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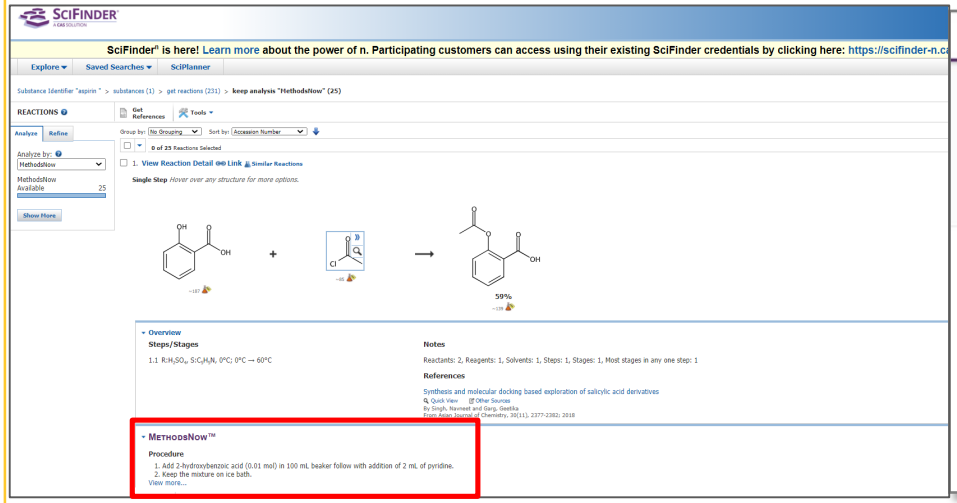

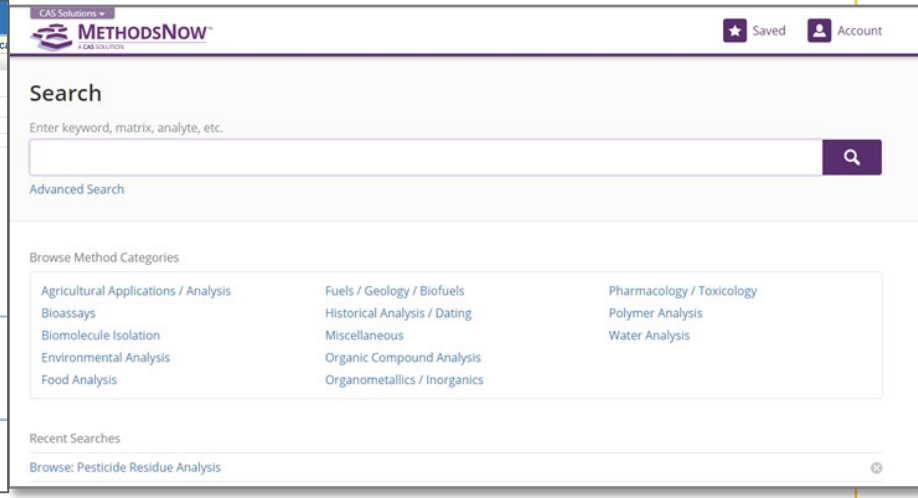

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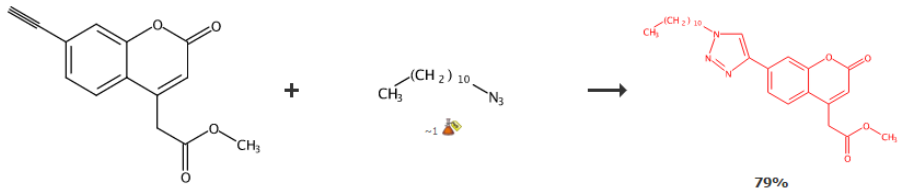

REACTIONS

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Analyze by:

Reagent

- Author Name
- Catalyst
- Company-Organization
- Document Type
- Experimental Procedure
- Journal Name
- Language
- MethodsNow
- Number of Steps
- Product Yield
- Publication Year
- Reagent
- Solvent

Overview

Steps/Stages

1.1 R:Et_3N, C:Na ascorbate, C:$CuSO_4$, S:H_2O, S:t-BuOH, 4 h, rt

Notes

Huisgen [3+2] cycloaddition reaction, regioselective, Reactants: 2, Reagents: 1, Catalysts: 2, Solvents: 2, Steps: 1, Stages: 1, Most stages in any one step: 1

References

7-Triazolylcoumarin-based fluorescent tag system for stepwise, comparative assessment of small molecule microarrays

Quick View Other Sources

By Jeon, Moon-Kook et al

METHODSNOW™

Procedure

1. Stir the mixture of 7-ethynyl-4-methox- ycarbonylmethyl-2H-chromen-2-one (400 mg, 1.65 mmol), 1- azidoundecane (358 mg, 1.82 mmol), copper(II) sulfate pentahydrate (42 mg, 0.17 mmol), (+)-sodium L-ascorbate (360 mg, 1.82 mmol) in t-BuOH/water (15 mL/15 mL) at room temperature for 4 hours.
2. Add water to the mixture.

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Available Experimental Data

^{1}H NMR, ^{13}C NMR, IR, HRMS, Mass Spec, MP

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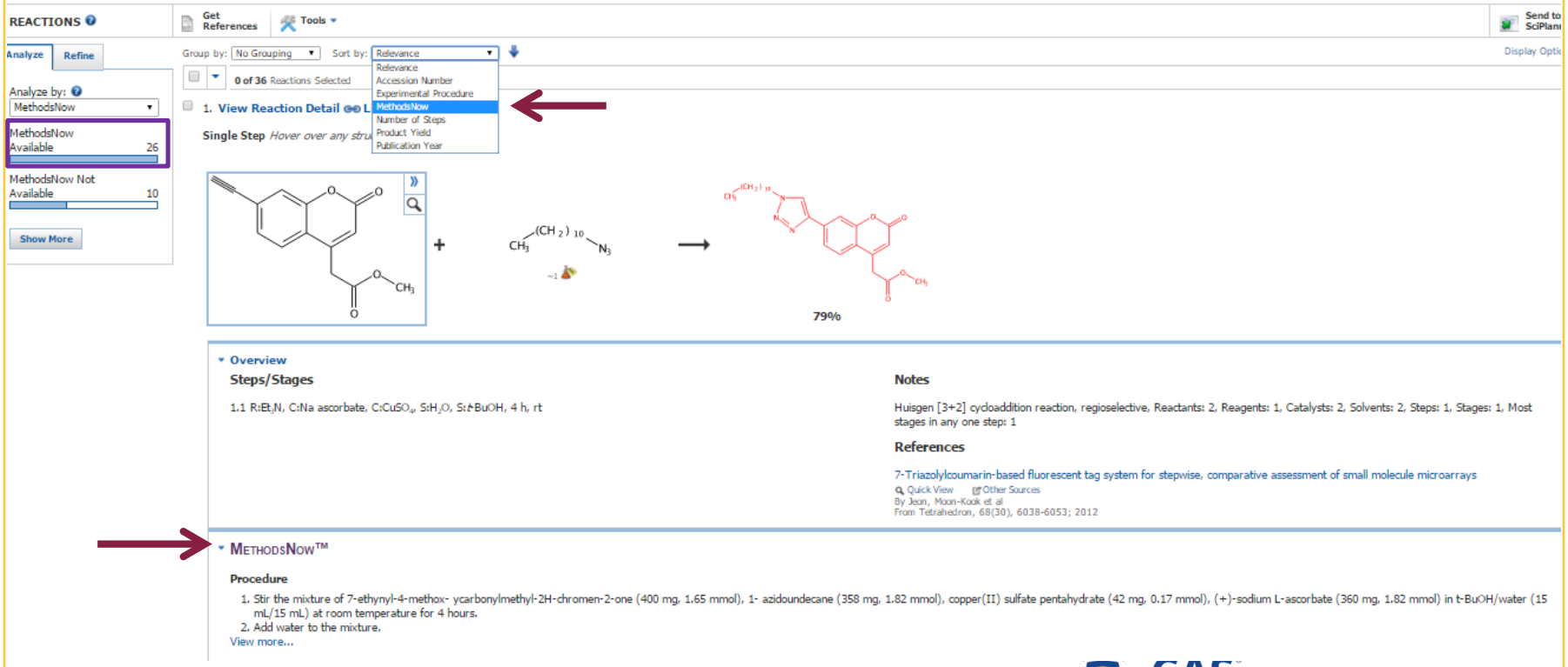

