

Supporting Information

Apocarotenoids in the sexual interaction of *Phycomyces*

Silvia Polaino,^a Jose A. Gonzalez-Delgado,^b Pilar Arteaga,^b M. Mar Herrador,^b Alejandro F. Barrero*^b and Enrique Cerdá-Olmedo*^c

^a*Division of Cell Biology and Biophysics, School of Biological Sciences, University of Missouri-Kansas City, MO 64110, USA,* ^b*Department of Organic Chemistry, Institute of Biotechnology, University of Granada, Avda. Fuente Nueva, s/n, 18071 Granada, Spain,* and ^c*Department of Genetics, Faculty of Biology, University of Sevilla, Reina Mercedes, s/n, 41071 Sevilla, Spain,*
afbarre@ugr.es; eco@us.es.

List of Contents for Experimental Section

A simple estimate of the apocarotenoid content	1S
Figure S1	2S
Figure S2	3S
Figure S3	4S
Figure S4	5S
¹ H and ¹³ C NMR Spectra	6S

A simple estimate of the apocarotenoid content

A simple estimate, C , of the increased apocarotenoid content was calculated as $C = B - kA$, where B is the absorbance at 328 nm in mated cultures, A is their maximum absorption near 260 nm, and k is the quotient between the respective values, B' and A' , in single cultures (Figure S1). The k values were 0.048 ± 0.005 for cultures on minimal agar and 0.071 ± 0.007 for cultures on enriched agar (mean and

standard deviation of the distribution in 8 independent experiments with the wild-type cultures in each case). This difference reflected the differences in the composition of agar media.

The C value was 0.37 ± 0.03 in 12 mated cultures of the wild types and 0.011 ± 0.003 in 19 mated cultures of the *carB* mutant strains (means and standard error). These values were independent of the media (minimal or enriched agar) and the strains (NRRL1555, NRRL1554, and A56).

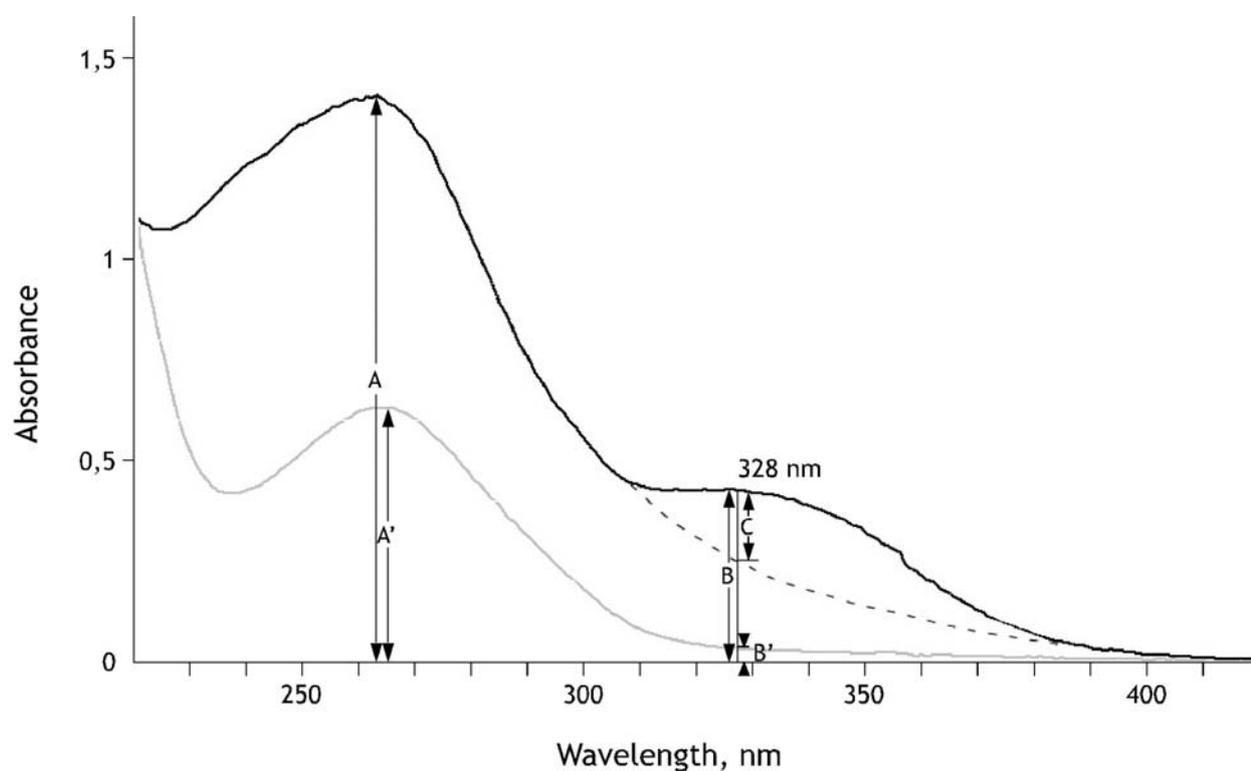


Figure S1. Absorption spectra of culture media of wild-type strains A56 and NRRL1555 grown together for five days on minimal agar (mated culture, thick line), and NRRL1555 was grown alone in the same way (single culture, thin line). A and A' are the maximum absorbances (at about 260 nm); B and B' are the absorbances at 328 nm.

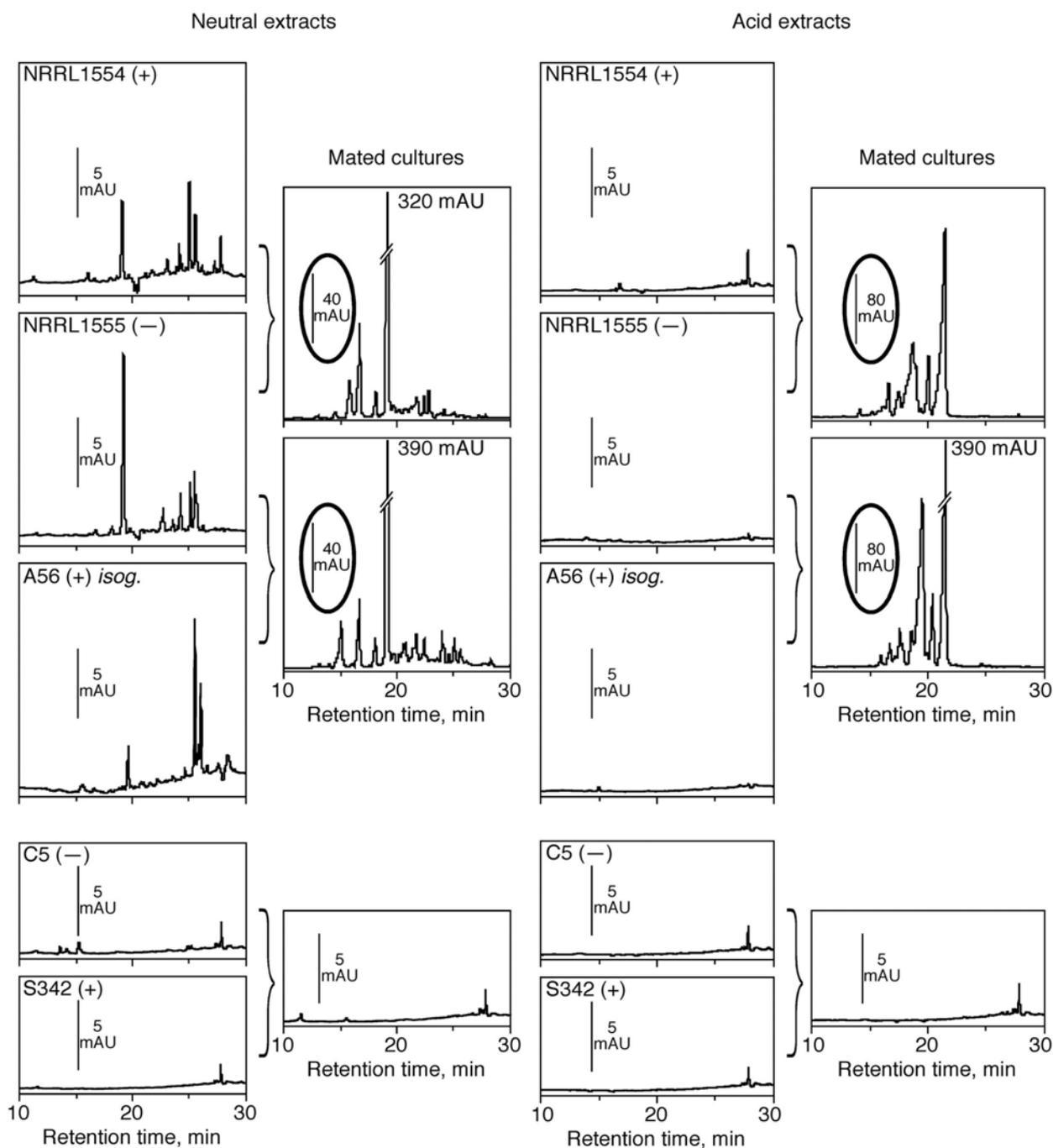


Figure S2. Chromatograms of neutral and acid extracts of single and mated cultures of the wild types NRRL1554, NRRL1555 and A56 and the *carB* mutants C5 and S342, unable to produce β -carotene. The ordinates represent the absorbance at 328 nm in milliunits. Note the changes of scale. The sex, (+) or (–), is indicated for each strain.

