

0030 - Green Tea for Catechins by HPLC

Botanical Name: *Camellia sinensis*

Common Names: Tea plant, Tea tree, Tea shrub

Plant Description:

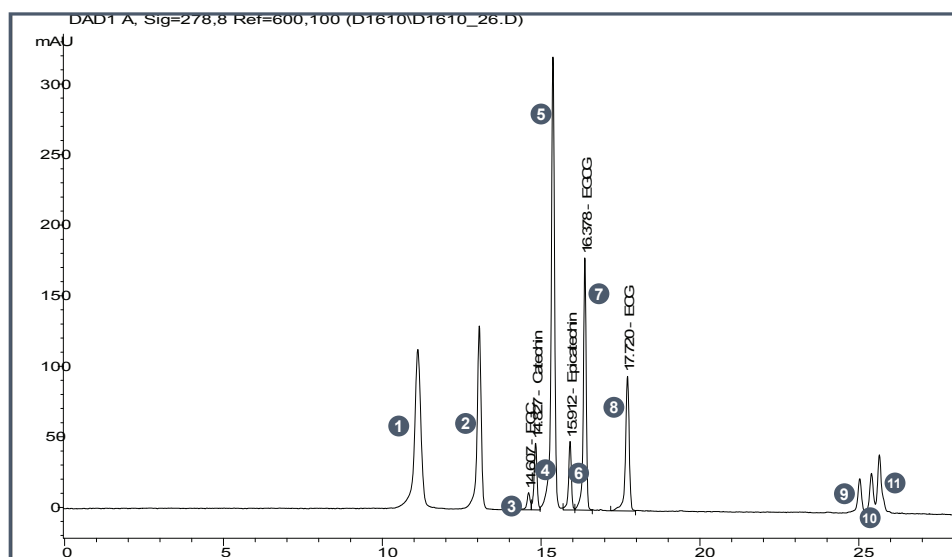
Camellia sinensis is native to mainland China, South and Southeast Asia, but is now cultivated throughout the world in tropical or subtropical regions. Plants can grow as high as 17m but are typically trimmed below 2m for harvesting. This plant has bright shiny leaves that are harvested throughout the year and processed for tea production. The flowers are yellow-white and occur singly or in clusters of 2 to 4. Fruits are brownish-green containing seeds that will produce new plants if planted.



Therapeutic Use Overview:

The therapeutic effects of green tea have been examined for well over 4000 years. Infusions of *Camellia sinensis* have been widely consumed throughout the ages, with a myriad of health benefits claims. A tea leaf, when freshly picked, are composed of nearly 30% catechins. These catechins, as antioxidants, have been shown to boost mental alertness (also contributed to caffeine present in tea), as well as help soothe symptoms of inflammatory bowel disease and increase metabolic rate.

Representative HPLC Analysis: Mixed Standard Solution



Analytes:

- 1 Theobromine, 2 Theophylline, 3 Epigallocatechin (EGC), 4 Caffeine, 5 Catechin, 6 Epicatehin,
- 7 Epigallocatechin Gallate (EGCG), 8 Epicatechin Gallate (ECG), 9 Theaflavine, 10 Theaflavine-3-Gallate,
- 11 Theaflavine-3,3'-di Gallate

Instrument Parameters

Column: ES Industries FluoroSep-RP Phenyl-Hexyl, 150 x 4.6 mm, 5 µm

Detection: UV-Vis @278 nm

Flow Rate: 1.0 mL/min

Injection Volume: 10 µL

Temperature: 25°C

Mobile Phase A: H₂O:ACN:MeOH:H₃PO₄ (97:2:1:0.1)

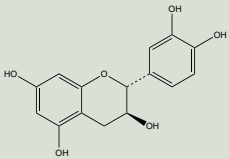
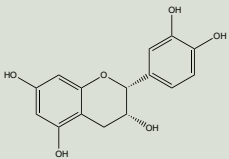
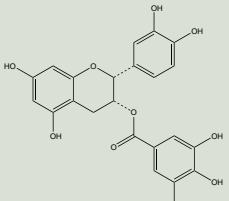
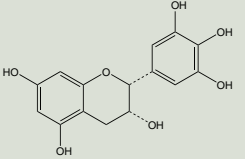
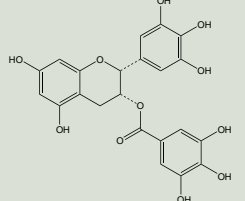
Mobile Phase B: Acetonitrile

Mobile Phase C: Methanol

Gradient Program

Time (min)	%A	%B	%C
0	100	0	0
8	90	0	10
14	70	15	15
20	70	20	10
25	60	35	5
32	45	45	10
35	100	0	0
38	100	0	0

