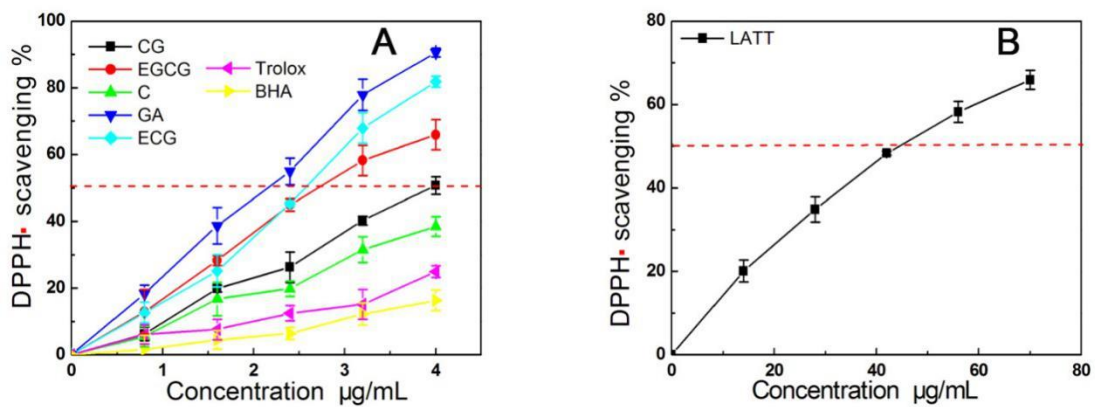


Figure S5. (A) The dose response curves of catechins and Trolox in DPPH• scavenging. (B) The dose response curves of LATT in DPPH• scavenging. Each value is expressed as mean $\pm$ SD ($n = 3$).

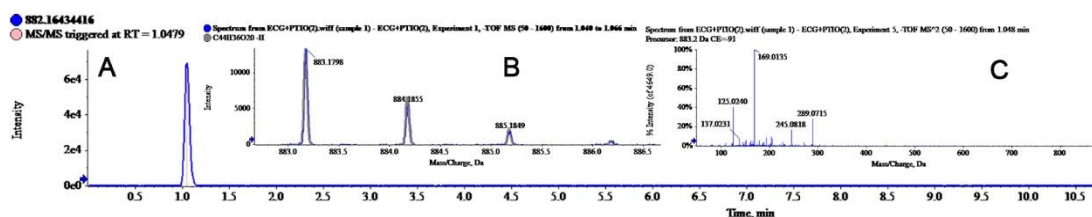


Figure S6. (A) Chromatogram of RAF product of (-)-epigallocatechin gallate-(-)-epigallocatechin gallate when formula $[C_{44}H_{36}O_{20}-H]^-$ was extracted. (B) Primary MS spectra of RAF product of (-)-epigallocatechin gallate-(-)-epigallocatechin gallate. (C) Secondary MS spectra of RAF product of (-)-epigallocatechin gallate-(-)-epigallocatechin gallate.

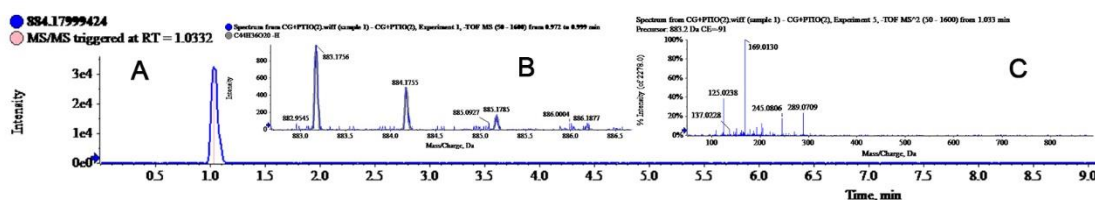


Figure S7. (A) Chromatogram of RAF product of (-)-catechin gallate-(-)-catechin gallate when formula $[C_{44}H_{36}O_{20}-H]^-$ was extracted. (B) Primary MS spectra of RAF product of (-)-catechin gallate-(-)-catechin gallate. (C) Secondary MS spectra of RAF product of (-)-catechin gallate-(-)-catechin gallate.