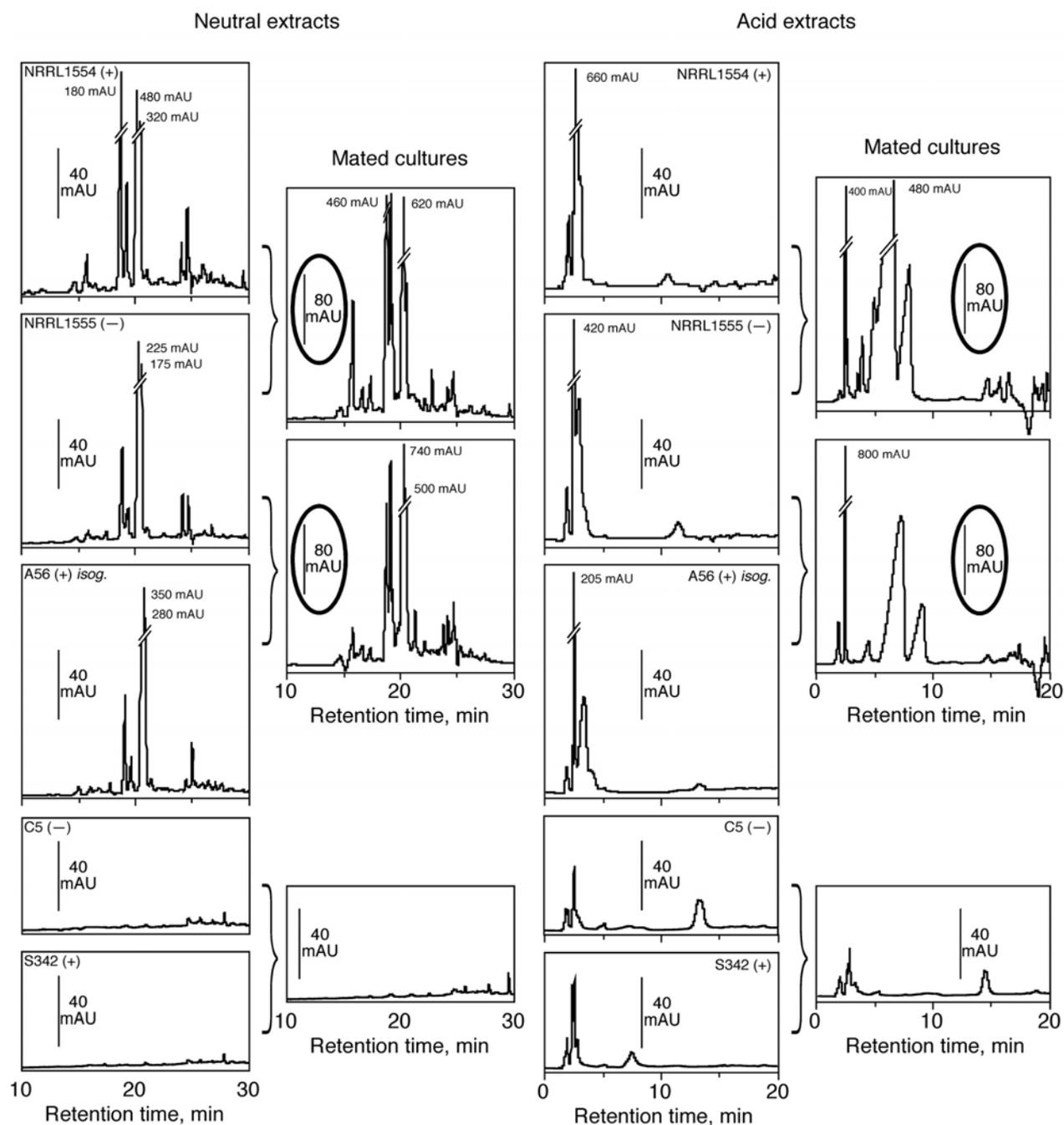


Figure S3. Chromatograms of neutral and acid extracts of single and mated cultures of the wild-types NRRL1554, NRRL1555 and A56 and the *carB* mutants C5 and S342, unable to produce β -carotene. The ordinates represent the absorbance at 280 nm in milliunits. Note the changes of scale. The sex, (+) or (-), is indicated for each strain.

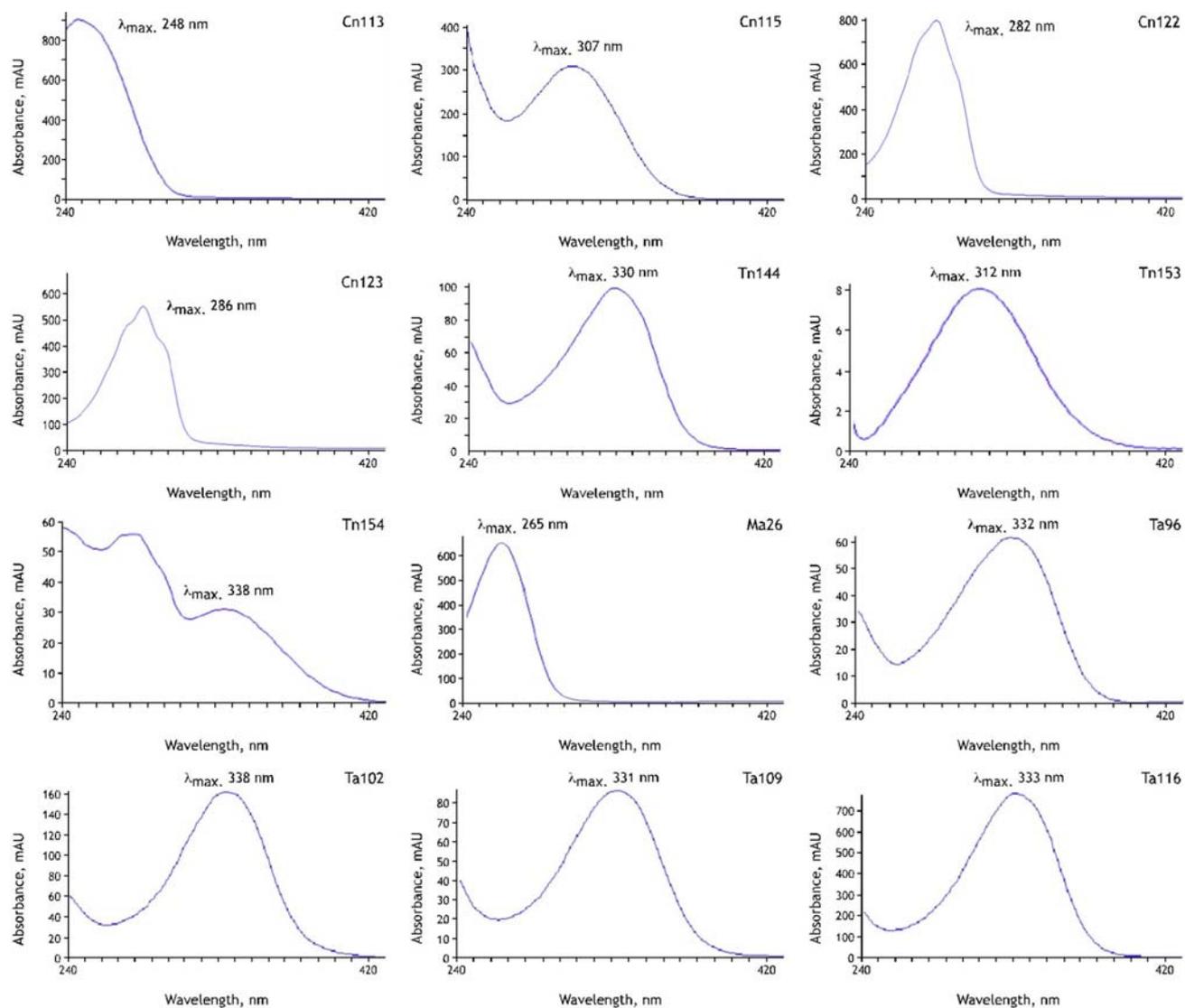
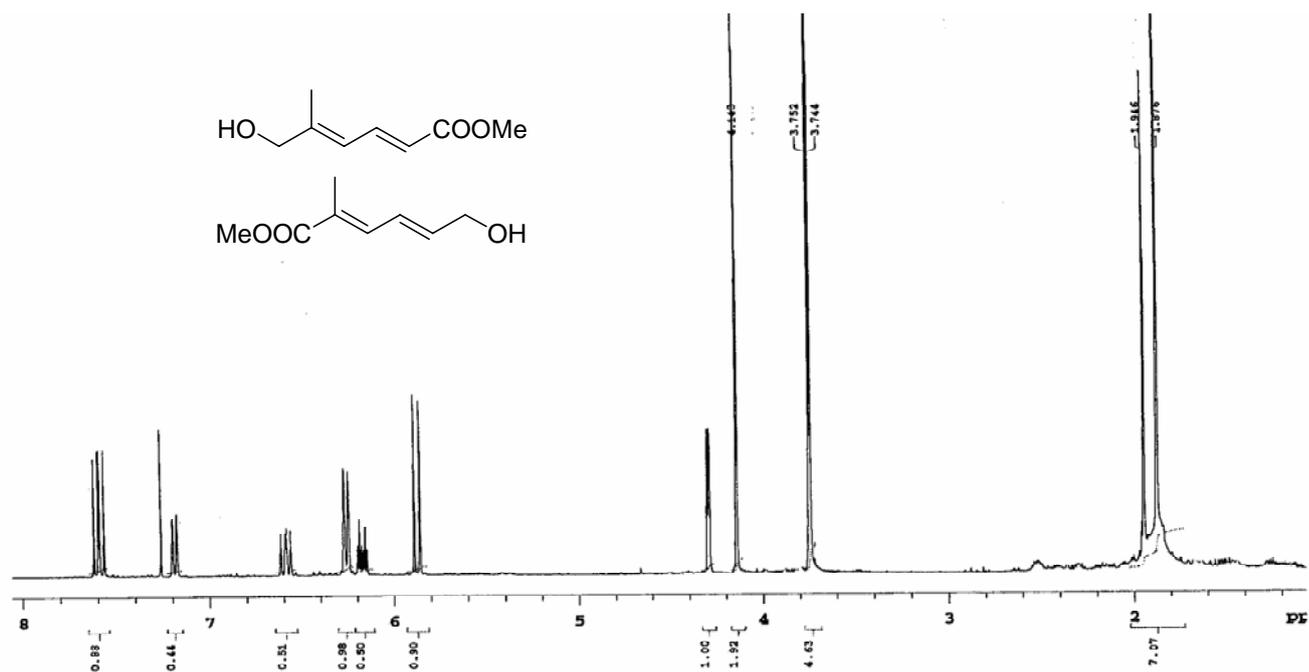
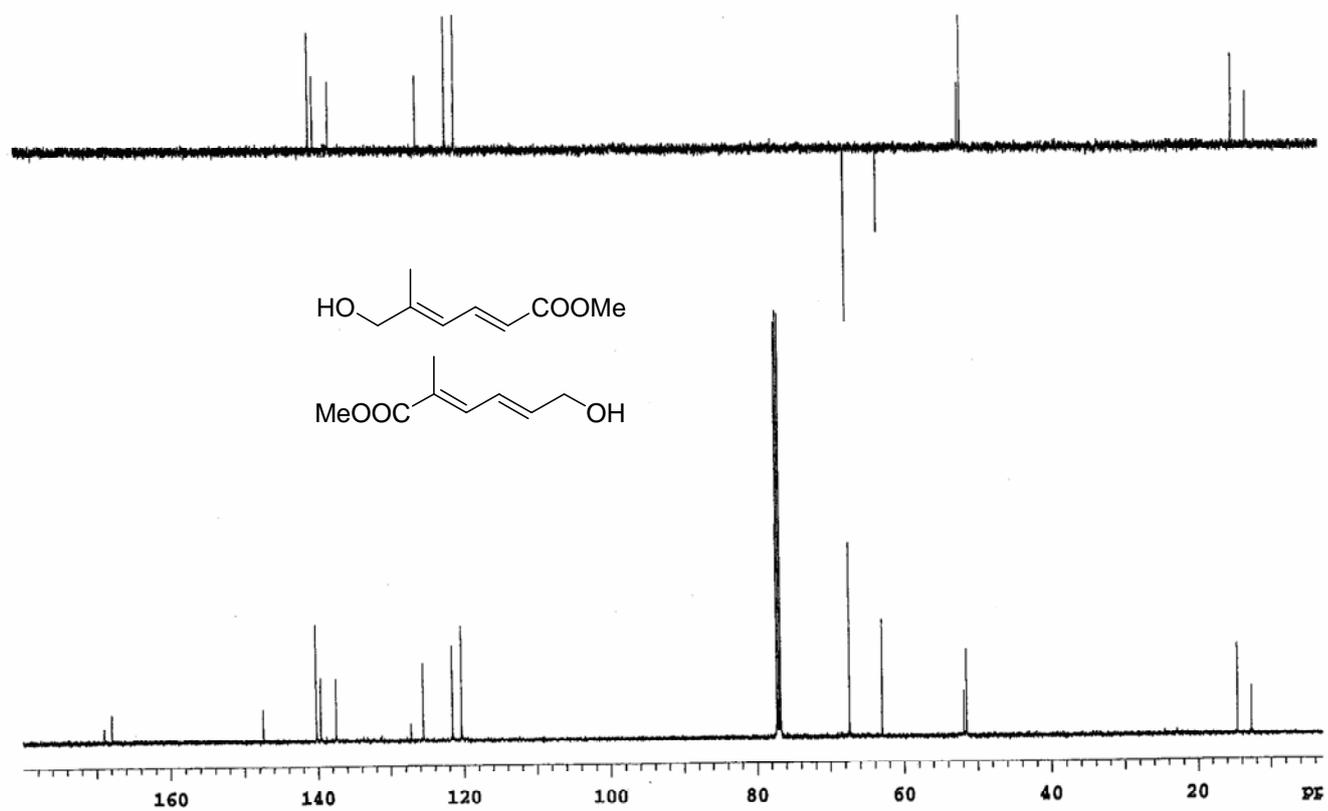