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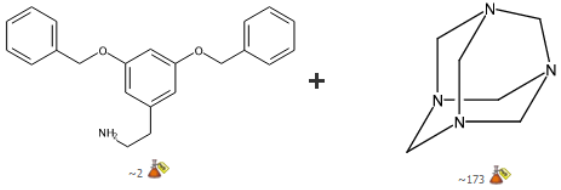
Asymmetric formal synthesis of schulzeines A and C

By Jang, Jaebong; Jung, Jong-Wha; Ahn, Jaeseung; Sim, Jaehoon; Chang, Dong-Jo; Kim, Dae-Duk; Suh, Young-G...
From Organic & Biomolecular Chemistry, 10(27), 5202-5204; 2012
Published by Royal Society of Chemistry

Reaction Steps 1 2 3 4 5 6 7 8 9 10 11

多步反应



Products	Isoquinoline, 3,4-dihydro-6,8-bis(phenylmethoxy)-, 95%, CAS RN: 1384461-35-1
Reactants	Benzeneethanamine, 3,5-bis(phenylmethoxy)-, CAS RN: 188662-05-7 Hexamethylenetetramine, CAS RN: 100-97-0
Solvents	Trifluoroacetic acid, CAS RN: 76-05-1 Acetic acid, CAS RN: 64-19-7
Procedure	1. Add hexamethylenetetramine (3.1 g, 22.1 mmol) to the mixture of 2-(3,5-bis(benzyloxy)phenyl)ethylamine (2.0 g, 11.0 mmol), AcOH (12 mL) and TFA (3 mL) under argon 2. Stir the mixture for 3hours at 90ÉC. 3. Dilute the reaction mixture with H_2O. 4. Basify with potassium carbonate and extract with CH_2Cl_2. 5. Wash the combined organic layers with brine. 6. Dry over $MgSO_4$ and concentrate in vacuo. 7. Purify the residue by column chromatography on silica gel (5 to 10% EtOAc in hexane) to obtain 6,8-bis(benzyloxy)-3,4-dihydroisoquinoline.
Scale	gram
^{1}H NMR	($CDCl_3$, 400 MHz) δ 8.69 (s, 1H), 7.43 - 7.29 (m, 10H), 6.45 (d, *J* = 1.88 Hz, 2H), 6.36 (s, 1H), 5.05 (s, 2H), 5.04 (s, 2H), 3.67 (t, 2H), 2.65 (t, 2H)
^{13}C NMR	($CDCl_3$, 100 MHz) δ 161.9, 157.7, 155.2, 140.0, 136.3, 128.6, 128.5, 128.1, 128.0, 127.4, 127.1, 111.9, 105.3, 98.5, 70.1, 46.5, 26.0
IR	(thin film, neat) ν_{max} 3062, 3032, 2935, 1736, 1620, 1603, 1575, 1497, 1442, 1377, 1351, 1309 cm^{-1}
HRMS	(FAB+) calcd for $C_{23}H_{22}NO_2$ ($M+H^+$) 344.1651; found 344.1658
Mass Spec	(FAB+) *m/z* 344 ($M+H^+$)
State	yellow solid
CAS Method Number	3-614-CAS-200055

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物质信息

实验过程

图谱信息

保存/导出方法

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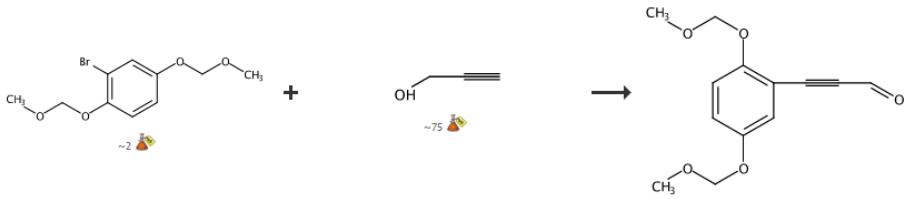
6. View Reaction Detail Link

2 Steps *Hover over any structure for more options.*



- Experimental Procedure: 我们可以做得更好
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Experimental Procedure

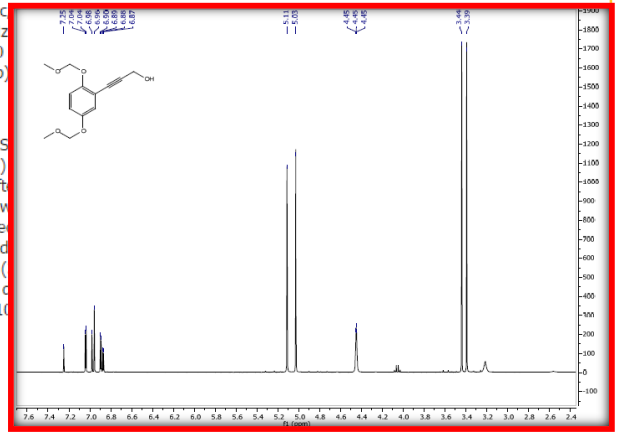
NATURAL PRODUCTS

Step 1

General Procedure for the Sonogashira Coupling.[8,10,11] Compounds **6a** [31] and **16** [8] were synthesized according to literature procedures. Aryl halide **6a** or **16** (9.21 mmol) in n-butylamine (6.4 mL) was placed in a flame-dried round-bottomed flask under an argon atmosphere. A mixture of terminal alkynes **7**, **25**, **26**, or **27** (9.21 mmol) in n-butylamine (10 mL) and $Pd(Ph_3)_4$ (5% or 3%) was added, with the optional addition of CuI (3%) where appropriate. The mixture was heated for 21 h at 98 °C and poured into H_2O (80 mL). The product was extracted with EtOAc (3 × 80 mL). The combined organic layers were washed with brine, dried over anhydrous Na_2SO_4, and evaporated under reduced pressure. The crude product was purified by silica gel column chromatography (EtOAc *[2,5-Bis(methoxymethoxy)phenyl]prop-2-yn-1-ol*[F2] ***(8)***. Yield 96%; colorless oil. IR (KBr) ν_{max} 3310, 2230 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz 3.51 (3H, s, H-1b), 4.51 (2H, s, H-1a), 5.09 (2H, s, H-4a), 5.17 (2H, s, H-1a), 6.95 (1H, dd, *J* = 9 and 3.0 Hz, H-5), 7.03 (1H, d, *J* = 9.0 3.0 Hz, H-3); ^{13}C NMR ($CDCl_3$, 100 MHz) δ 51.81 (C-9), 56.05 (C-4b), 56.38 (C-1b), 81.74 (C-7), 91.56 (C-8), 95.14 (C-4a), 95.88 (C-4b 5), 118.50 (C-3), 121.20 (C-6), 151.95 (C-4), 153.06 (C-1); HRESIMS *m/z* 275.0900 [M + Na]$^+$ (calcd for $C_{13}H_{16}O_5$ 275.0896).