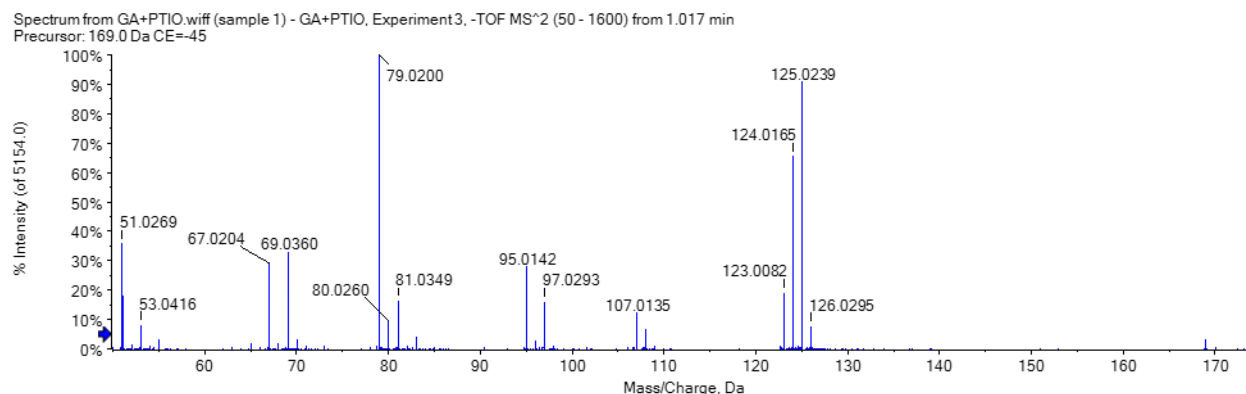


Figure S8. Secondary MS spectra of gallic acid.

Figure S9. Certificates of analysis of gallic acid, (+)-catechin, (-)-catechin gallate (CG), (-)-epicatechin gallate (ECG), and (-)-epigallocatechin gallate (EGCG).

(The subsequent 10 pages)

产品分析证书
Certificate of Analysis

中文名称: 没食子酸

English Name: Gallic acid

别名 (Alias): 3,4,5-Trihydroxybenzoic acid

产品编码 (Cat. No.): BP0608

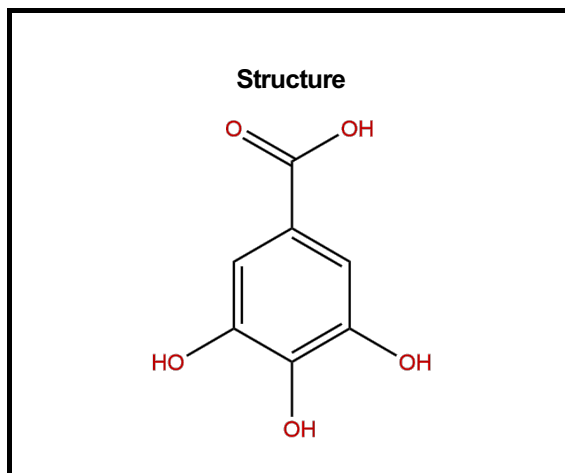
CAS Number: 149-91-7

分子式 (M. F.): C₇H₆O₅

分子量 (M. W.): 170.12

批号 (Batch No.): PRF7091942

报告日期 (Report date): 2016/9/19



检验结果 (Analytical result):

检验项目 (Test Item)	检验指标 (Specifications)	检验结果 (Results)
外观 Appearance	Type of white needle crystal	Type of white needle crystal
干燥失重 Loss on drying	<3.0%	1.31%
纯度 Purity (HPLC-DAD, 270nm)*	≥98.0%	99.96%
质谱 Mass	170.12±1	Conforms
核磁 NMR	Comply with the structure	Conforms

* 色谱图见附件 (Please find HPLC chromatography attached.)

