Supporting Information

Effect-directed discovery of bioactive compounds followed by highly targeted characterization, isolation and identification, exemplarily shown for *Solidago virgaurea*

Ágnes M. Móricz[1,2*], Péter G. Ott[1], Tim T. Häbe[2], András Darcsi[3], Andrea Böszörményi[3], Ágnes Alberti[3], Dániel Krüzselyi[1], Péter Csontos[4], Szabolcs Béni[3], Gertrud E. Morlock[2]

[1]Plant Protection Institute, Centre for Agricultural Research, Hungarian Academy of Sciences, Herman O. Str. 15, 1022 Budapest, Hungary

[2]Interdisciplinary Research Center (IFZ) and Institute of Nutritional Science, Department of Food Sciences, Justus Liebig University Giessen, Heinrich-Buff-Ring 26-32, 35392 Giessen, Germany

[3]Department of Pharmacognosy, Faculty of Pharmacy, Semmelweis University, Üllői Str. 26, 1085 Budapest, Hungary

[4]Institute for Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research, Hungarian Academy of Sciences, Herman O. Str. 15, 1022 Budapest, Hungary

*Corresponding author. Tel.: (0036) 14877515; Fax: (0036) 14877555; E-mail address: moricz.agnes@agrar.mta.hu (Á.M. Móricz)

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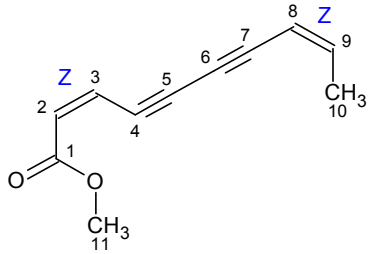
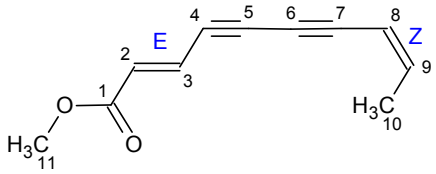
Table S-1. NMR spectral data and structure of Sv1 and Sv2

	Sv1		Sv2	
no.	**^{1}H (ppm)**	**^{13}C (ppm)**	**^{1}H (ppm)**	**^{13}C (ppm)**
1	**-**	**166.36**	**-**	**167.27**
2	**6.29 (d, *J* = 11.7 Hz, 1H)**	**131.84**	**6.38 (d, *J* = 15.9 Hz, 1H)**	**133.40**
3	**6.38 (dd, *J* = 11.7, 0.7 Hz, 1H)**	**123.17**	**6.86 (dd, *J* = 15.9, 0.7 Hz, 1H)**	**124.95**
4	**-**	**78.87**	**-**	**78.98**
5	**-**	**85.90**	**-**	**82.81**
6	**-**	**78.50**	**-**	**78.00**
7	**-**	**83.92**	**-**	**83.26**
8	**5.66 (m, 1H)**	**109.66**	**5.64 (m, 1H)**	**109.42**
9	**6.29 (m, 1H)**	**145.14**	**6.30 (m, 1H)**	**145.69**
10	**1.93 (dd, *J* = 6.9, 1.7 Hz, 3H)**	**16.64**	**1.92 (dd, *J* = 6.6, 1.7 Hz, 3H)**	**16.76**
11	**3.762 (s, 3H)**	**52.10**	**3.758 (s, 3H)**	**52.50**
structure and name	 **2*Z*,8*Z*-matricaria ester**		 **2*E*,8*Z*-matricaria ester**	

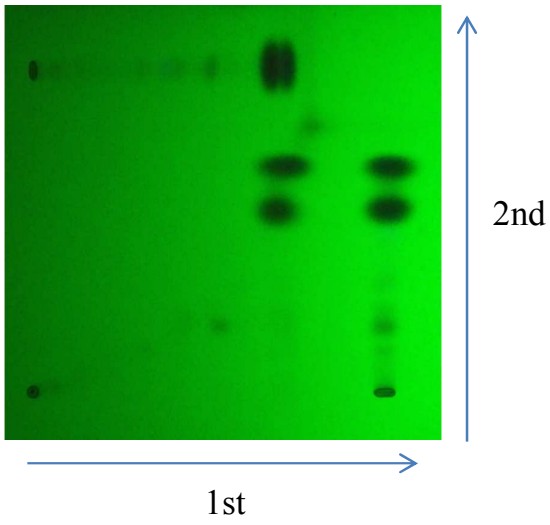


Figure S-1. 2D-HPTLC separation for compound assignment with *n*-hexane – isopropyl acetate – acetic acid (83:14:3, v/v) for the first dimension and *n*-hexane – acetone (17:3, v/v) for the second dimension, documented at UV 254 nm.