Step 2

Generation of the Key Aldehyde.[17] Oxalyl chloride (272.3 μL, 3.12 mmol) in dry CH_2Cl_2 (9 mL) was added to a stirred solution of DMS dry CH_2Cl_2 (1.5 mL) under an argon atmosphere at -78 °C. The mixture was stirred for 15 min, and the alcohol 8 (393.5 mg, 1.56 mmol) 1.56 mmol) in dry CH_2Cl_2 (12 mL) was added dropwise (Note: Swern oxidation could be scaled-up to 1.56 mmol of starting material). Aft been consumed (nearly 2 h), Et_3N (1.88 mL, 7.8 mmol) was added. The reaction mixture was stirred at -78 °C for a further 30 min and w and quenched with saturated NH_4Cl and H_2O, and the mixture was stirred for 30 min. The organic phase was decanted off, and the aque with CH_2Cl_2 (3 × 30 mL). The combined organic layers were washed with brine, dried over anhydrous Na_2SO_4, and evaporated under red *Bis(methoxymethoxy)phenyl]prop-2-ynal* ***(9)***. Yield 91%; colorless oil. IR (KBr) ν_{max} 1660, 2194 cm^{-1}; ^1H NMR ($CDCl_3$, 400 MHz) δ 3.46 (H-1b), 5.10 (2H, s, H-4a), 5.21 (2H, s, H-1a), 7.09 (1H, dd, *J* = 9.2 and 1.2 Hz, H-6), 7.12 (1H, dd, *J* = 9.1 and 2.2 Hz, H-5), 7.22 (1H, d 3), 9.44 (1H, s, H-9); ^{13}C NMR ($CDCl_3$, 100 MHz) δ 56.18 (C-4b), 56.54 (C-1b), 92.05 (C-8), 92.27 (C-7), 95.22 (C-4a), 95.58 (C-1a), 11 122.0 (C-5), 122.09 (C-3), 151.85 (C-4), 154.88 (C-1), 176.92 (C-9); HRESIMS *m/z* 273.0741 [M + Na]$^+$ (calcd for $C_{13}H_{14}O_5$ 273.0739).



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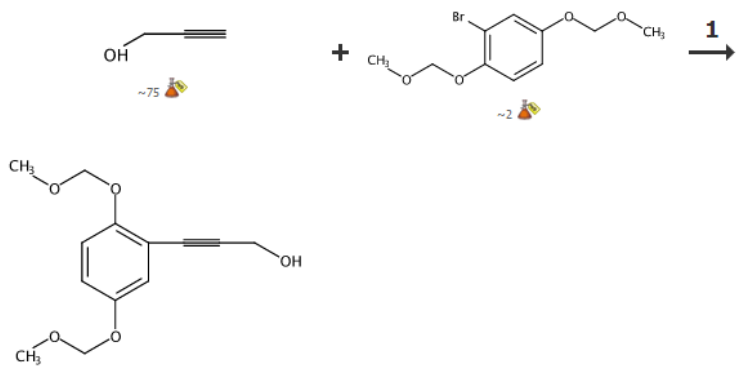
Reaction Steps 1 2



Products	2-Propyn-1-ol, 3-[2,5-bis(methoxymethoxy)phenyl]-, 96%, CAS RN: 1214266-55-3
Reactants	Propargyl alcohol, CAS RN: 107-19-7 Benzene, 2-bromo-1,4-bis(methoxymethoxy)-, CAS RN: 131136-47-5

化合物**7**

化合物**16**

Catalysts	Tetrakis(triphenylphosphine)palladium, CAS RN: 14221-01-3
Solvents	Butylamine, CAS RN: 109-73-9
Procedure	1. Place aryl halide (9.21 mmol) in n-butylamine (6.4 mL) was placed in a flame-dried round-bottomed flask under an argon atmosphere. 2. Add a mixture of propargyl alcohol (9.21 mmol) in n-butylamine (10 mL) and add $Pd(Ph_3)_4$ (5% or 3%). 3. Heat the mixture for 21 h at 98 °C and pour into H_2O (80 mL). 4. Extract the product with EtOAc (3 × 80 mL). 5. Wash the combined organic layers with brine, dry over anhydrous Na_2SO_4, and evaporate under reduced pressure. 6. Purify the crude product by silica gel column chromatography (EtOAc/hexanes, 10-50%).
Scale	milligram
^{1}H NMR	($CDCl_3$, 400 MHz) δ 3.46 (3H, s, H-4b), 3.51 (3H, s, H-1b), 4.51 (2H, s, H-1a), 5.09 (2H, s, H-4a), 5.17 (2H, s, H-1a), 6.95 (1H, dd, J = 9 and 3.0 Hz, H-5), 7.03 (1H, d, J = 9.0 Hz, H-6), 7.10 (1H, d, J = 3.0 Hz, H-3)
^{13}C NMR	($CDCl_3$, 100 MHz) δ 51.81 (C-9), 56.05 (C-4b), 56.38 (C-1b), 81.74 (C-7), 91.56 (C-8), 95.14 (C-4a), 95.88 (C-4b), 114.19 (C-2), 117.13 (C-5), 118.50 (C-3), 121.20 (C-6), 151.95 (C-4), 153.06 (C-1)
IR	(KBr) ν_{max} 3310, 2230 cm^{-1}
HRMS	m/z 275.0900 [M + Na]$^+$ (calcd for $C_{13}H_{16}O_5$ 275.0896)
State	colorless oil
CAS Method Number	3-180-CAS-357629

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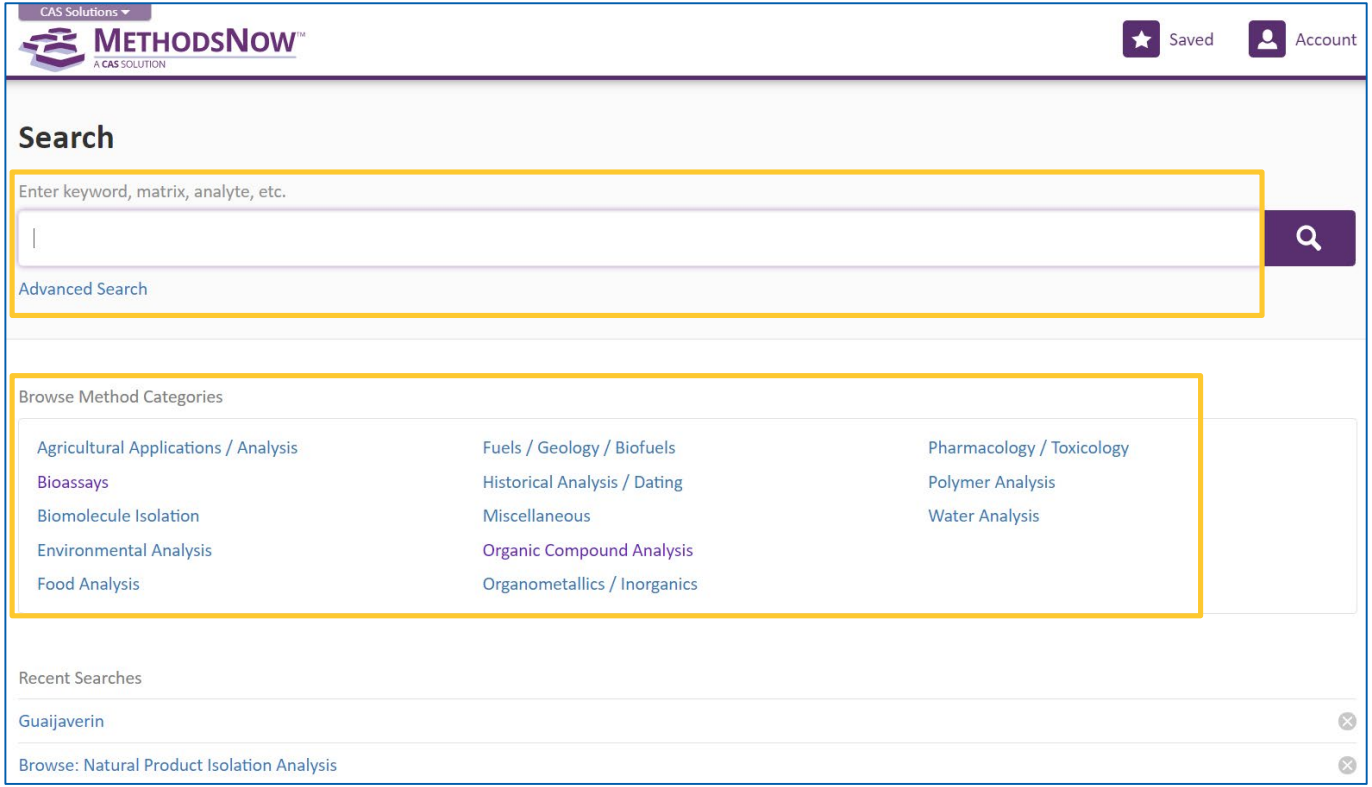