Phytochemical Reference Standards

Product Description And Details	Product ID	Qty
 <p>CATECHIN, (+)- Grade: AHP CAS#: [154-23-4] Chemical Formula: $C_{15}H_{14}O_6$ FW: 290.27</p>	ASB-00003310-001 ASB-00003310-010 ASB-00003310-025	1mg 10mg 25mg
 <p>EPICATECHIN, (-)- Grade: AHP CAS#: [490-46-0] Chemical Formula: $C_{15}H_{14}O_6$ FW: 290.27</p>	ASB-00005125-001 ASB-00005125-005 ASB-00005125-010 ASB-00005125-025 ASB-00005125-050	1mg 5mg 10mg 25mg 50mg
 <p>EPICATECHIN GALLATE, (-)- Grade: P CAS#: [1257-08-5] Chemical Formula: $C_{22}H_{18}O_{10}$ FW: 442.37</p>	ASB-00005135-005 ASB-00005135-010 ASB-00005135-025 ASB-00005135-050	5mg 10mg 25mg 50mg
 <p>EPIGALLOCATECHIN, (-)- Grade: P CAS#: [970-74-1] Chemical Formula: $C_{15}H_{14}O_7$ FW: 306.28</p>	ASB-00005145-005 ASB-00005145-010 ASB-00005145-025 ASB-00005145-050	5mg 10mg 25mg 50mg
 <p>EPIGALLOCATECHIN GALLATE, (-)- Grade: P CAS#: [989-51-5] Chemical Formula: $C_{22}H_{18}O_{11}$ FW: 458.37</p>	ASB-00005150-005 ASB-00005150-010 ASB-00005150-025 ASB-00005150-050	5mg 10mg 25mg 50mg

Reference Standard Kits

Product Name	Contents	Product ID	Qty
GREEN TEA CATECHIN HPLC KIT W/ GRD COL	CATECHIN, (+)-(AHP) EPICATECHIN GALLATE, (-)-(P) EPICATECHIN, (-)-(AHP) EPIGALLOCATECHIN GALLATE, (-)-(P) EPIGALLOCATECHIN, (-)-(P) Luna 5u Phenyl-Hexyl 250x4.6 SECURITY GUARD CARTRIDGE KIT SECURITY GUARD CARTRIDGES PHENYL 4.0X3.0	KIT-00003285-1HK	1 kit
GREEN TEA CATECHIN HPLC KIT	CATECHIN, (+)-(AHP) EPICATECHIN GALLATE, (-)-(P) EPICATECHIN, (-)-(AHP) EPIGALLOCATECHIN GALLATE, (-)-(P) EPIGALLOCATECHIN, (-)-(P) LUNA 5U PHENYL-HEXYL 250X4.6	KIT-00003285-OHK	1 kit
GREEN TEA CATECHIN STANDARDS KIT	CATECHIN, (+)-(AHP) EPICATECHIN GALLATE, (-)-(P) EPICATECHIN, (-)-(AHP) EPIGALLOCATECHIN GALLATE, (-)-(P) EPIGALLOCATECHIN, (-)-(P)	KIT-00003286-010 KIT-00003286-025	5 X 10mg vials

Botanical Reference Materials

Product Description	Grade	Product ID	Qty
GREEN TEA (CAMELLIA SINENSIS) LEAF	VBRM	ASB-00030330-005	5g
GREEN TEA (CAMELLIA SINENSIS) LEAF	XRM	ASB-00030331-005	5g
GREEN TEA (CAMELLIA SINENSIS) LEAF [WHOLE/CUT]	VBRM	ASB-00031211-500	5g

Additional Related Compounds

Product Description And Details	Product ID	Qty
CAFFEIC ACID Grade: AHP CAS#: [331-39-5] Chemical Formula: $C_9H_8O_4$ FW: 180.16	ASB-00003024-005 ASB-00003024-010 ASB-00003024-025 ASB-00003024-100	5mg 10mg 25mg 100mg
CAFFEINE(USP) Grade: P CAS#: [58-08-2] Chemical Formula: $C_8H_{10}N_4O_2$ FW: 194.19	ASB-00003032-001 ASB-00003032-010 ASB-00003032-100 ASB-00003032-200	1g 10mg 100mg 200mg
CHLOROGENIC ACID Grade: AHP CAS#: [327-97-9] Chemical Formula: $C_{16}H_{18}O_9$ FW: 354.31	ASB-00003450-005 ASB-00003450-010 ASB-00003450-025 ASB-00003450-050	5mg 10mg 25mg 50mg
COUMARIC ACID, TRANS-P- Grade: RG CAS#: [501-98-4] Chemical Formula: $C_9H_8O_3$ FW: 164.16	ASB-00003838-001	1g
GALLIC ACID Grade: P CAS#: [149-91-7] Chemical Formula: $C_7H_6O_5$ FW: 170.12	ASB-00007040-001 ASB-00007040-010 ASB-00007040-100	1g 10mg 100mg
GALLOCATECHIN GALLATE, (-)- Grade: P CAS#: [4233-96-9] Chemical Formula: $C_{22}H_{18}O_{11}$ FW: 458.37	ASB-00007045-005	5mg
THEANINE, L- Grade: RG CAS#: [3081-61-6] Chemical Formula: $C_7H_{14}N_2O_3$ FW: 174.2	ASB-00020250-010 ASB-00020250-025 ASB-00020250-100	10mg 25mg 100mg