贮存条件 (Storage): 2~8℃

复测期 (Retest date): two years (2018-09-18) under conditions list above.

备注 (Remarks): 如遇质量问题, 请于收到产品之日起 15 日内与我们联系。

In case of quality issue, please contact us within 15 days after receipt of the product.

QC:

Zhang Ling

Date: 2016年9月19日

QA:

Wu Qi

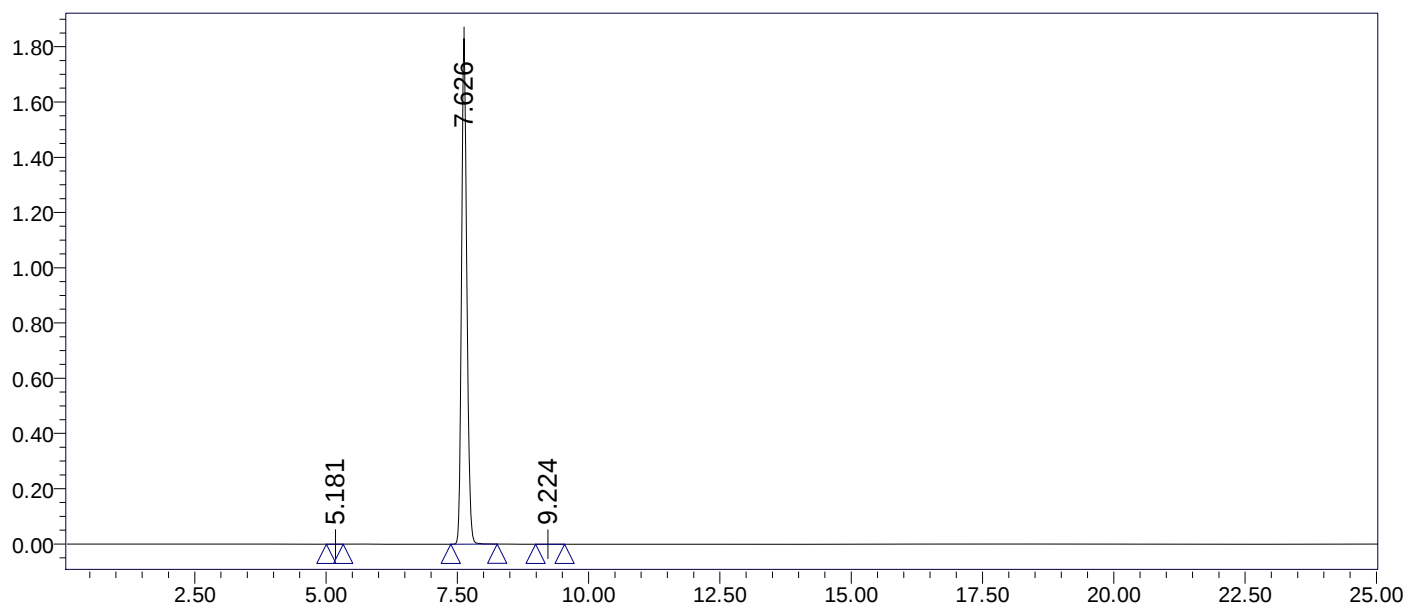
Date: 2016年9月19日



SAMPLE INFORMATION

Sample Name:	Gallic acid PRF7091942	Acquired By:	System
Sample Type:	Unknown	Sample Set Name:	
Vial:	27	Acq. Method Set:	Gallic acid
Injection #:	1	Processing Method:	Samples
Injection Volume:	10.00 ul	Channel Name:	270.0nm
Run Time:	25.0 Minutes	Proc. Chnl. Descr.:	PDA 270.0 nm
Date Acquired:	2016-9-19 10:59:13 CST		
Date Processed:	2016-9-19 12:48:38 CST		

Auto-Scaled Chromatogram



Peak Results

	RT	Area	% Area	USP Plate Count	USP Resolution
1	5.181	2434	0.02	20612.47	
2	7.626	12916674	99.96	26396.43	14.23
3	9.224	2242	0.02	30185.08	7.55