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- **Pharmacology / Toxicology:** 成瘾药物检测，有毒物检测…
- **Bioassays:** 生物探针，生物标定细胞实验，生物标定药物实验，生物医学材料分析，生物分子/生物组织分离测定…
- **Biomolecule Isolation**: 生物分子分离分析、天然产物分离分析、蛋白分析
- **Water Analysis:** 阴阳离子分析，元素测定，痕量元素分析，废水分析，生物标记公共卫生分析…
- **Historical Analysis / Dating:** 考古分析，同位素分析
- **Environmental Analysis:** 土壤/空气/水分析，农药残留分析…
- **Agricultural Applications / Analysis:** 除草剂分析…
- **Food Analysis:** 脂肪酸分析，脂肪酸酯分析，蛋白质分析…
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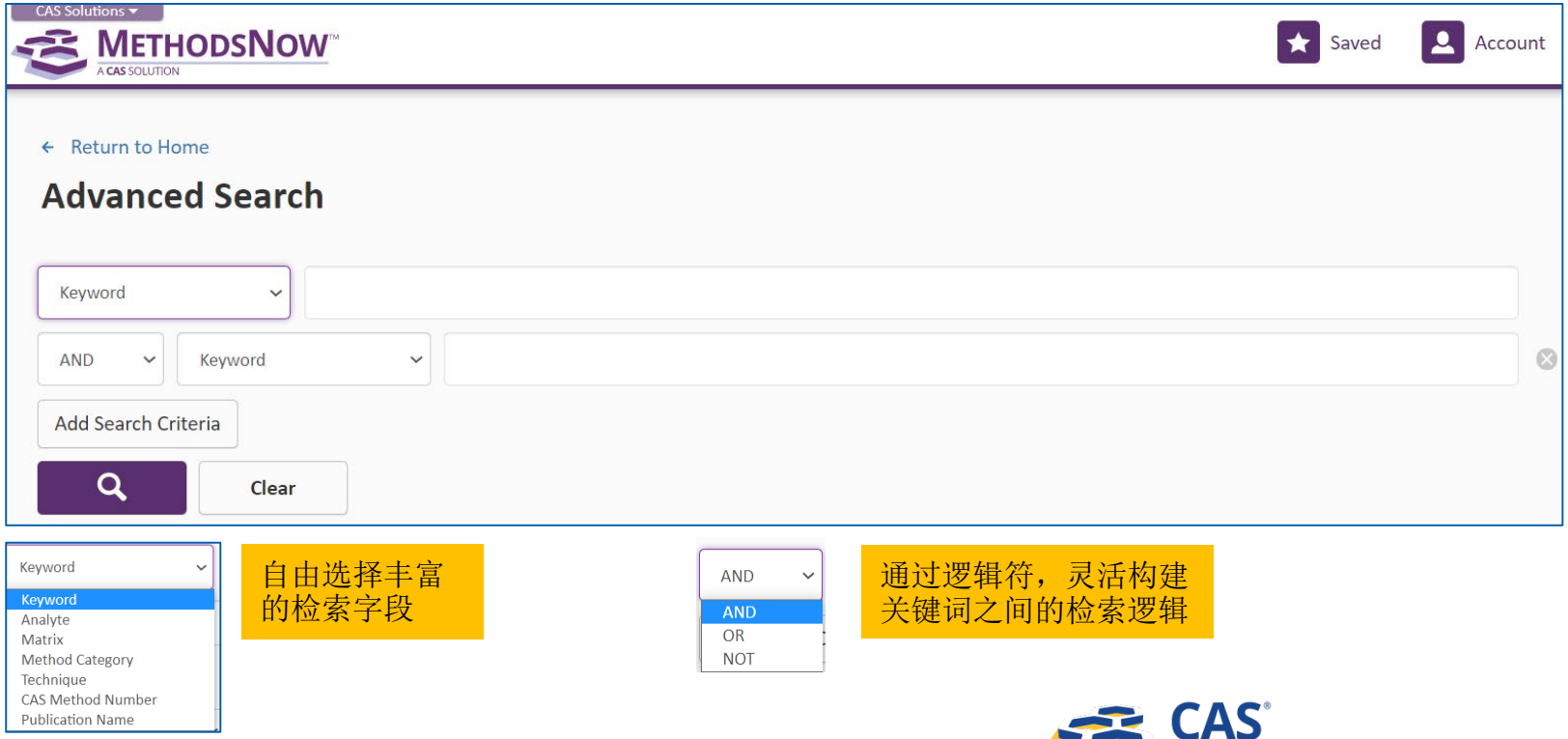