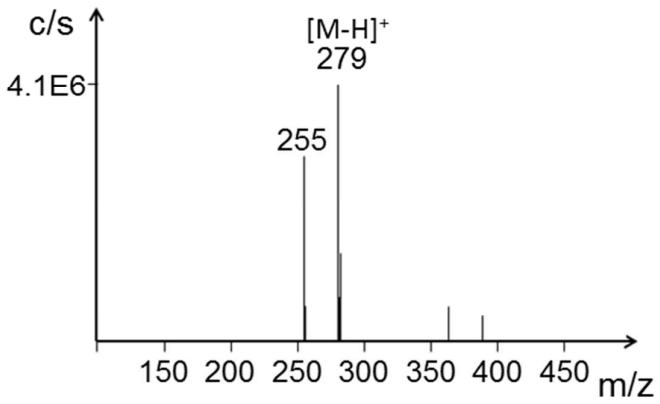


Figure S-2. Mass spectrum of the Sv4 zone in the negative ionization mode, showing the deprotonated molecule at *m/z* 279.

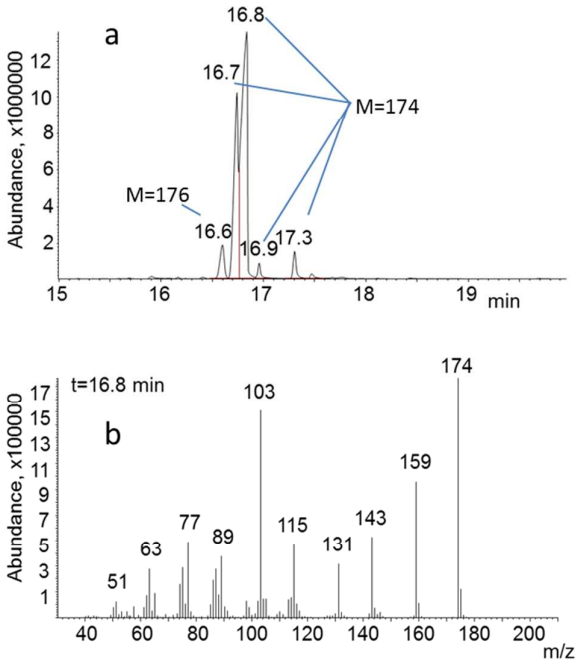


Figure S-3. SPME-GC-EI-MS (a) TIC chromatogram of European golden rod root extract and (b) mass spectrum at 16.8 min that was identical to those at 16.7, 16.9 and 17.3 min.

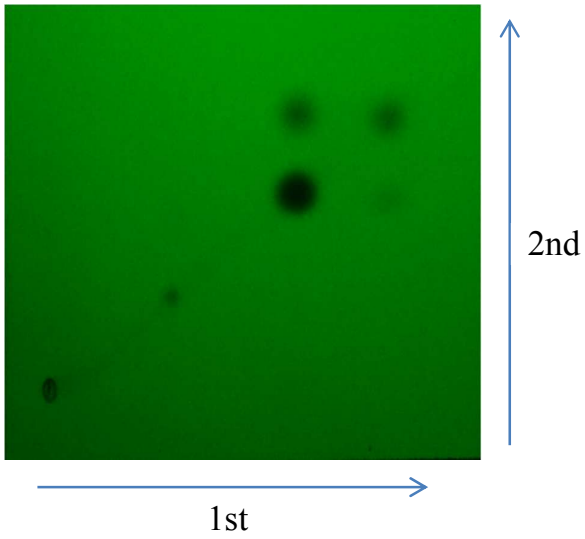


Figure S-4. 2D-HPTLC separation for isomer proof (artefact) using *n*-hexane – acetone 17:3 (v/v) in both dimensions, documented at UV 254 nm.

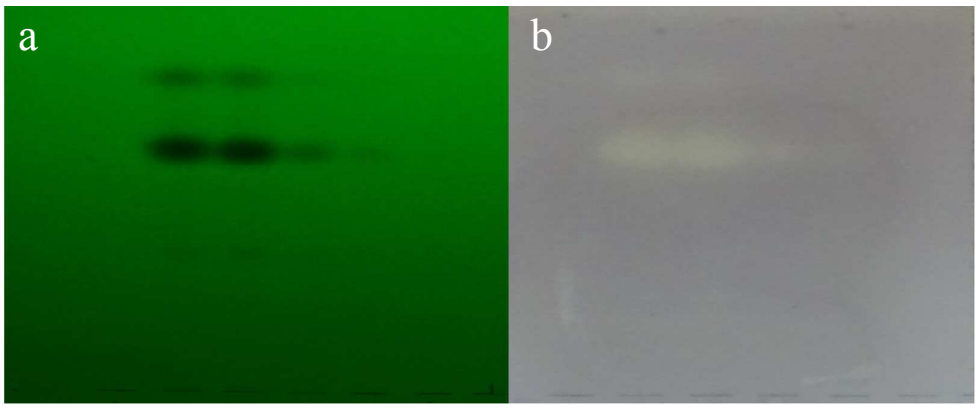


Figure S-5. HPTLC separation of the flash chromatography fractions, detected at (a) UV 254 nm and (b) after the *B. subtilis* bioassay.

