Isomeric C_{12}-alkamides from the roots of Echinacea purpurea improve basal and insulin-dependent glucose uptake in 3T3-L1 adipocytes

Kotowska, Dorota Ewa; El-Houri, Rime Bahij; Borkowski, Kamil; Petersen, Rasmus Koefoed; Fretté, Xavier; Wolber, Gerhard; Grevsen, Kai; Christensen, Kathrine Bisgaard; Christensen, Lars Porskjær; Kristiansen, Karsten

Published in:
Planta Medica

DOI (link to publication from Publisher):
10.1055/s-0034-1383252

Publication date:
2014

Document Version
Other version

Supporting Information

Isomeric C_{12}-Alkamides from the Roots of *Echinacea purpurea* Improve Basal and Insulin-Dependent Glucose Uptake in 3T3-L1 Adipocytes

Dorota Kotowska[1,*], Rime B. El-Houri[2,*], Kamil Borkowski[1], Rasmus K. Petersen[1], Xavier C. Fretté[2], Gerhard Wolber[3], Kai Grevsen[4], Kathrine B. Christensen[2], Lars P. Christensen[2], Karsten Kristiansen[1]

[*] Dorota Kotowska and Rime B. El-Houri contributed equally to the work.

Affiliations

[1]Department of Biology, University of Copenhagen, Copenhagen, Denmark

[2]Department of Chemical Engineering, Biotechnology and Environmental Technology, University of Southern Denmark, Odense, Denmark

[3]Computer-Aided Drug Design, Institute of Pharmacy, Medicinal and Pharmaceutical Chemistry, Freie Universität Berlin, Berlin, Germany