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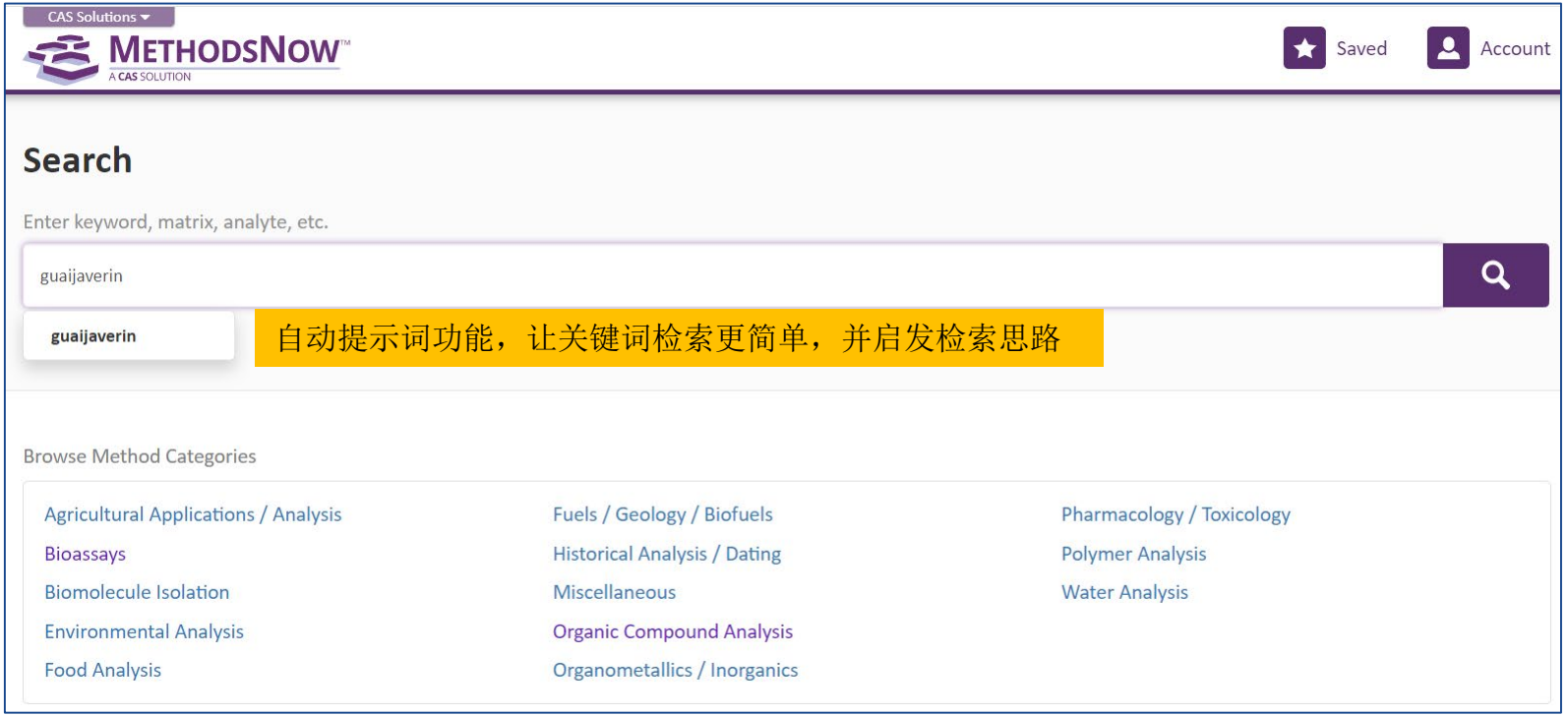

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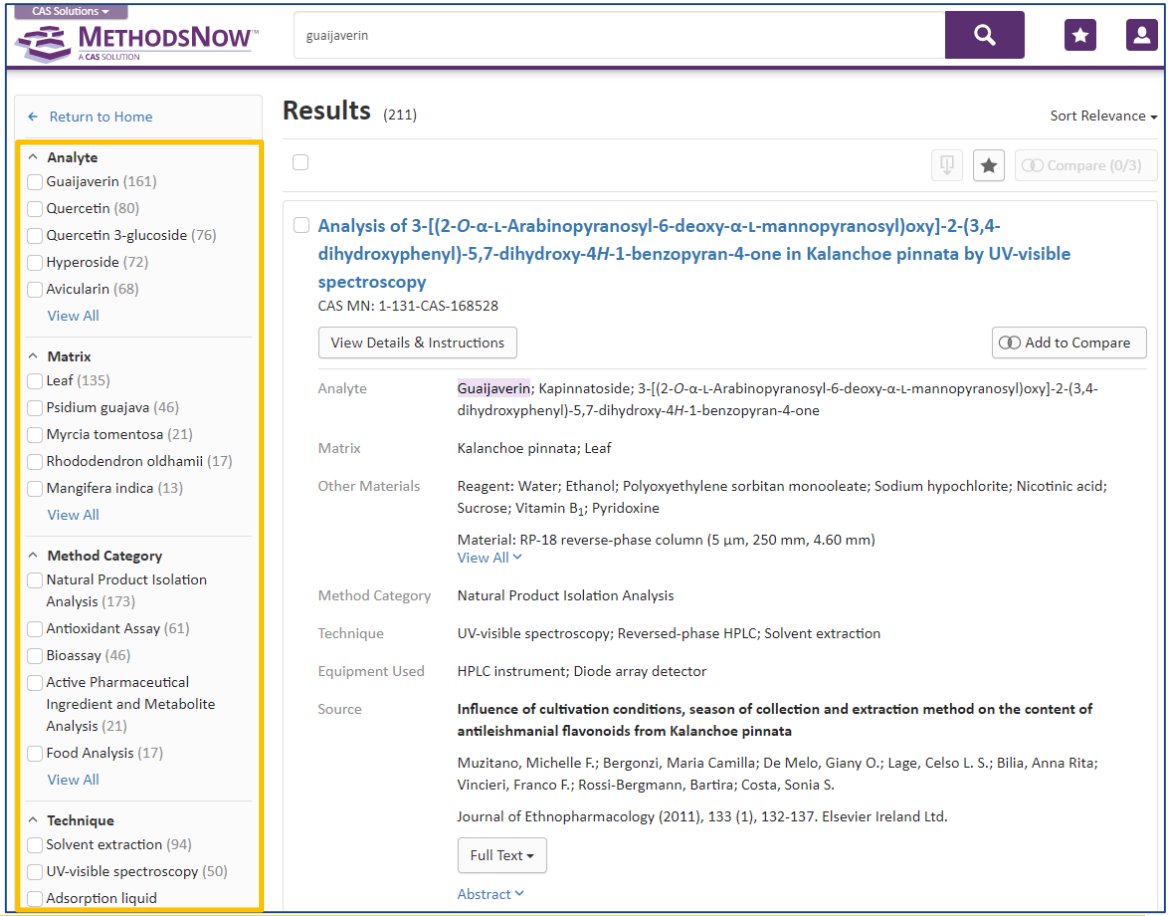

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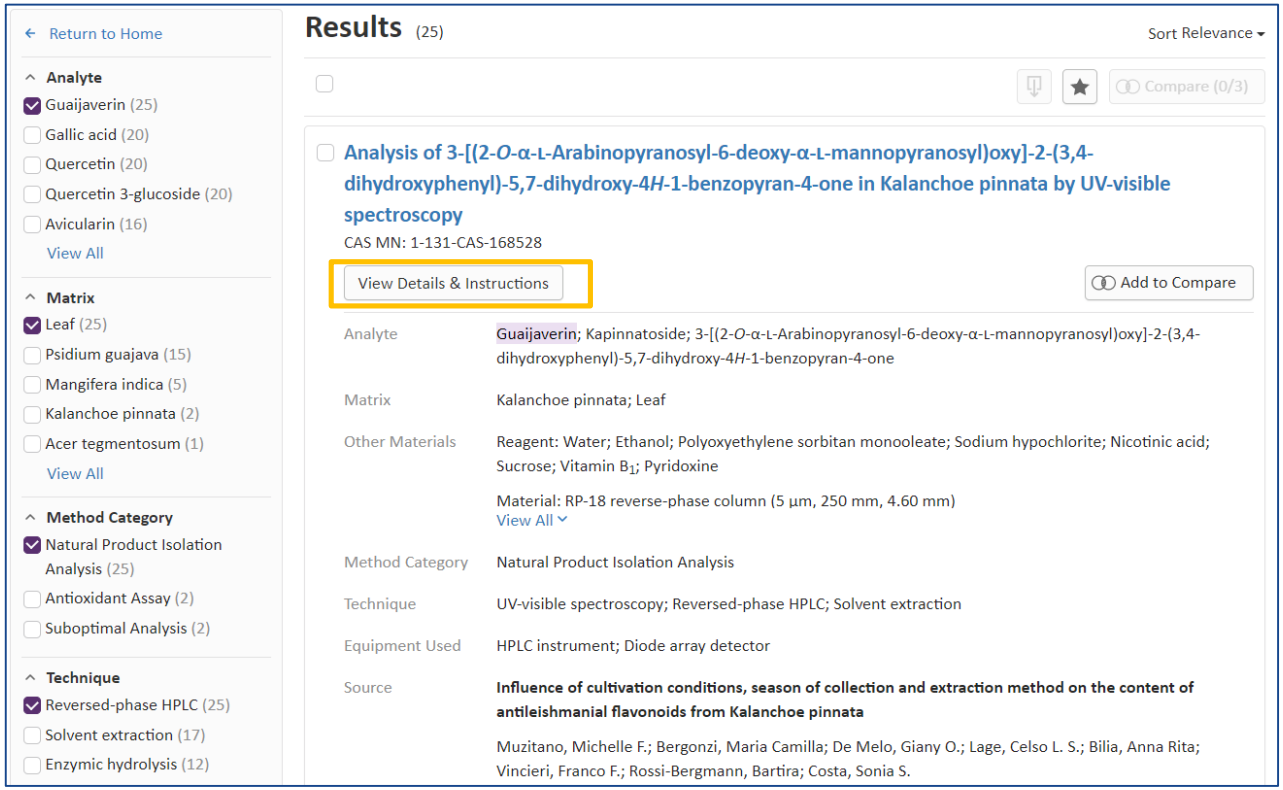