CERTIFICATE OF ANALYSIS

PRODUCT NAME:

(+)-Catechin, analytical standard, $\geq 97\%$

ITEM NUMBER: C114051
LOT NUMBER: B1707017
BRAND: Aladdin
CAS NUMBER: **154-23-4**, 225937-10-0
MDL NUMBER: MFCD00075649
FORMULA: C₁₅H₁₄O₆
FORMULA WEIGHT: 290.27
QUALITY RELEASE DATE: 2017-02-10 13:59:46

TEST	SPECIFICATION MIX. MAX.	VALUE	RESULT
Appearance	orange to brown powder or crystals		Consistent
Proton NMR spectrum	Conforms to Structure		Conforms to Structure
Purity(HPLC)	98 % 100 %	100 %	99.084200 %
Water by Karl Fischer	0 % 1 %	1 %	0.638000 %



Julian
ALADDIN REAGENT
Fengxian, Shanghai, CN

Aladdin warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at www.aladdin-e.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale

VERSION NUMBER: 1



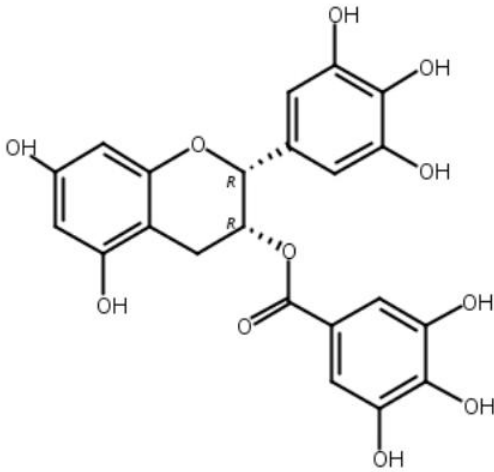
维克奇生物

四川省维克奇生物科技有限公司

Sichuan Weikeqi Biological Technology Co., Ltd.

质检报告

Quality Test Report

产品名称	表没食子儿茶素没食子酸酯				
Product Name	(-)-Epigallocatechin gallate				
数量	12.93g				
Amount	12.93g				
批号	wkq16062503				
Batch Number	wkq16062503				
报告日期	2016.06.25				
Report Date	2016.06.25				
生产日期	2016.06.12				
Manufacture Date	2016.06.12				
分子式	C22H18O11	分子量	458.37	CAS 号	989-51-5
项目		规定		结果	
Characters		Provisions		Results	
性状		白色粉末		符合	
Characteristics		White powder		Complies	
纯度 Purity (HPLC)		≥98%		99.57%	
Analyst:		Checker:		Q.C. director	
检验员:		复核员:		负责人	

中文网站: www.weikeqi-biotech.com

Official Web: http://www.weikeqi-biological.com

邮箱: scwkqzj@scdzp.com

International Mail: scwkqlql@scdzp.com

Tel: 0086-028-81700200

4008005713

Fax: 0086-028-81705658

Office Address: Room 3, 20th floor, Jinsha Lansheng, Middle Qingjiang Road No. 63, Qingyang District, Chengdu, Sichuan.