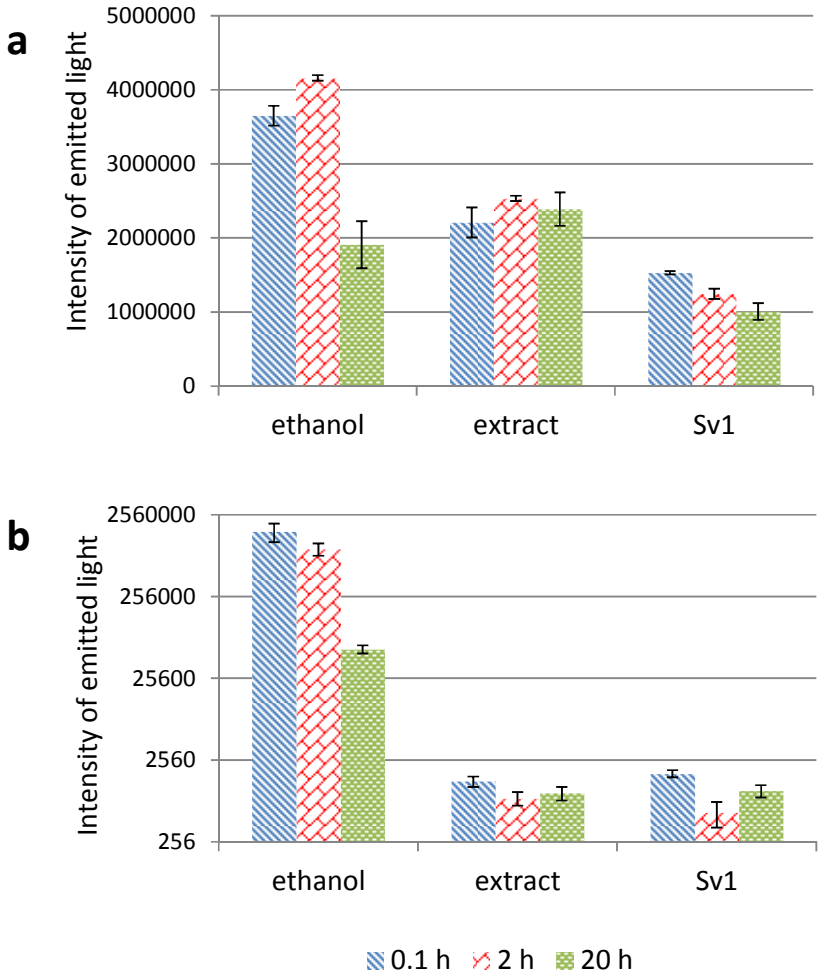


Figure S-6. Luminometric detection (n = 3) of the inhibiting activity of European golden rod root extract and its main bioactive component Sv1 against (a) luminescent *Pseudomonas syringae* pv. *maculicola* and (b) *Aliivibrio fischeri*; their solvent ethanol was used as negative control.