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Method Detail (1 of 25)

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Analysis of 3-[(2-*O*-α-L-Arabinopyranosyl-6-deoxy-α-L-mannopyranosyl)oxy]-2-(3,4-dihydroxyphenyl)-5,7-dihydroxy-4*H*-1-benzopyran-4-one in Kalanchoe pinnata by UV-visible spectroscopy

CAS MN: 1-131-CAS-168528

Method Category: Natural Product Isolation Analysis
Technique: UV-visible spectroscopy; Reversed-phase HPLC; Solvent extraction

Materials	Role	Image	CAS RN
Guaijaverin	analyte	View Structure	22255-13-6
Kapinnatoside	analyte	View Structure	912850-90-9
3-[(2-*O*-α-L-Arabinopyranosyl-6-deoxy-α-L-mannopyranosyl)oxy]-2-(3,4-dihydroxyphenyl)-5,7-dihydroxy-4*H*-1-benzopyran-4-one	analyte	View Structure	104683-55-8
Kalanchoe pinnata	matrix		
Leaf	matrix		
RP-18 reverse-phase column (5 µm, 250 mm, 4.60 mm)	material		
Water	reagent	View Structure	7732-18-5
Ethanol	reagent	View Structure	64-17-5
Polyoxyethylene sorbitan monooleate	reagent		9005-65-6
Sodium hypochlorite	reagent	View Structure	7681-52-9
Nicotinic acid	reagent	View Structure	59-67-6
Sucrose	reagent	View Structure	57-50-1
Vitamin B_1	reagent	View Structure	59-43-8
Pyridoxine	reagent	View Structure	65-23-6

Source

Influence of cultivation conditions, season of collection and extraction method on the content of antileishmanial flavonoids from Kalanchoe pinnata

Muzitano, Michelle F.; Bergonzi, Maria Camilla; De Melo, Giany O.; Lage, Celso L. S.; Bilia, Anna Rita; Vincieri, Franco F.; Rossi-Bergmann, Bartira; Costa, Sonia S.

Journal of Ethnopharmacology (2011), 133 (1), 132 - 137. Elsevier Ireland Ltd.

全面获取增值的分析方法详情：
方法分类、技术、所用材料/物质、角色、文献来源……

Abstract ^

Leaves from Kalanchoe pinnata (Lamarck) Persoon (Crassulaceae) are popularly used for healing wounds. Its antileishmanial properties are established in exptl. animals, and its active flavonoid components have been identified. In this study, we attempted to standardize the extract from K. pinnata leaves by evaluating the influence of season of harvest, sunlight exposure and method of extraction on antileishmanial flavonoids content. HPLC-DAD-MS was used to identify and quantify the active antileishmanial flavonoids in different extracts ANOVA test for analyses of variance followed by the Tukey test of multiple comparisons were used in the statistical anal. The antileishmanial potential was assessed by the activation of nitric oxide production by murine macrophage using the Griess method. We demonstrated that active flavonoids were significantly more abundant when the leaves were collected in the summer, and that aqueous extraction at 50° allowed the highest flavonoid extraction The benefit of sunlight exposure was confirmed in plants cultivated under direct sunlight when compared with those that grown under shade. Under sunny conditions the yield of the most active antileishmanial flavonoid quercitrin was increased by 7-fold. All aqueous extracts tested were capable to enhance the macrophage nitric oxide production However, hot aqueous extract from leaves collected in summer exhibited the higher activity, in agreement with HPLC-DAD-MS anal. tendency. In addition, with the aim of reducing the individual chem. variations of the plant constituents and optimizing the production of the active extract, it was obtained in vitro monoclonal KP specimens that were easily adapted to field conditions and were able to produce antileishmanial flavonoids. Our study reports the better conditions of cultivation, harvest and extraction protocol for obtaining a K. pinnata extract exhibiting the highest antileishmanial activity. Addnl., we propose the flavonoids quercetin 3-O-α-L-arabinopyranosyl (1 → 2)-α-L-rhamnopyranoside and quercitrin, as satisfactory chem. markers for standardization purposes.

Equipment Used

HPLC instrument, HP 1100L, Hewlett Packard, Palo Alto, CA, USA

Diode array detector, Hewlett Packard

Conditions

Instrument

Column: RP-18 reverse-phase column (5 µm, 250 mm, 4.60 mm, Luna); mobile phase: (A): H_2O adjusted to pH 3.2 by HCOOH and (B): CH_3CN; gradient elution: from H_2O (pH 3.2) - CH_3CN (10:0) to H_2O (pH 3.2) - CH_3CN (8:2) within 10 min; from H_2O (pH 3.2) - CH_3CN (8:2) to H_2O (pH 3.2) - CH_3CN (7.8:2.2) within 10 min; from H_2O (pH 3.2) - CH_3CN (7.8:2.2) to H_2O (pH 3.2) - CH_3CN (7.5:2.5) within 15 min; from H_2O (pH 3.2) - CH_3CN (7.5:2.5) to H_2O (pH 3.2) - CH_3CN (7:3) within 5 min; total time: 40 min; flow rate: 1 mL/min; injection volume: 10 µL

Wavelength: 254 nm

Instructions

Micropropagation

1. Wash the leaves under agitation in 0.4% tween 80 for 20 min, followed by 3 rinses with distilled water before surface sterilization in 70% ethanol for 5 min under agitation, followed by 3 rinses in sterile distilled water.
2. Under aseptic conditions, treat the leaves with 1% NaOCl for 4 min, followed by 3 rinses in sterile distilled water in a laminar flow chamber.
3. After the treatment, introduce the leaf explant in 500 mL vessel containing 80 mL of sterile medium with basic MS salts (Murashige and Skoog) supplemented with 87.3 mM sucrose, 4.1 M nicotinic acid, 1.5 M thiamine HCl, 0.6 M myo inositol, 2.4 M pyridoxine HCl and 0.8% agar (MSØ).
4. Adjust the pH to 5.8 before autoclave sterilization in autoclave at 121 °C for 15 min.
5. Maintain the cultures at 25 ± 2 °C with a 16 h photo period 23.4 $\mu molm^{-2} s^{-1}$ from a fluorescent lamp of 20 watts.
6. After 30 days, excise leaves from the shoots developed by the explant and reintroduce into flasks with fresh medium.
7. Repeat this process of sub culturing at 30 days time intervals during 6 months.