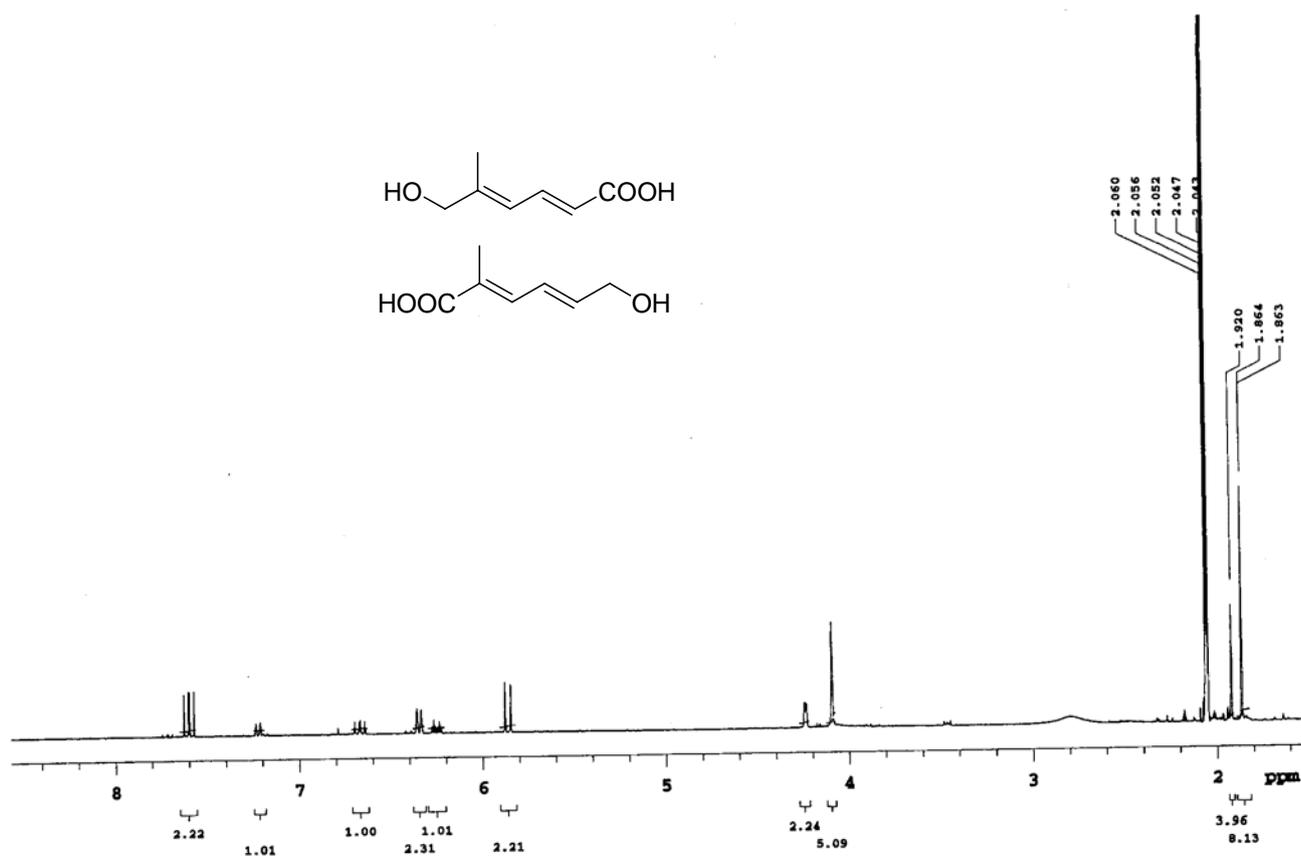
Figure S4. Absorption spectra of the apocarotenoids as eluted from the HPLC column.