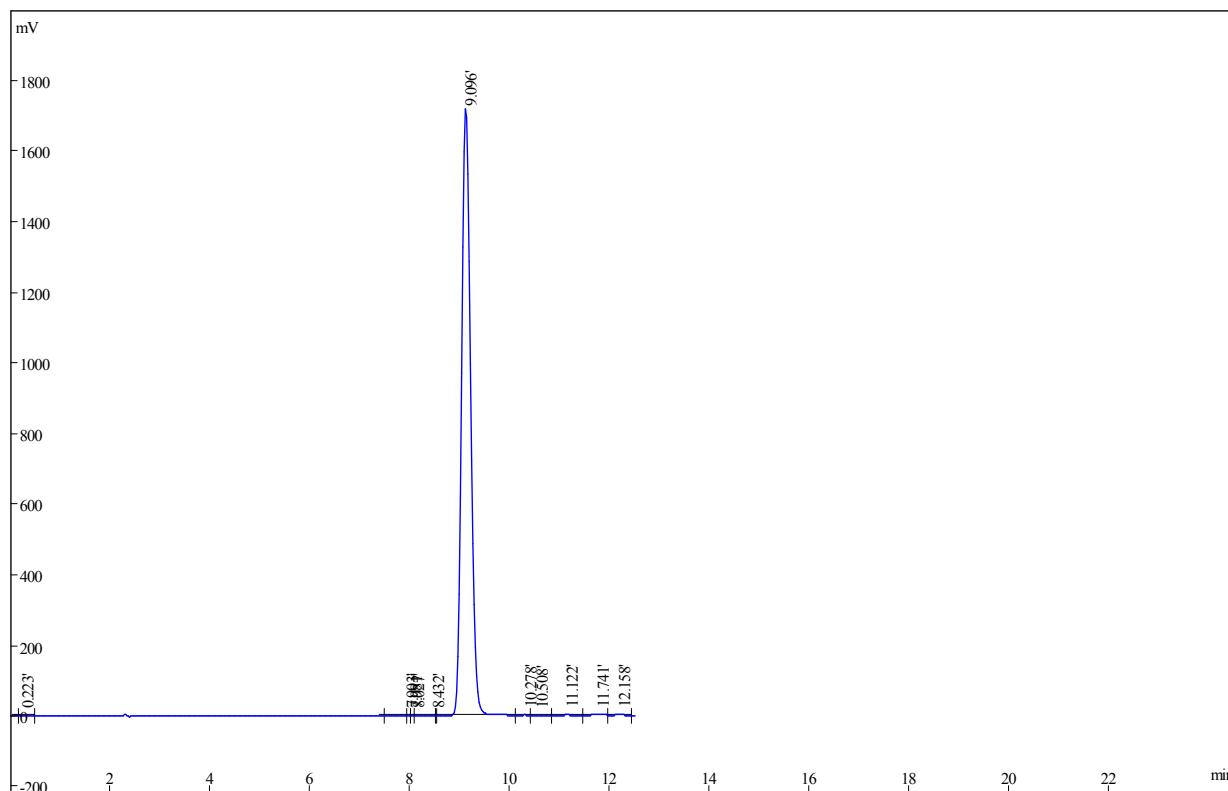
Lab Address: 8th floor, Chengdu Institute of Biology, Chinese Academy of Sciences



四川省维克奇生物科技有限公司

Sichuan Weikeqi Biological Technology Co., Ltd.

表没食子儿茶素没食子酸酯液相图谱



序号	保留时间	名称	浓度	峰面积
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1	0.223		0.0005411	117
2	7.903		0.002319	503
3	7.981		0.0006399	139
4	8.027		0.0002648	57
5	8.432		0.002173	471
6	9.096		99.57	21602987
7	10.278		0.08244	17887
8	10.508		0.07987	17329
9	11.122		0.08403	18231
10	11.741		0.1459	31667
11	12.158		0.03859	8373

总计			100	21697761
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中文网站: www.weikeqi-biotech.com

Official Web: <http://www.weikeqi-biological.com>

邮箱: scwkqzj@scdzp.com

International Mail: scwkqlql@scdzp.com

Tel: 0086-028-81700200

4008005713

Fax: 0086-028-81705658

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维克奇生物

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Lab Address: 8th floor, Chengdu Institute of Biology, Chinese Academy of Sciences

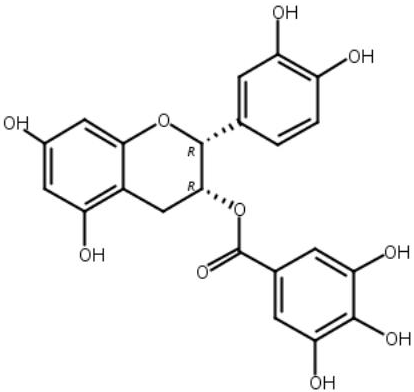


四川省维克奇生物科技有限公司

Sichuan Weikeqi Biological Technology Co., Ltd.