Acclimatization

1. After the micropropagation procedure, transfer plantlets to pots containing soil substrate and keep in a greenhouse.
2. Maintain the pots initially in a high humidity environment during about one month and expose gradually to lower levels of humidity.
3. Transfer the plantlets to soil only after this procedure.

Extraction

1. Collect *K. pinnata* (KP) leaves from several 1-year-old KP individuals in summer season grown in shade.
2. Triturate fresh leaves in a blender with distilled water at 20% (w/v), then heat for 30 min at 50 °C and filter to obtain the preparation called hot aqueous extract.

Analysis by HPLC

1. Perform analysis using a HP 1100L instrument with a diode array detector and managed by a HP 9000 workstation (Hewlett Packard, Palo Alto, CA, USA).
2. Use a RP-18 reverse-phase column (5 µm, 250 mm, 4.60 mm, Luna, Phenomenex, USA) maintain at 26 °C for separation.
3. Use mobile phase consisting of (A): H_2O adjusted to pH 3.2 by HCOOH and (B): CH_3CN.
4. Set a gradient elution as: from H_2O (pH 3.2) - CH_3CN (10:0) to H_2O (pH 3.2) - CH_3CN (8:2) within 10 min; from H_2O (pH 3.2) - CH_3CN (8:2) to H_2O (pH 3.2) - CH_3CN (7.8:2.2) within 10 min; from H_2O (pH 3.2) - CH_3CN (7.8:2.2) to H_2O (pH 3.2) - CH_3CN (7.5:2.5) within 15 min; from H_2O (pH 3.2) - CH_3CN (7.5:2.5) to H_2O (pH 3.2) - CH_3CN (7:3) within 5 min.
5. Set the total time of analysis as 40 min.
6. Set the flow rate to 1 mL/min.
7. Dilute 10 mg of extract in 1 mL of purified water.
8. Inject 10 µL of the sample solution.
9. Set the detector at 254 nm.

Validation

Concentration	2.092 ± 0.035%, Quercetin 3-*O*-α-L-arabinopyranosyl (1-2)-α-L-rhamnopyranoside
	0.241 ± 0.008%, Quercetin 3-*O*-α-L-arabinopyranoside
	0.068 ± 0.004%, Kaempferol 3-*O*-α-L-arabinopyranosyl(1-2)-α-L-rhamnopyranoside

摘要、所用仪器、实验条件、实验步骤和数据有效性验证等信息

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Title	**Analysis of 3-[(2-*O*-α-L-Arabinopyranosyl-6-deoxy-α-L-mannopyranosyl)oxy]-2-(3,4-dihydroxyphenyl)-5,7-dihydroxy-4*H*-1-** View All	**Analysis of Hyperoside in Prunus serotina by Reversed-phase HPLC**	**Analysis of *rel*-(1α,3*R*,4α,5*R*)-1,3,4,5-Tetrahydroxycyclohexanecarboxylic acid mono(3,4,5-trihydroxybenzoate) in** View All
CAS Method Number	1-131-CAS-168528	1-131-CAS-66641	1-131-CAS-239804
Method Category	Natural Product Isolation Analysis	Natural Product Isolation Analysis	Natural Product Isolation Analysis
Technique	UV-visible spectroscopy; Reversed-phase HPLC; Solvent extraction	Liquid chromatographic UV detectors; Reversed-phase HPLC	Reversed-phase HPLC; Electrospray ionization tandem mass spectrometry
Analyte	Guaijaverin; Kapinnatoside; 3-[(2-*O*-α-L-Arabinopyranosyl-6-deoxy-α-L-mannopyranosyl)oxy]-2-(3,4- View All	Chlorogenic acid; Hyperoside; Juglanin; Reynoutrin; Avicularin; Guaijaverin; Organic acids; Flavonoids	2′′-*O*-Galloylhyperin; *rel*-1,1′,1′′,1′′′-[(1*R*,2α,3*R*,5α)-5-Carboxy-1,2,3,5-cyclohexanetetrayl] tetrakis(3,4,5- View All
Matrix	Kalanchoe pinnata; Leaf	Leaf; Prunus serotina	Leaf; Byrsonima
Other Materials	Water; Ethanol; Polyoxyethylene sorbitan monooleate; Sodium hypochlorite; Nicotinic acid; Sucrose; Vitamin B_1; Pyridoxine; RP-18 View All	Chloroform; Hydrochloric acid; Acetonitrile; Methanol; Phosphoric acid; 250 mm x 4 mm, 5-µm particle, LiChrospher 100 View All	Millex filter (0.45 µm); C_{18} reversed-phase (RP) column (5 µm, 2.1 mm × 150 mm)
Equipment Used	HPLC instrument, HP 1100L, Hewlett Packard, Palo Alto, CA, USA; Diode array detector, Hewlett Packard	HPLC system, 1100 Series, Perlan Technologies, USA; UV-visible detector, HP 1314 A	HPLC system, Thermo spectra system; LCQ Deca ion trap instrument, Thermo Finnigan, San Jose, CA, USA
Conditions	**Instrument:** Column: RP-18 reverse-phase column (5 µm, 250 mm, 4.60 mm, Luna); mobile phase: (A): H_2O adjusted to pH 3.2 View All	**Chromatographic:** Mobile phase: 0.5% aqueous solution of orthophosphoric acid (component A) and Acetonitrile View All	**Instrument:** C_{18} reversed-phase (RP) column (5 µm, 2.1 mm × 150 mm); mobile phase A: 0.1% trifluoroacetic acid (TCA); View All
Source	**Influence of cultivation conditions, season of collection and extraction method on the content of antileishmanial flavonoids from** View All	**Quantitative HPLC analysis of flavonoids and chlorogenic acid in the leaves and inflorescences of Prunus serotina Ehrh.** View All	**Application of liquid chromatography/electrospray ionization tandem mass spectrometry to the analysis** View All

Preparation	**Micropropagation** 1. Wash the leaves under agitation in 0.4% tween 80 for 20 min, followed View All	**Sample Preparation** 1. Collect the samples of flowers (racemes only or complete View All	**Preparation of leaves of *Byrsonima crassa*** 1. Collect the leaves of *Byrsonima crassa*, air-dry and powder 10 g of View All
Method	**Extraction** 1. Collect *K. pinnata* (KP) leaves from several 1-year-old KP individuals in View All	**Extraction** 1. Defat the plant material (100 mg) by pre-extraction with chloroform View All	**Reversed phase-high performance liquid chromatography - electrospray ionization tandem mass spectrometry** View All
Concentration	2.092 ± 0.035%, Quercetin 3-*O*-α-L-arabinopyranosyl (1-2)-α-L-rhamnopyranoside, 0.241 ± 0.008%, View All	27.15 µg/mL, Chlorogenic acid, 6.89 µg/mL, Rutin, 23.27 µg/mL, Hyperoside, 8.53 µg/mL, Reynoutrin, 7.10 µg/mL, Guajiverin, View All	
Linearity Range		4.72 - 39.35 µg/mL, Chlorogenic acid, 0.83 - 8.35 µg/mL, Rutin, 4.86 - 25.30 µg/mL, Hyperoside, 1.33 - 9.96 µg/mL, Reynoutrin, View All	
Limit of Detection		0.378 µg/mL, Chlorogenic acid, 0.167 µg/mL, Rutin, 0.243 µg/mL, Hyperoside, 0.266 µg/mL, Reynoutrin, 0.265 µg/mL, View All	
imit of Quantitation		1.259 µg/mL, Chlorogenic acid, 0.557 µg/mL, Rutin, 0.810 µg/mL, Hyperoside, 0.885 µg/mL, Reynoutrin, 0.883 µg/mL, View All	
Recovery		93.5% (RSD 0.8%), Chlorogenic acid, 95.3% (RSD 1.6%), Rutin, 94% (RSD 1.3%), Hyperoside, 95.6% (RSD 2.8%), Reynoutrin, View All	
Retention Time			10.14 min, Monogalloylquinic acid, 10.99 min, Digalloylquinic acid, 11.31 min, Trigalloylquinic acid, 12.54 min, View All