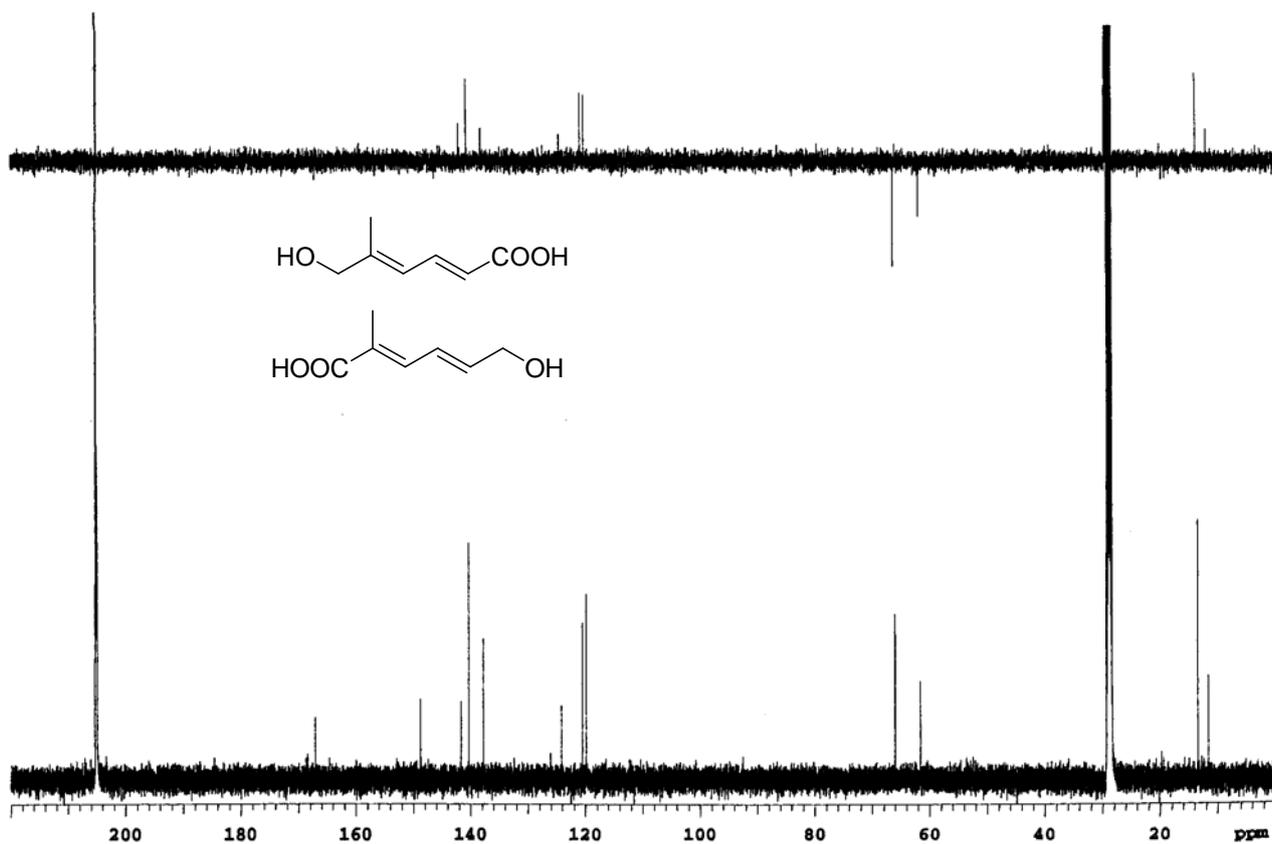
Spectrum ^1H NMR of 4a + 5a



Spectrum ^{13}C NMR of **4a** + **5a**

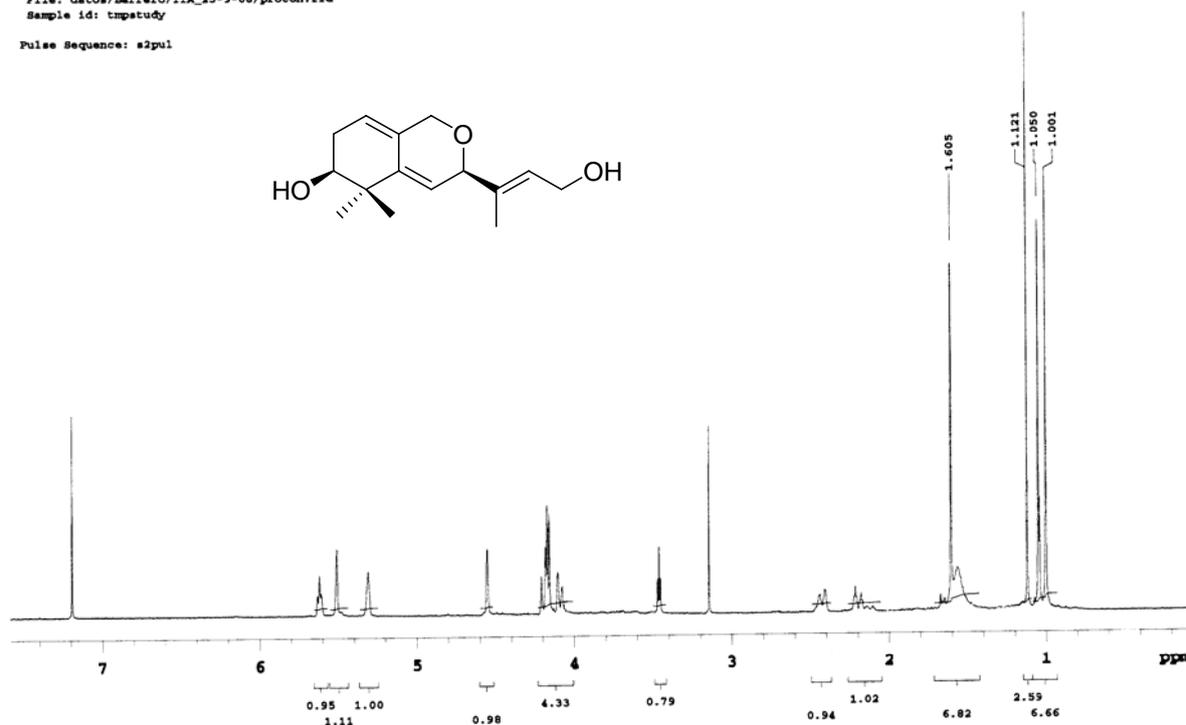


Spectrum ^1H NMR of 4 + 5



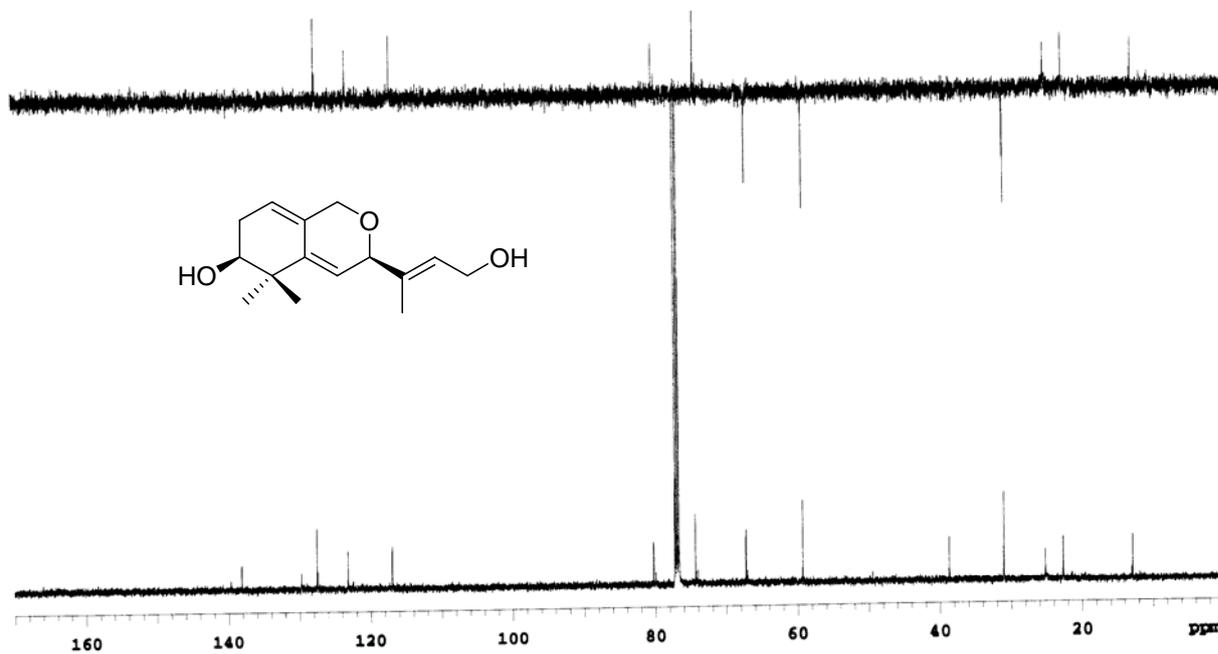
Spectrum ^{13}C NMR of **4 + 5**

11A_23-9-08
File: datos/Barrero/11A_23-9-08/proton.fid
Sample id: tmpstudy
Pulse Sequence: s2pul