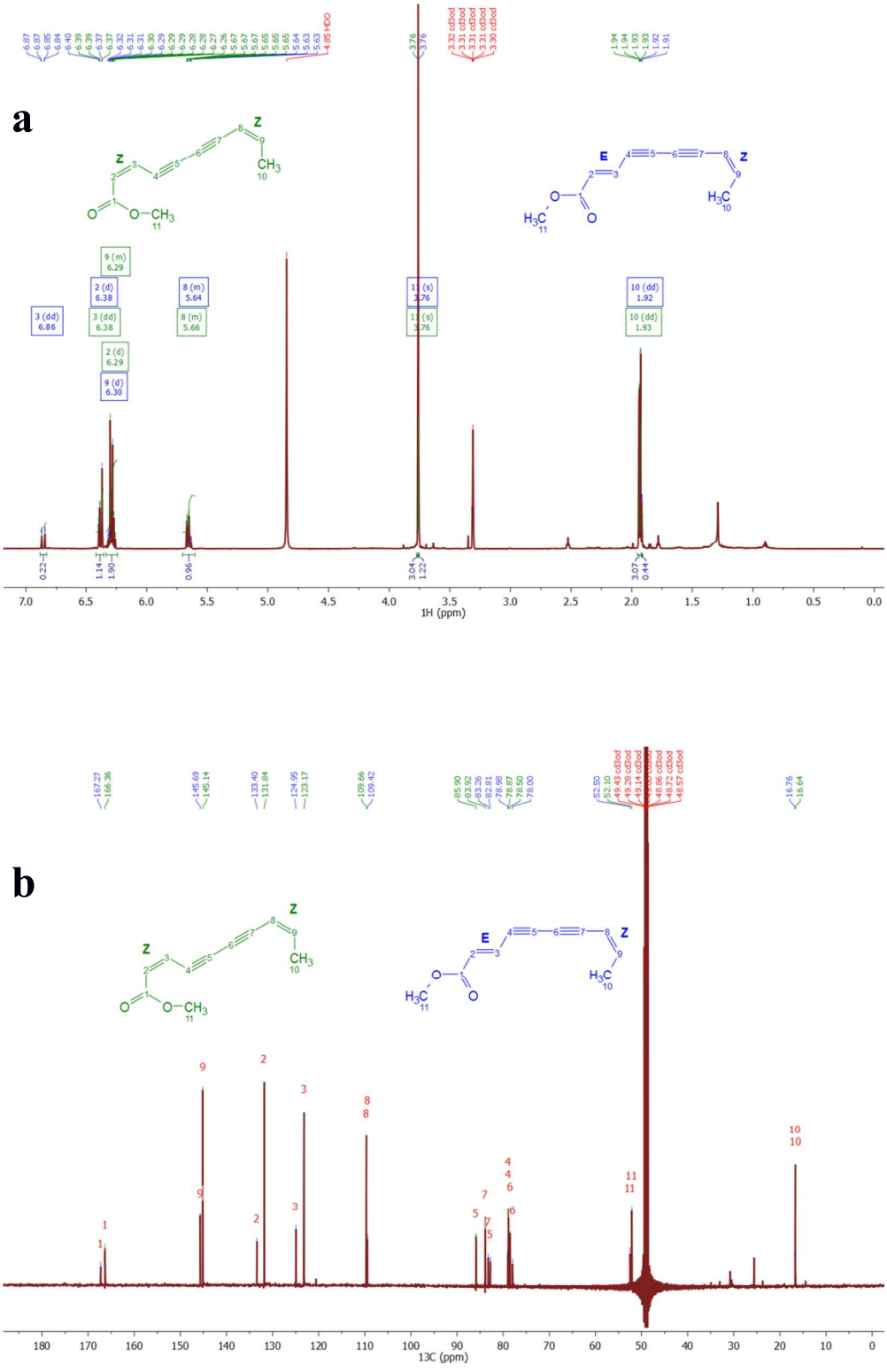


Figure S-7. (a) ^{1}H NMR and (b) ^{13}C NMR spectra of Sv1 containing 23% Sv2.

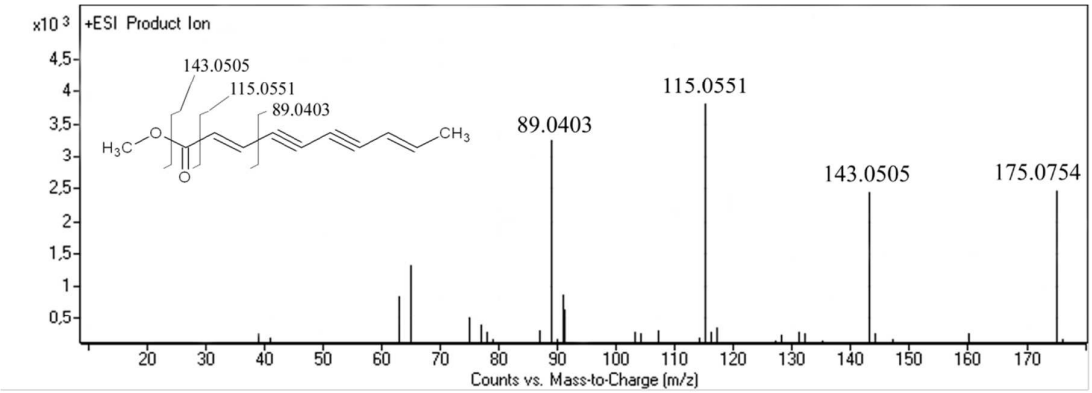


Figure S-8. Positive ion MS^2 spectrum and proposed fragmentation pattern of matricaria ester.