表格形式对照实验详情，一目了然，
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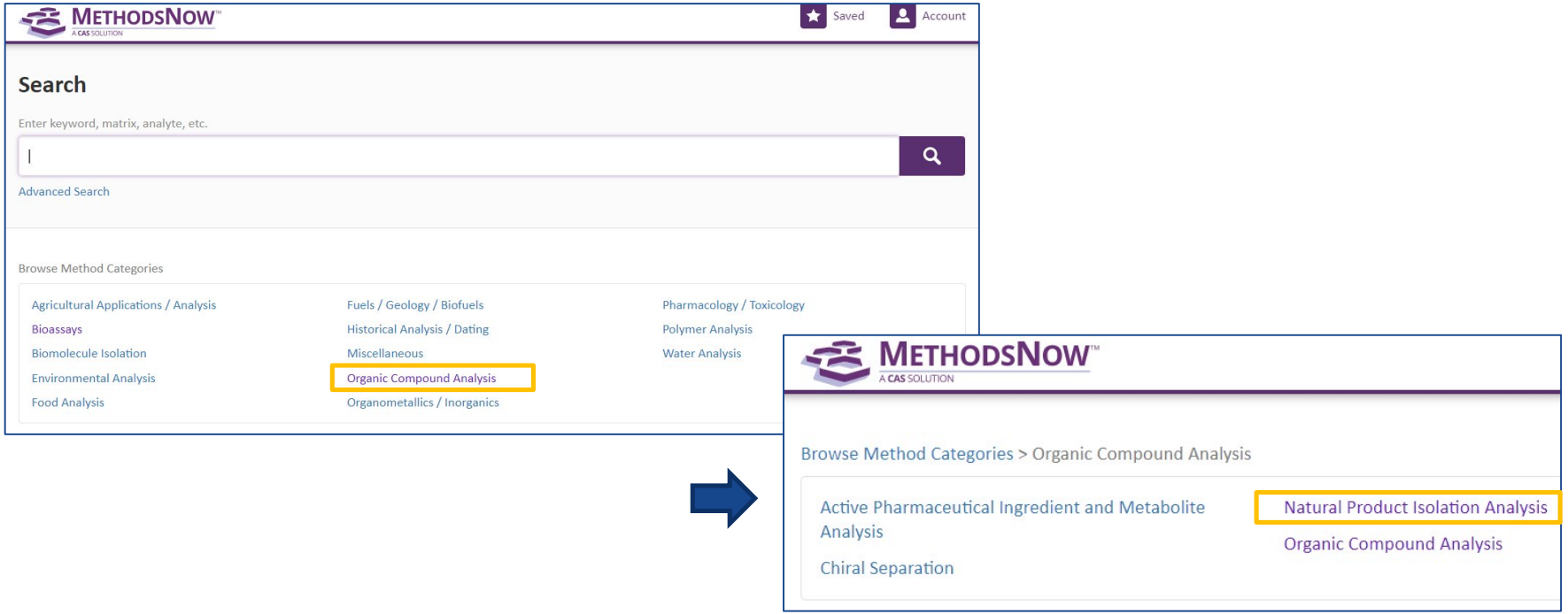

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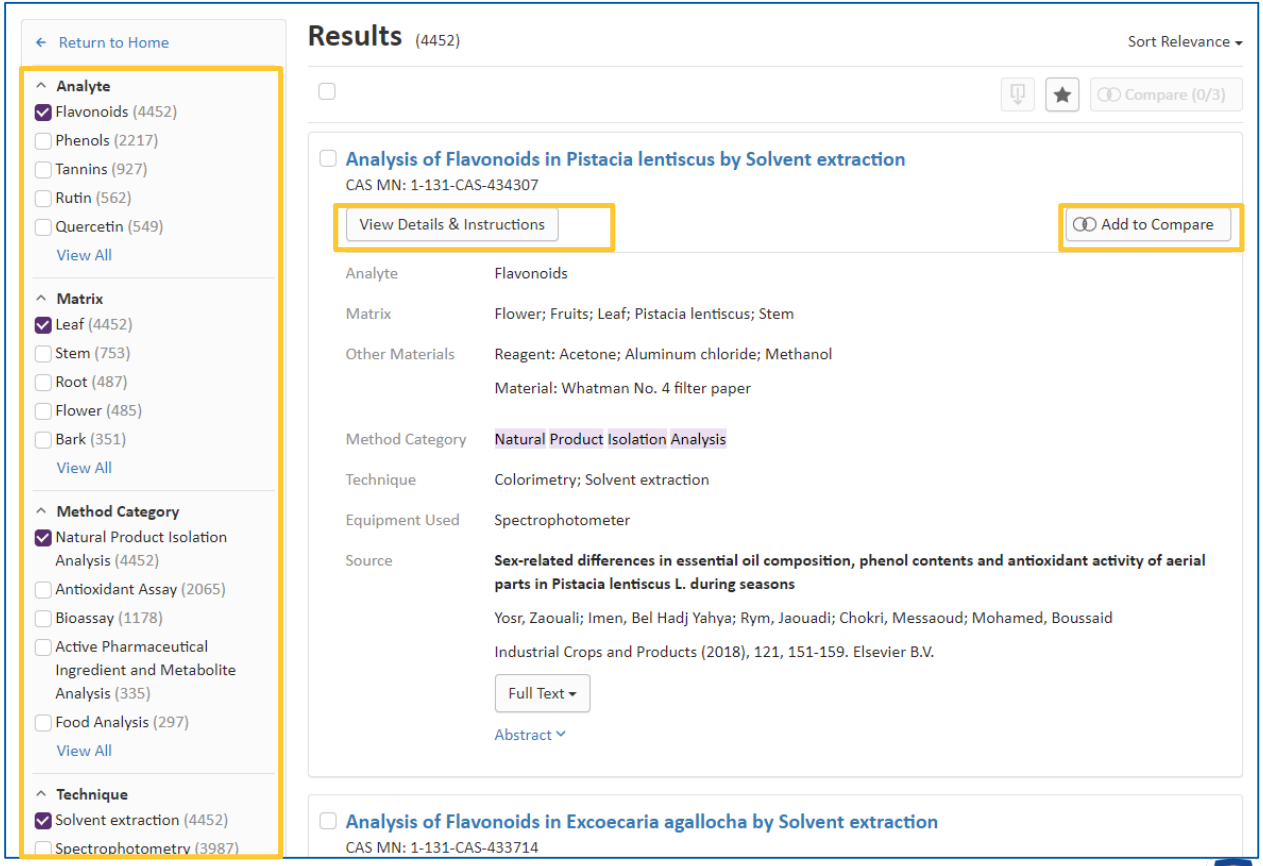

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china@acs-i.org

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