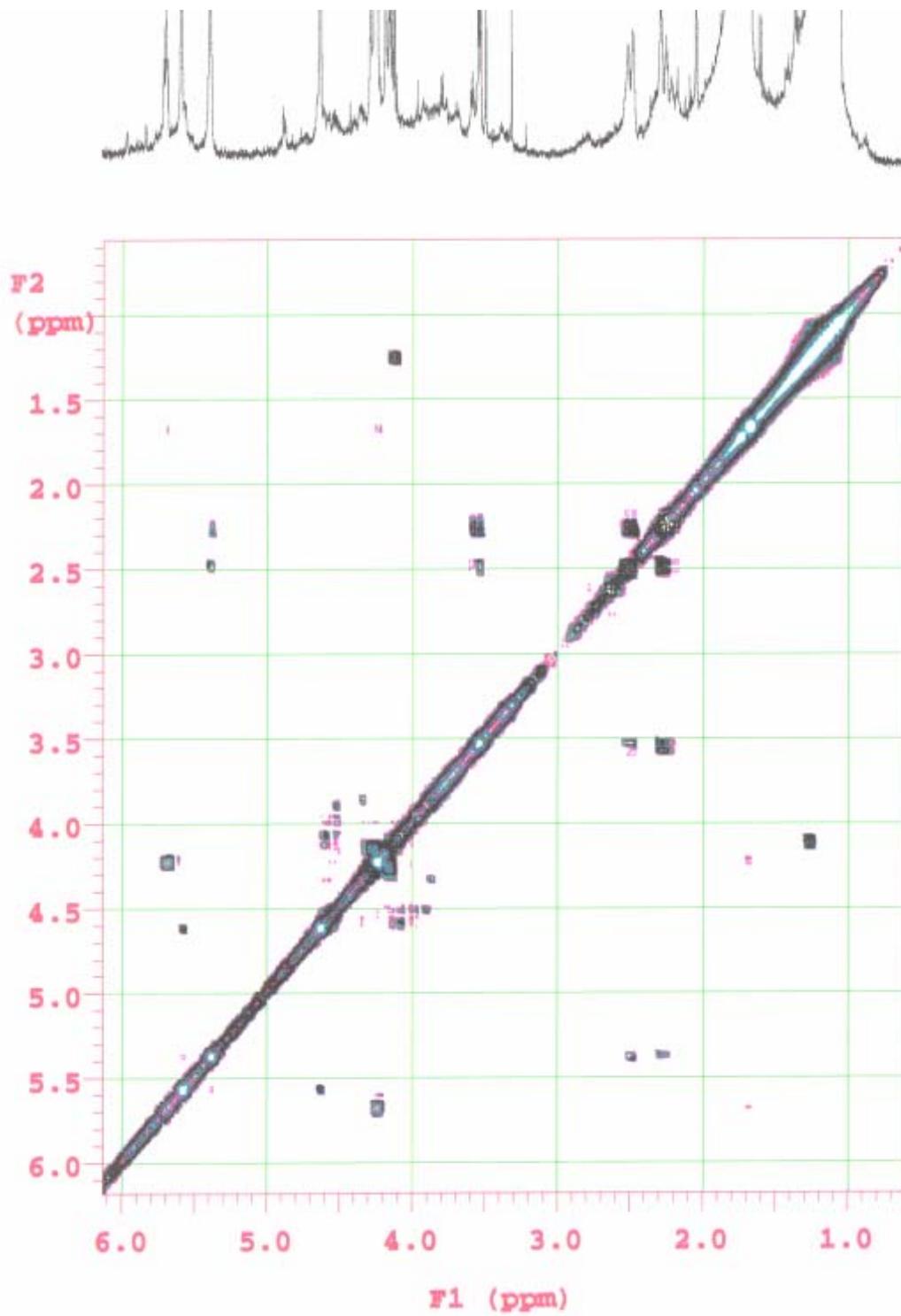


Spectrum ¹H NMR of 6

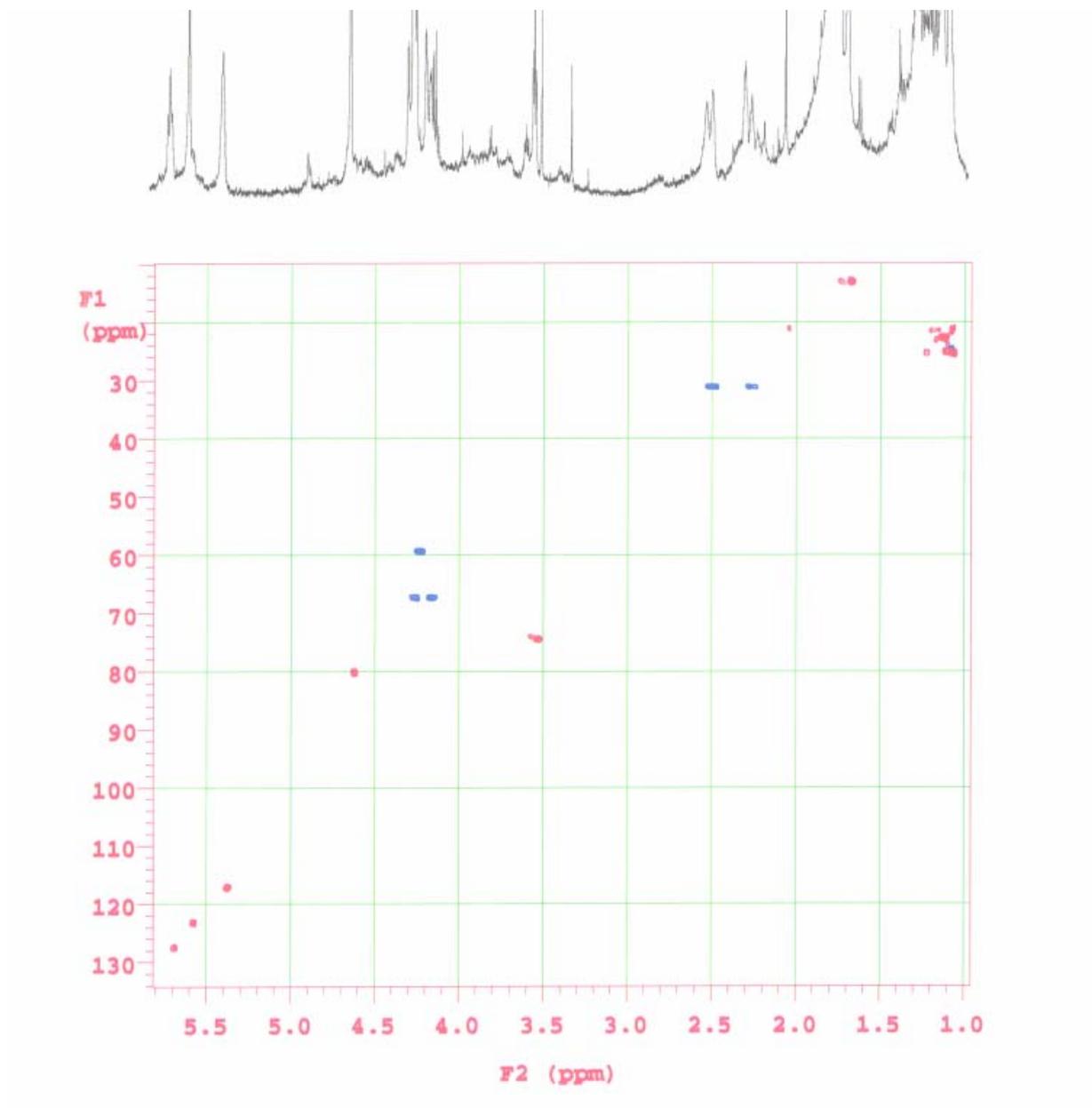
11A_23-9-08
File: xp
Sample id: tmpstudy
Pulse Sequence: s2pul