质检报告

Quality Test Report

产品名称	表儿茶素没食子酸酯				
Product Name	(-)-Epicatechin gallate				
数量	12.25g				
Amount	12.25g				
批号	wkq16071505				
Batch Number	wkq16071505				
报告日期	2016. 07. 15				
Report Date	2016. 07. 15				
生产日期	2016. 07. 02				
Manufacture Date	2016. 07. 02				
分子式	C22H18O10	分子量	442. 37	CAS 号	1257-08-5
项目		规定		结果	
Characters		Provisions		Results	
性状		白色粉末		符合	
Characteristics		White powder		Complies	
纯度 Purity (HPLC)		≥98%		98. 06%	
Analyst:		Checker:		Q. C. director	
检验员:		复核员:		负责人	

中文网站: www.weikeqi-biotech.comOfficial Web: <http://www.weikeqi-biological.com>邮箱: scwkqzj@scdzp.comInternational Mail: scwkqlql@scdzp.com

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Office Address: Room 3, 20th floor, Jinsha Lansheng, Middle Qingjiang Road No. 63, Qingyang District, Chengdu, Sichuan.

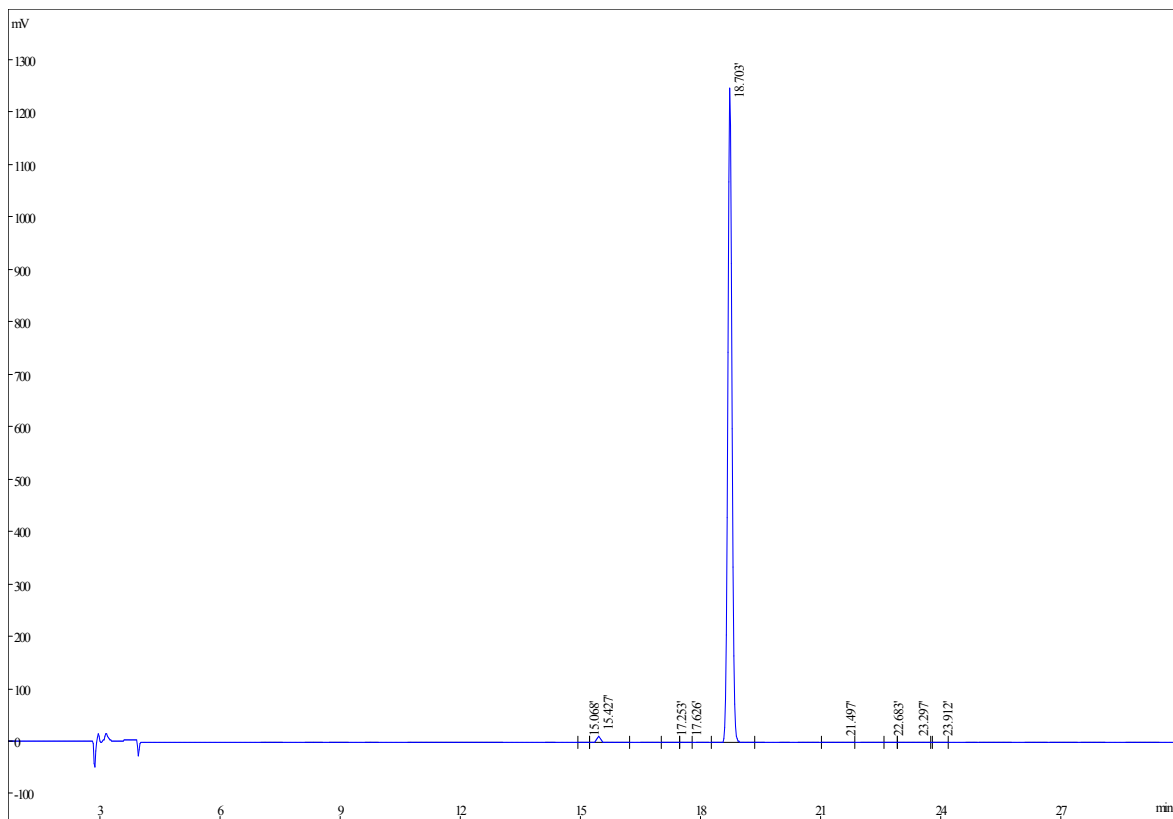
Lab Address: 8th floor, Chengdu Institute of Biology, Chinese Academy of Sciences



四川省维克奇生物科技有限公司

Sichuan Weikeqi Biological Technology Co., Ltd.