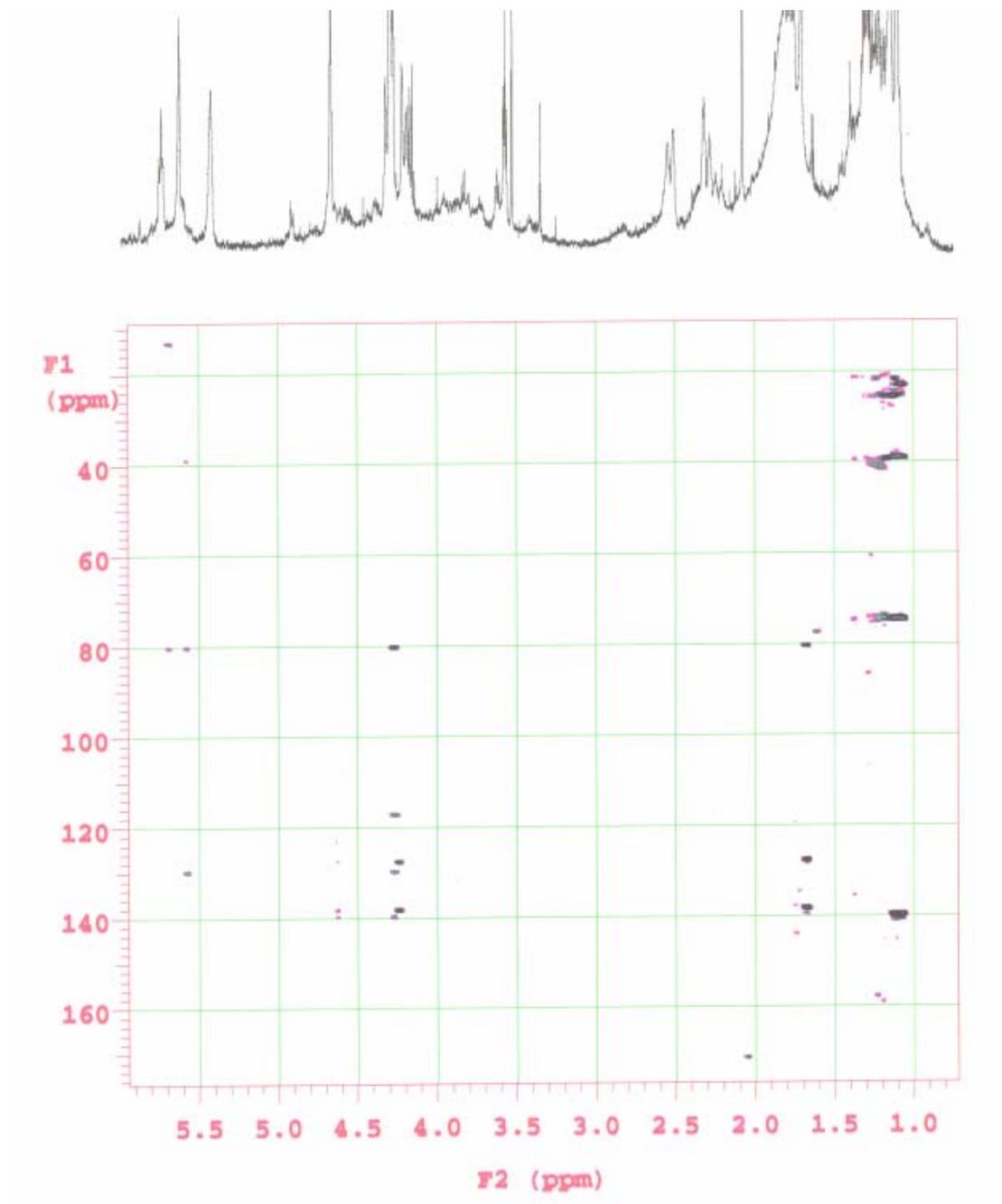
Spectrum ¹³C NMR of 6



Spectrum COSY of **6**



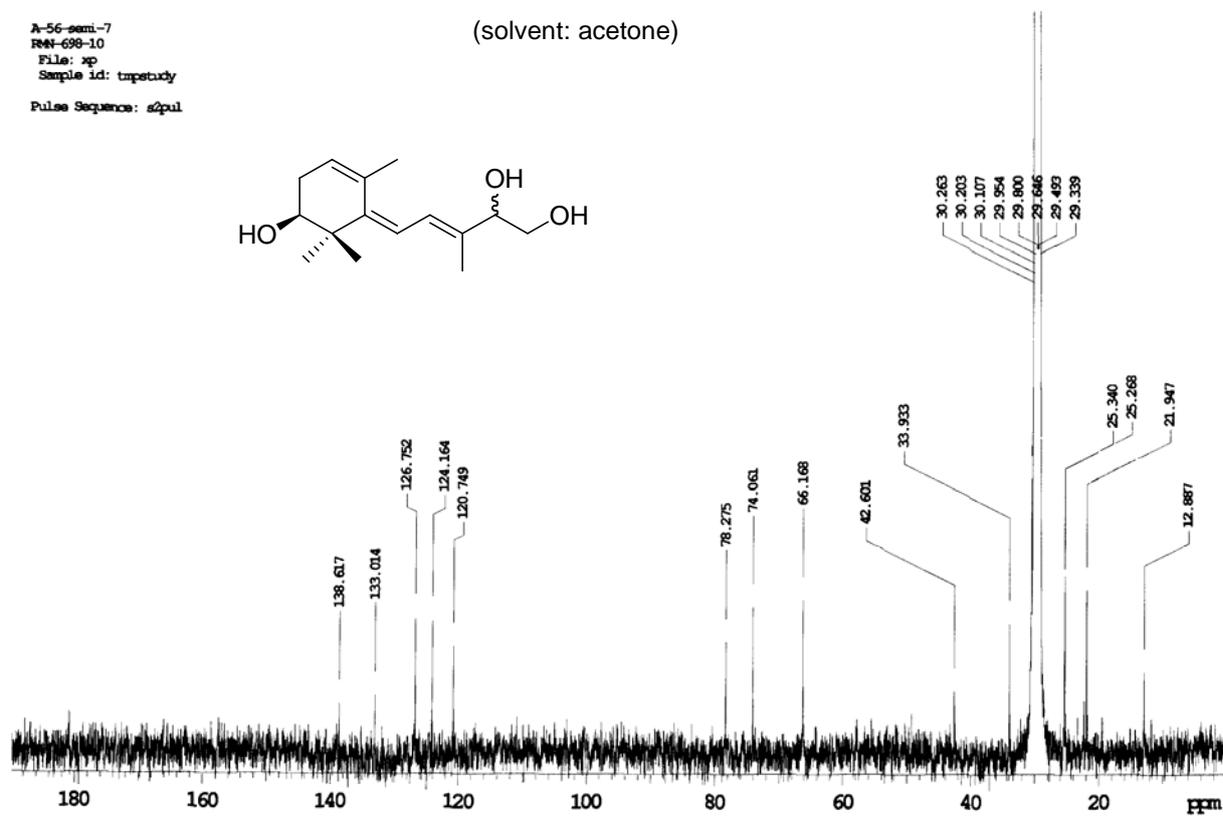
Spectrum HSQC of **6**



Spectrum HMBC of **6**

A-56-semi-7
R44-698-10
File: xp
Sample id: tmpetaxy
Pulse Sequence: s2pul

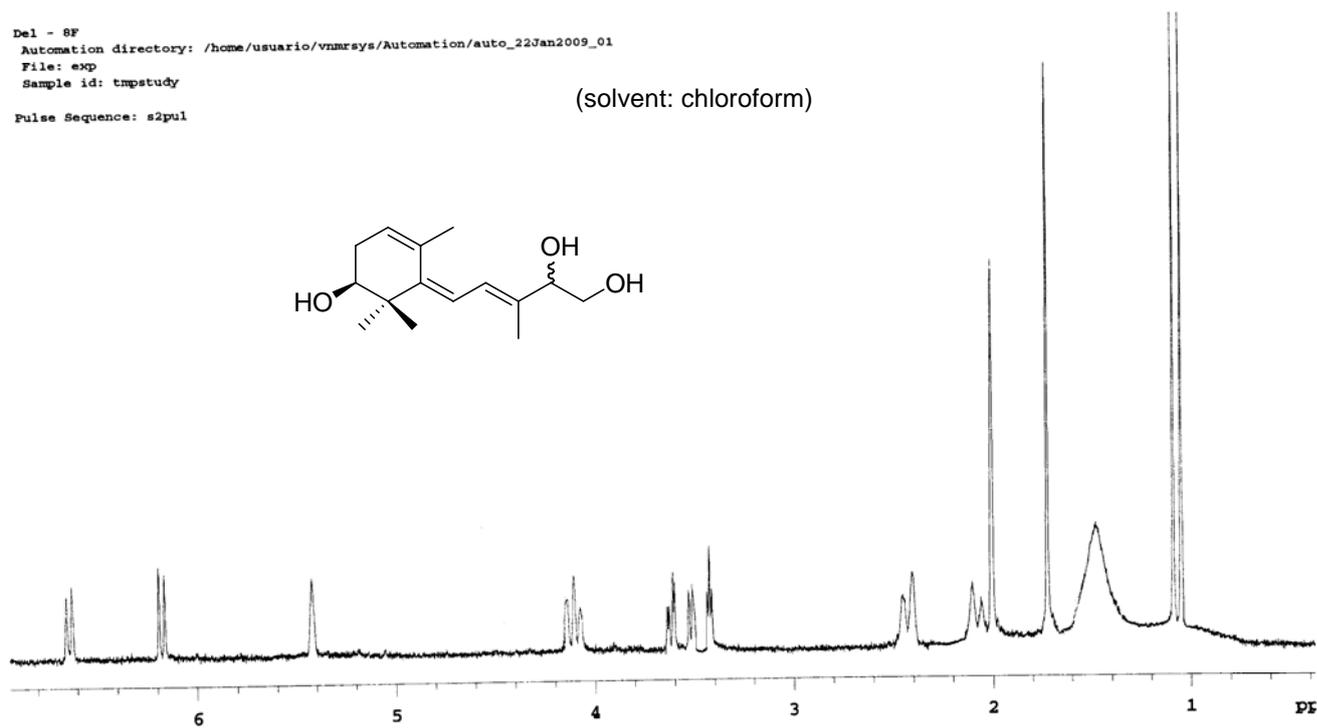
(solvent: acetone)



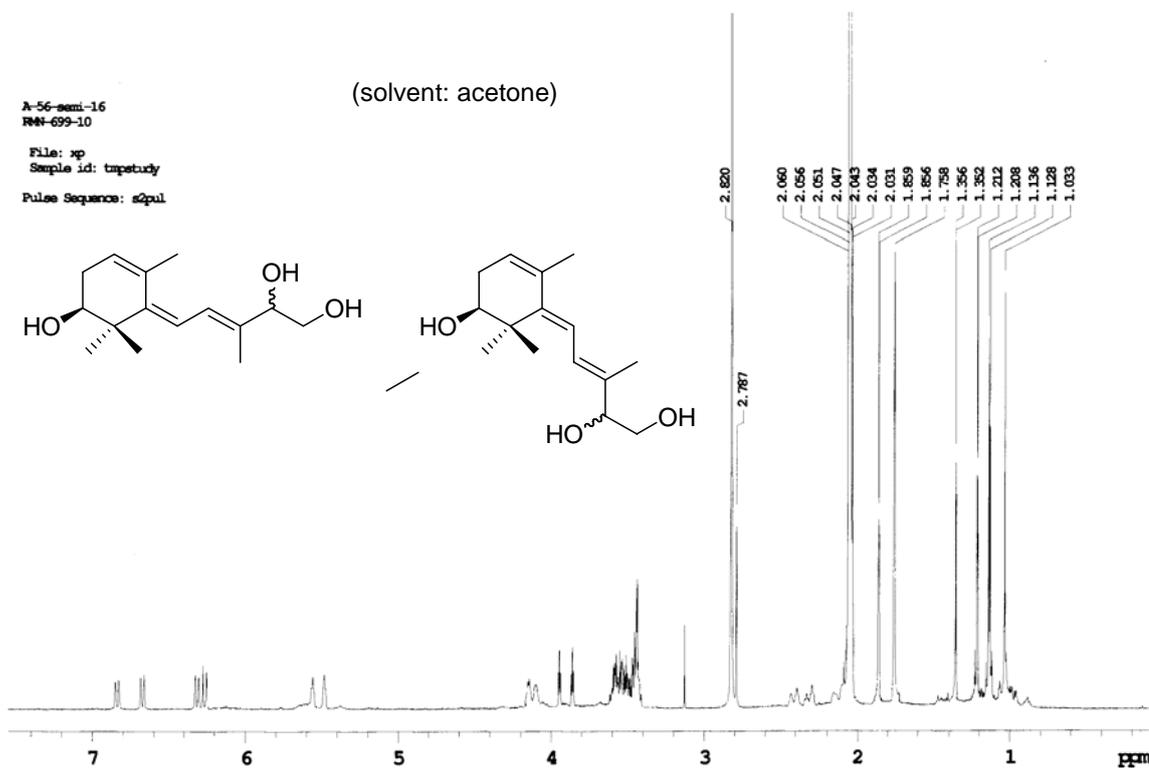
Spectrum ¹³C NMR of 7

Del - 8F
Automation directory: /home/usuario/vnmrsvs/Automation/auto_22Jan2009_01
File: exp
Sample id: tmpstudy
Pulse Sequence: s2pul

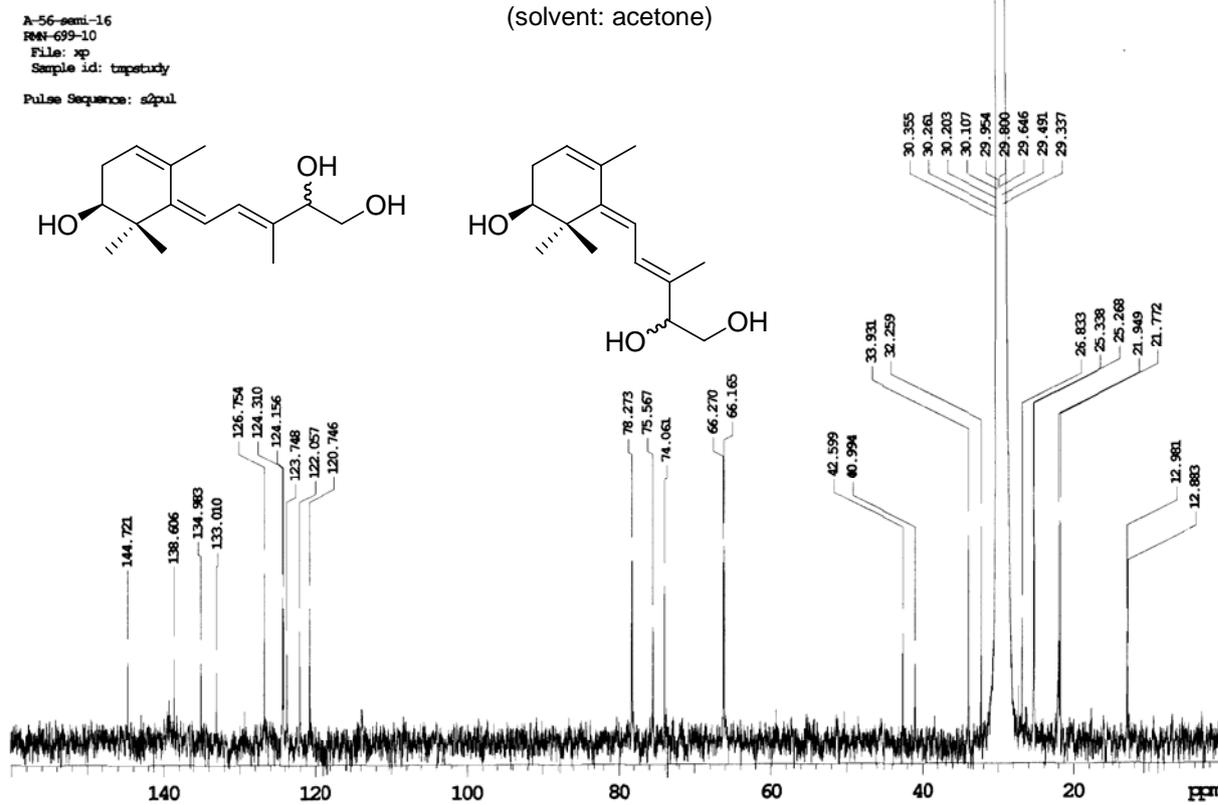
(solvent: chloroform)



Spectrum ¹H NMR of 7



Spectrum ^1H NMR of **7** + **8**



Spectrum ^{13}C NMR of 7 + 8

Del (-) Fraction 9

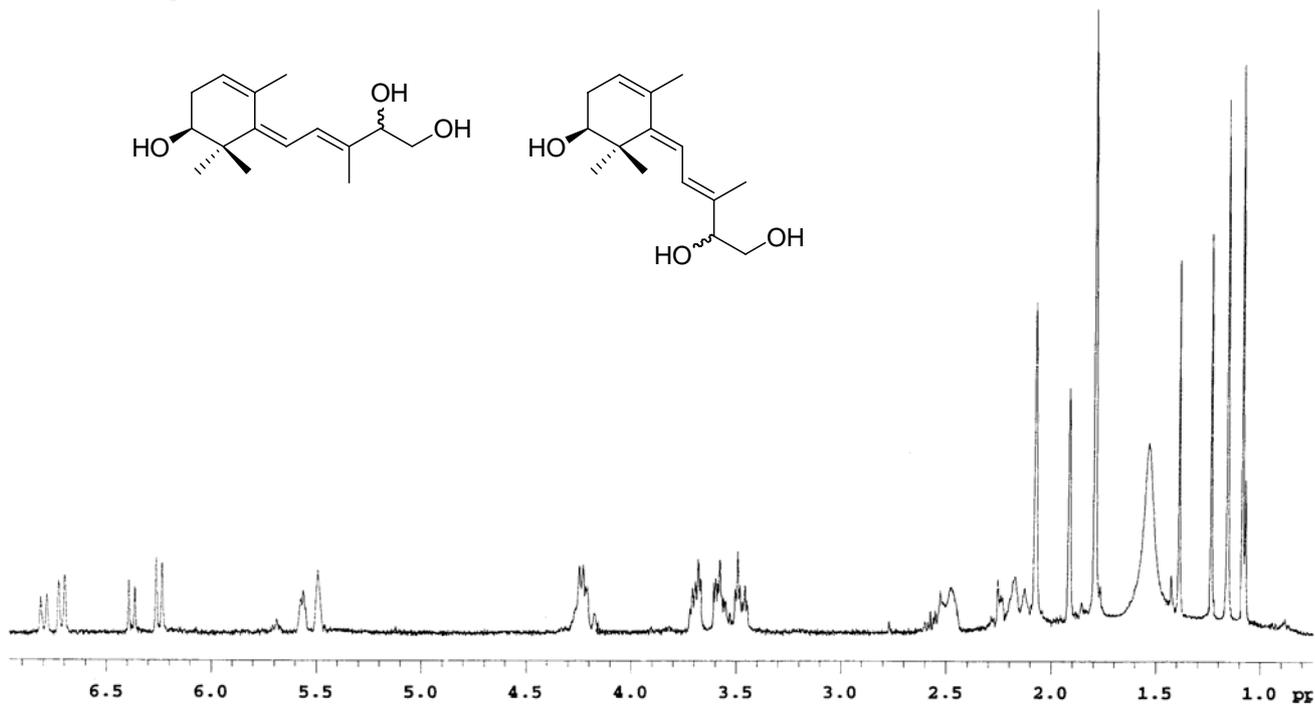
Automation directory: /home/usuario/vnmrSYS/Automation/auto_22Jan2009_01

File: exp

Sample id: tmpstudy

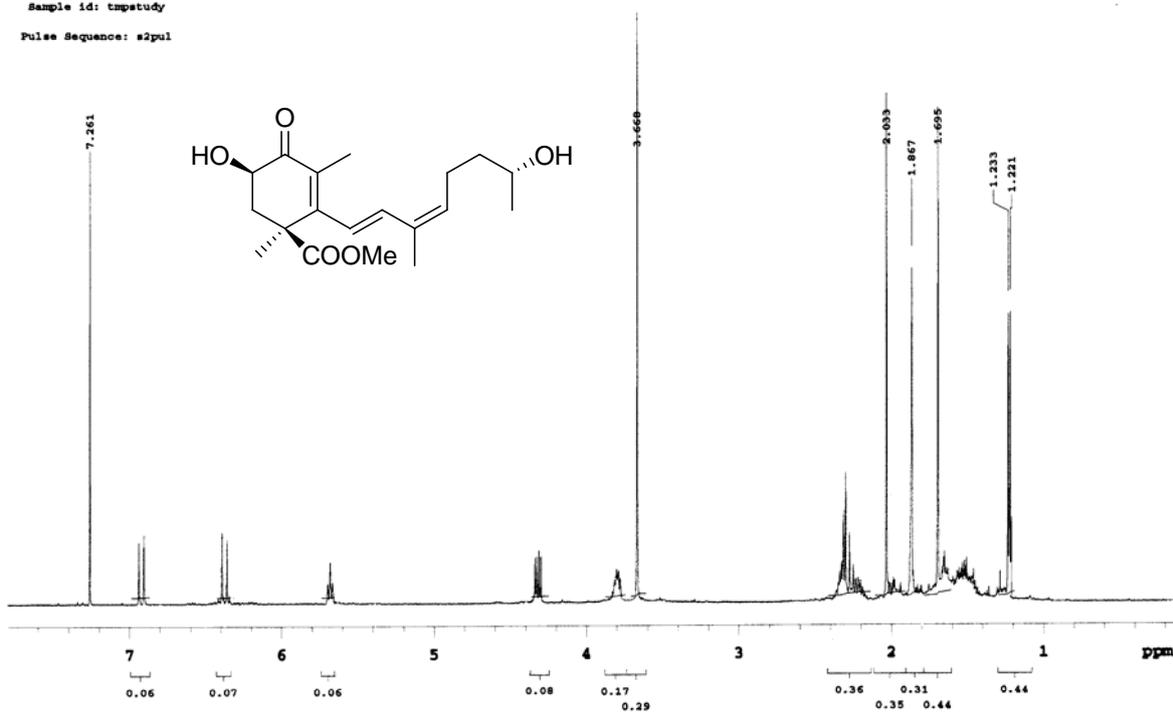
(solvent: chloroform)