表儿茶素没食子酸酯液相图谱



序号	保留时间	浓度	峰面积	峰高	理论塔板数	有效塔板数	峰拖尾因子
1	15.068	0.1815	16607	2581	127965	0	1.12
2	15.427	1.27	116196	12883	68265	37	1.88
3	17.253	0.0593	5425	429	43426	697	1.18
4	17.626	0.1666	15246	2217	153300	3230	0.98
5	18.703	98.06	8971982	1267076	162789	6149	1.05
6	21.497	0.12	10978	915	74912	6701	2.17
7	22.683	0.03452	3158	466	261474	29475	1.23
8	23.297	0.04846	4433	229	33795	4217	0.62
9	23.912	0.05533	5062	679	240094	32845	0.93
总计		100	9149087	1287475			

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Official Web: <http://www.weikeqi-biological.com>

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International Mail: scwkqlql@scdzp.com

Tel: 0086-028-81700200

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Fax: 0086-028-81705658

Office Address: Room 3, 20th floor, Jinsha Lansheng, Middle Qingjiang Road No. 63, Qingyang District, Chengdu, Sichuan.

Lab Address: 8th floor, Chengdu Institute of Biology, Chinese Academy of Sciences

产品分析证书
Certificate of Analysis

中文名称: 儿茶素没食子酸酯

English Name: Catechin gallate

别名 (Alias): (-)-Catechin gallate

产品编码 (Cat. No.): BP0323

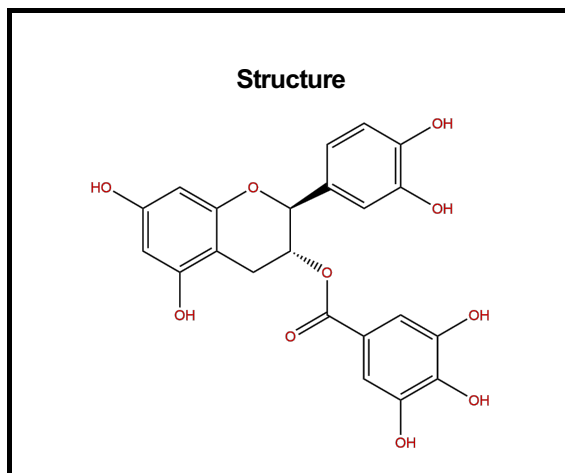
CAS Number: 130405-40-2

分子式 (M. F.): C₂₂H₁₈O₁₀

分子量 (M. W.): 442.376

批号 (Batch No.): PRF7080501

报告日期 (Report date): 2016/8/5



检验结果 (Analytical result):

检验项目 (Test Item)	检验指标 (Specifications)	检验结果 (Results)
外观 Appearance	Rice yellow powder	Rice yellow powder
干燥失重 Loss on drying	<3.0%	1.6%
纯度 Purity (HPLC-DAD, 275nm)*	≥98.0%	98.45%
质谱 Mass	442.376±1	Conforms
核磁 NMR	Comply with the structure	Conforms

* 色谱图见附件 (Please find HPLC chromatography attached.)

贮存条件 (Storage): 2~8°C

复测期 (Retest date): two years (2018-08-04) under conditions list above.

备注 (Remarks): 如遇质量问题, 请于收到产品之日起 15 日内与我们联系。

In case of quality issue, please contact us within 15 days after receipt of the product.

QC: Zhang Ling

Date: 2016年8月5日



QA: Wu Qi

Date: 2016年8月5日

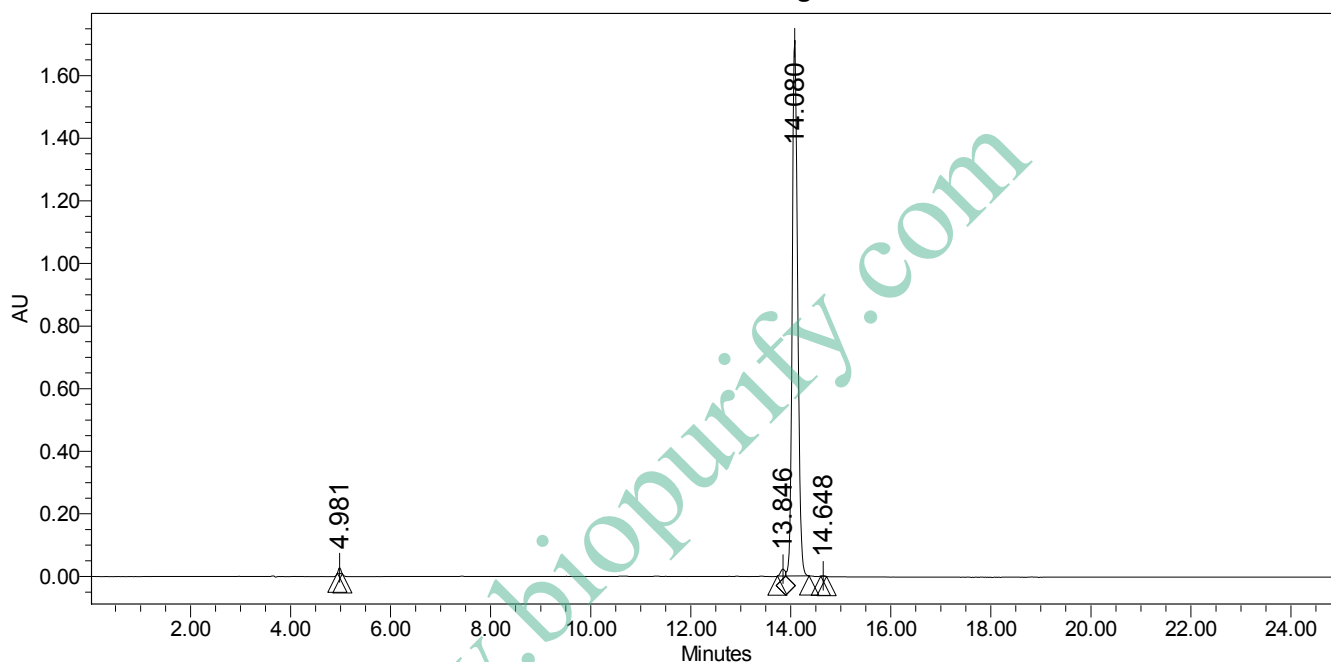
Tel: +86-28-82633987 Fax: +86-28-82633165

http://www.biopurify.com Email: sales@biopurify.com biopurify@gmail.com

SAMPLE INFORMATION

Sample Name:	CG PRF7080501	Acquired By:	System
Sample Type:	Unknown	Sample Set Name:	
Vial:	64	Acq. Method Set:	CG
Injection #:	1	Processing Method:	Samples
Injection Volume:	10.00 ul	Channel Name:	275.0nm
Run Time:	25.0 Minutes	Proc. Chnl. Descr.:	PDA 275.0 nm
Date Acquired:	2016-8-5 12:19:40 CST		
Date Processed:	2016-8-5 13:01:33 CST		

Auto-Scaled Chromatogram



Peak Results

	Name	RT	Area	% Area	USP Plate Count	USP Resolution
1		4.981	63900	0.49	39606.30	
2		13.846	133607	1.02		89.20
3		14.080	12946053	98.45	78783.73	1.55
4		14.648	6083	0.05	202606.32	3.48



Figure S10: The appearance of the lyophilized aqueous extract of Tibetan tea (LATT).