Pulse Sequence: s2pul

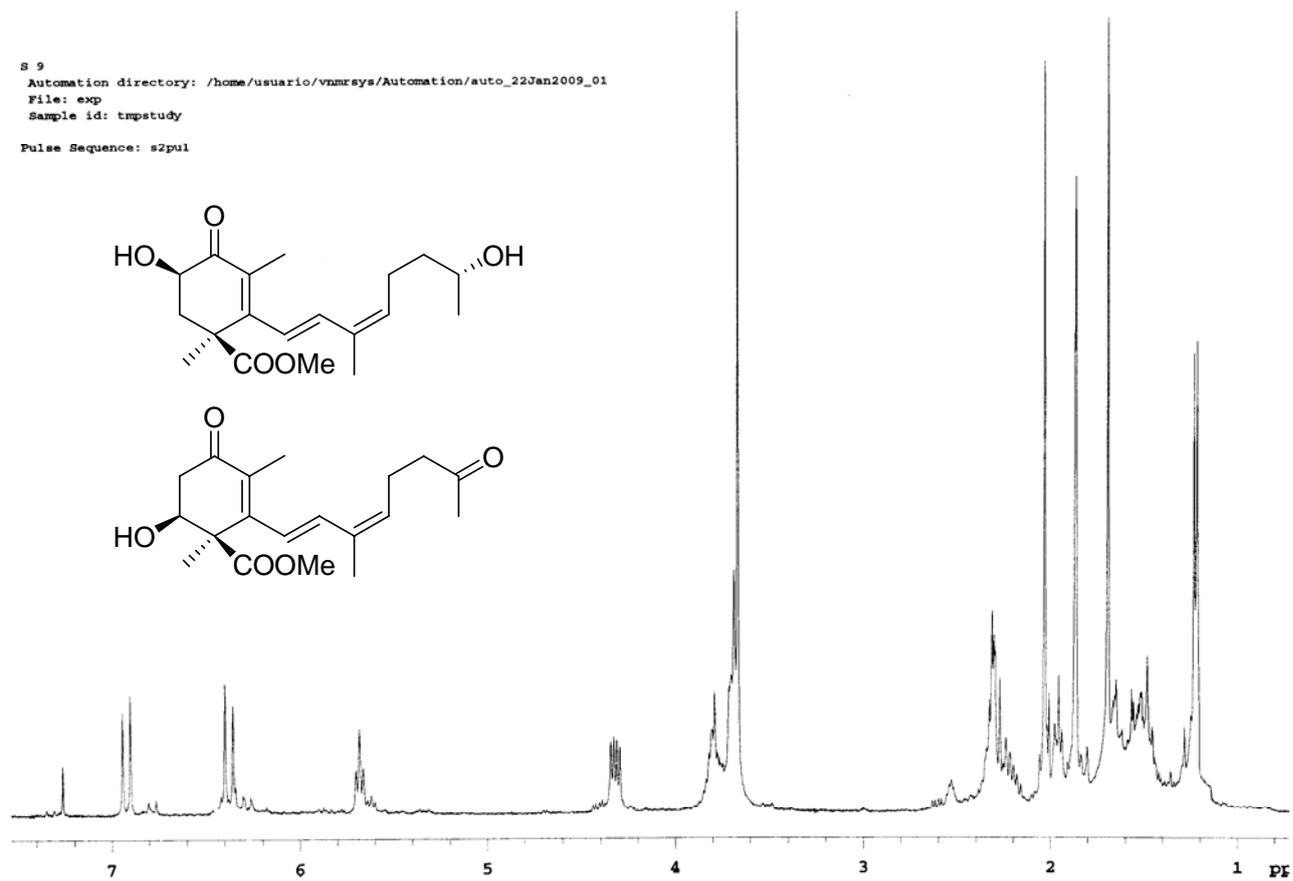


Spectrum ^1H NMR of 7 + 8

7A_23-9-08
File: xp
Sample id: tmpstudy
Pulse Sequence: s2pul

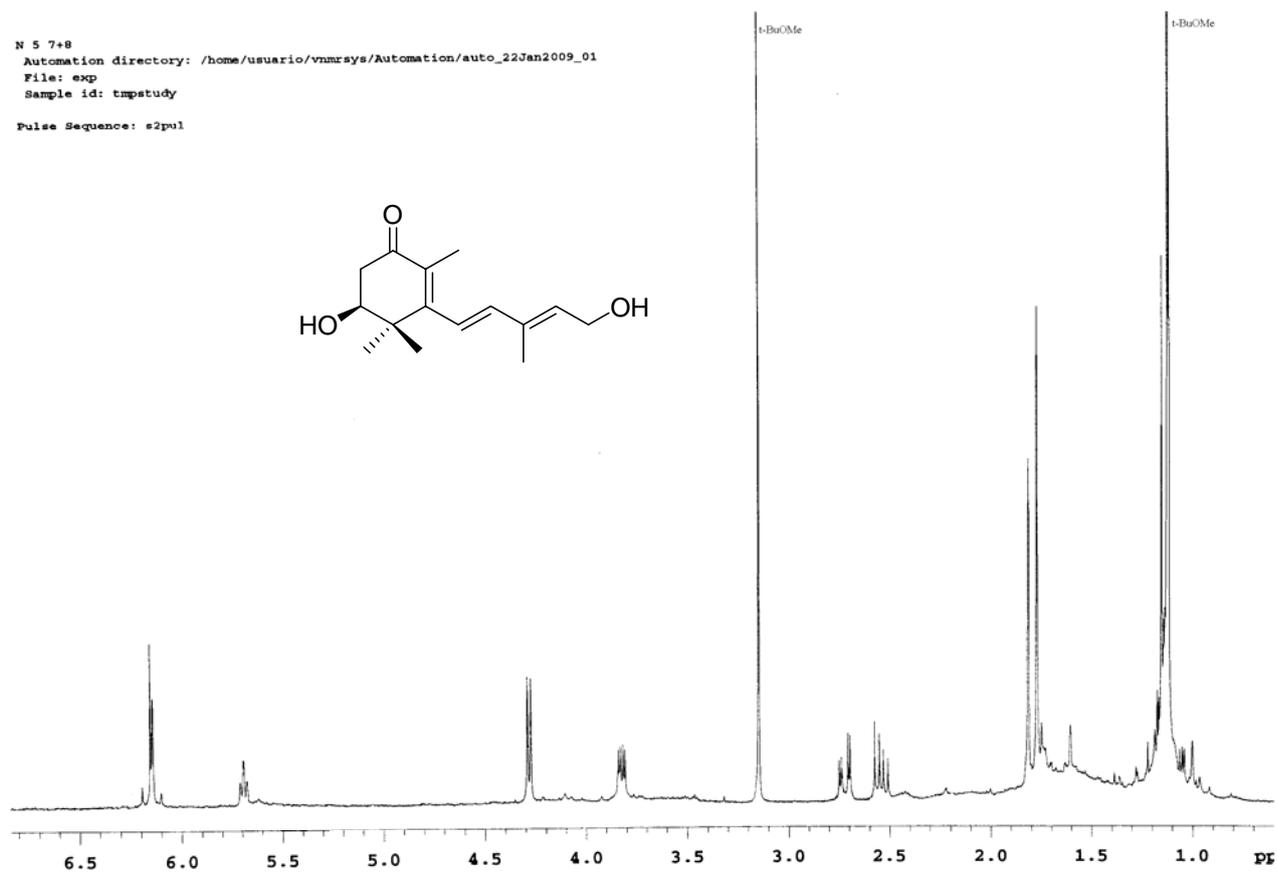


Spectrum ¹H NMR of 2



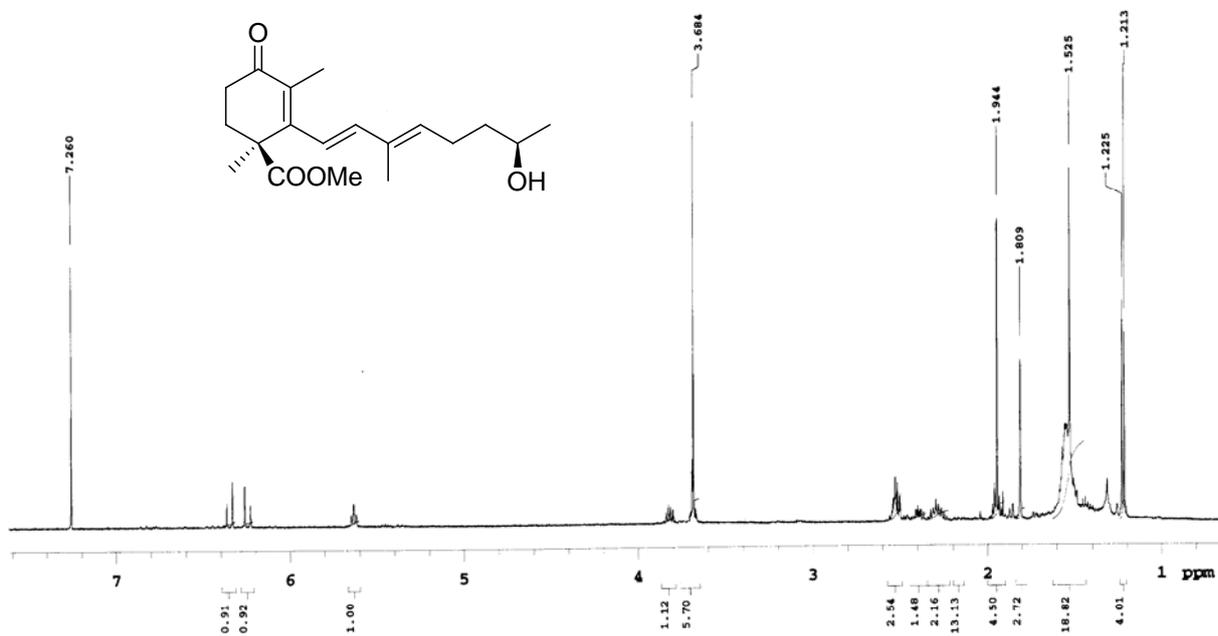
Spectrum $^1\text{H NMR}$ of **2** + **12**

N 5 7+8
Automation directory: /home/usuario/vnmrSYS/Automation/auto_22Jan2009_01
File: exp
Sample id: tmpstudy
Pulse Sequence: s2pul



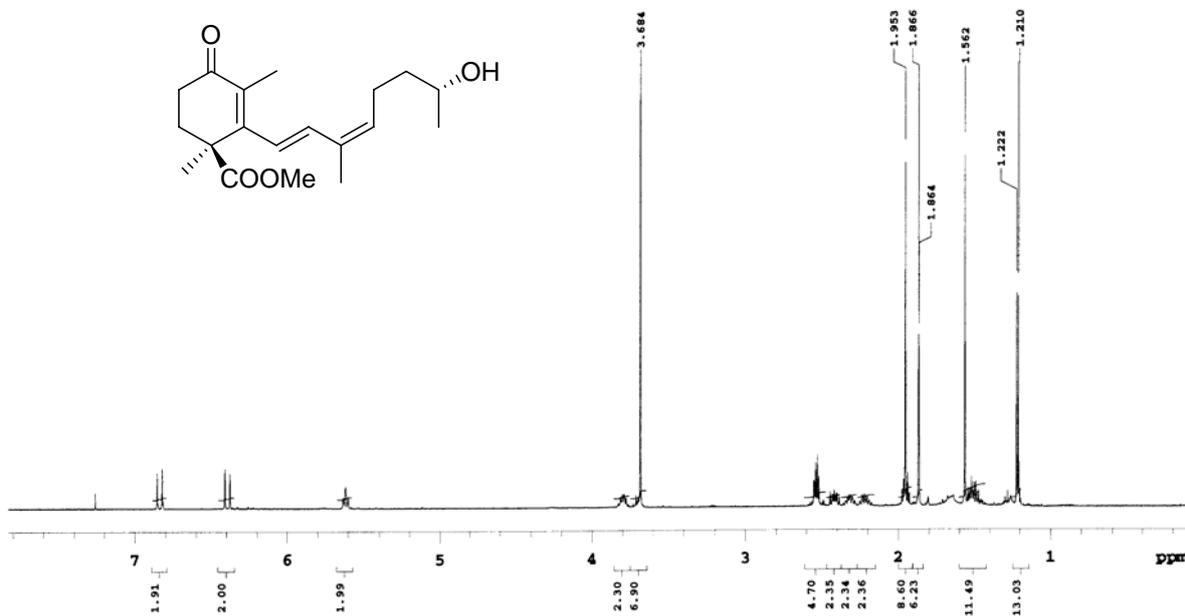
Spectrum ¹H NMR of 3

011V160-1U
File: xp
Sample id: tmpstudy
Pulse Sequence: s2pul

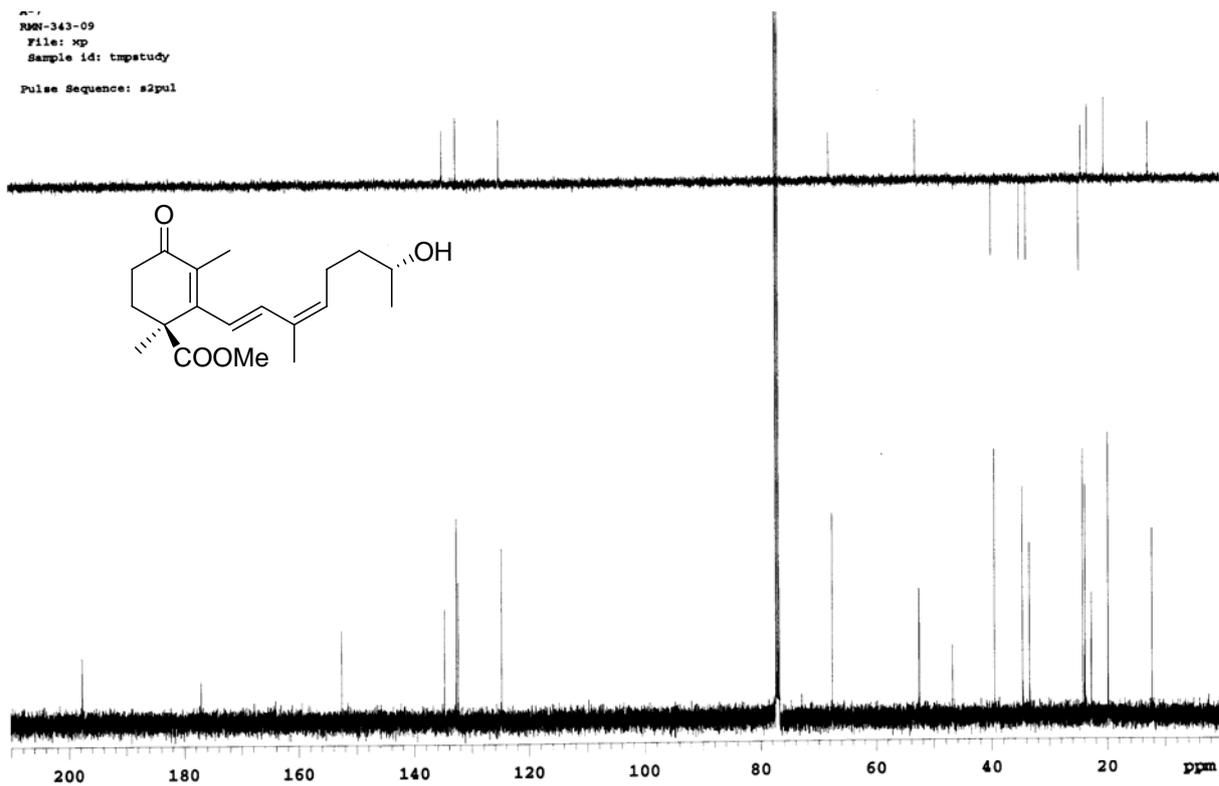


Spectrum ¹H NMR of **11a** (9E)

A-1
RMN-343-09
File: XP
Sample id: tmpstudy
Pulse Sequence: s2pul



Spectrum ^1H NMR of **9a** and **10** (9Z)



Spectrum ^{13}C NMR of **9a** and **10** (9Z)