[4]Department of Food Science, Aarhus University, Aarslev, Denmark

Correspondence

Prof. Dr. Lars P. Christensen

Department of Chemical Engineering, Biotechnology and Environmental Technology

University of Southern Denmark

Campusvej 55

5230 Odense M

Denmark

Phone: +45 6550 7361; Fax: +45 6550 7354

lpc@kbm.sdu.dk

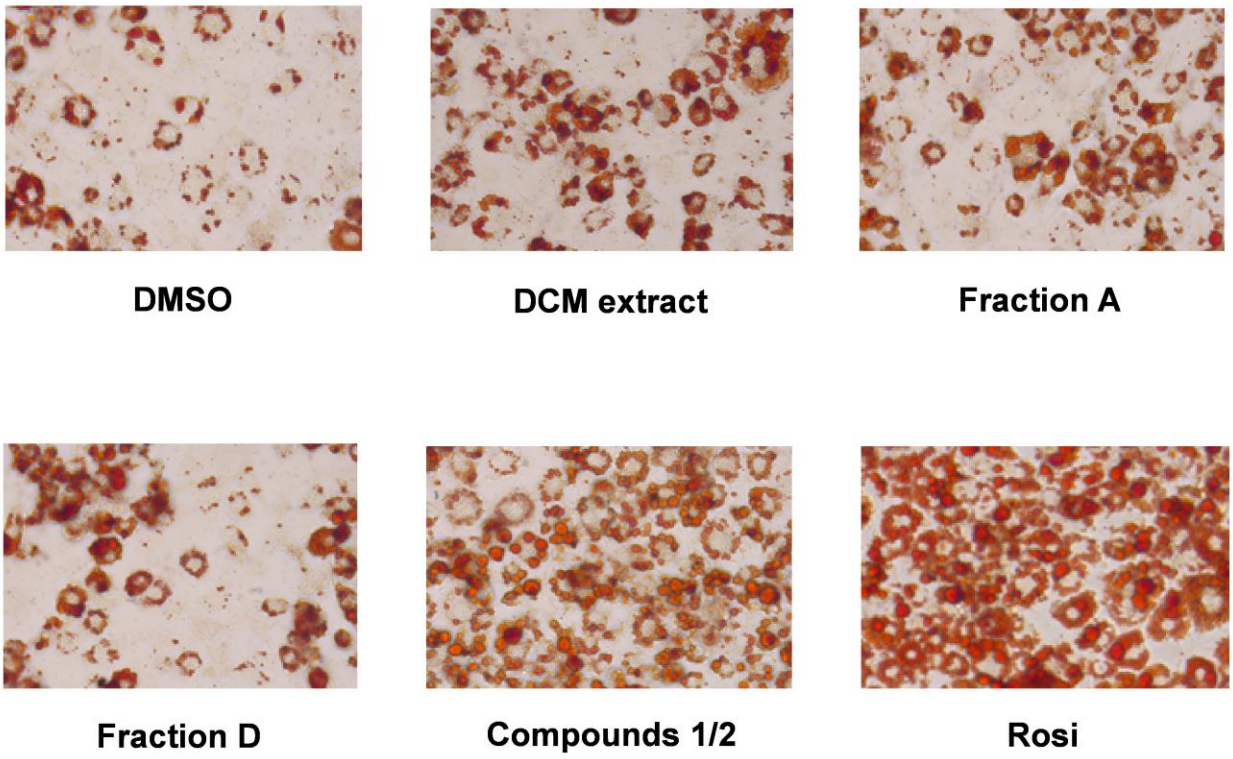

Fig. 1S Adipocyte differentiation of DI protocol-treated 3T3-L1 preadipocytes with DMSO, 100 µg/mL DCM root extract of *Echinacea purpurea*, 100 µg/mL fraction A, 100 µg/mL fraction D, 30 µM compounds **1**/**2**, and 1 µM Rosi, respectively.

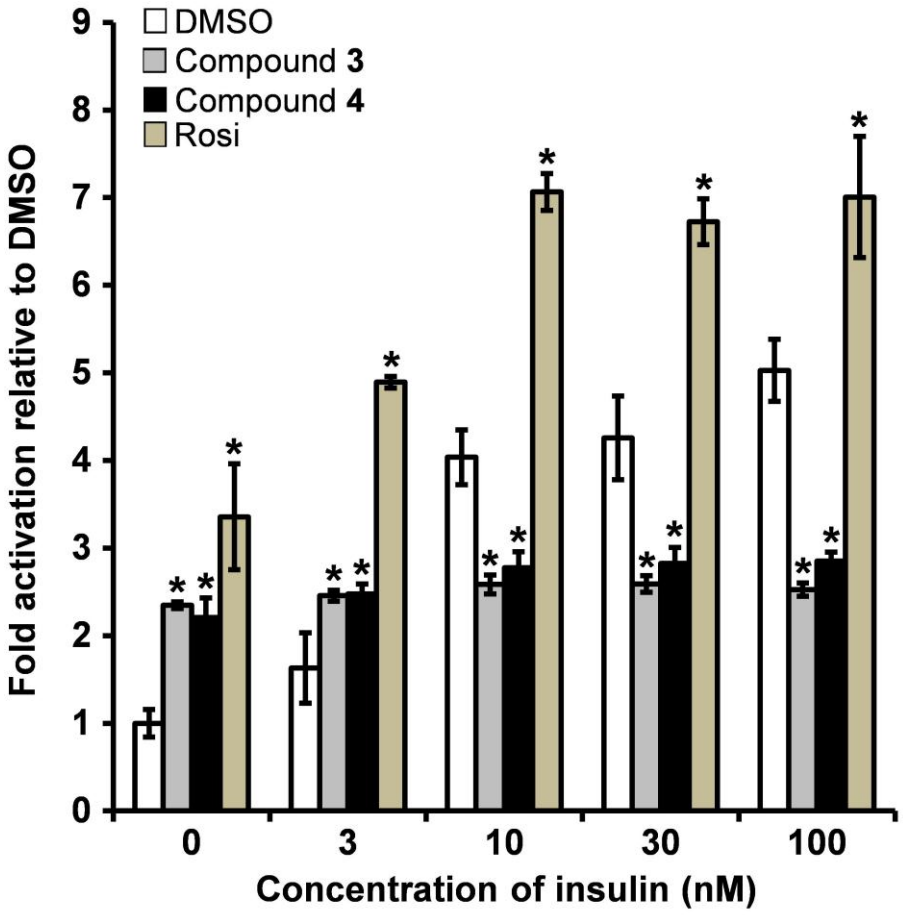

Fig. 2S Effect of compounds **3** and **4** at 30 µM concentration on insulin-dependent glucose uptake. DMSO (vehicle) was set to 1 and the results normalized to this, while Rosi (1 µM) was the positive control. All values are expressed as mean ± SD of three independent experiments in triplicates. * $p < 0.001$ indicates significance relative to DMSO in each treatment.

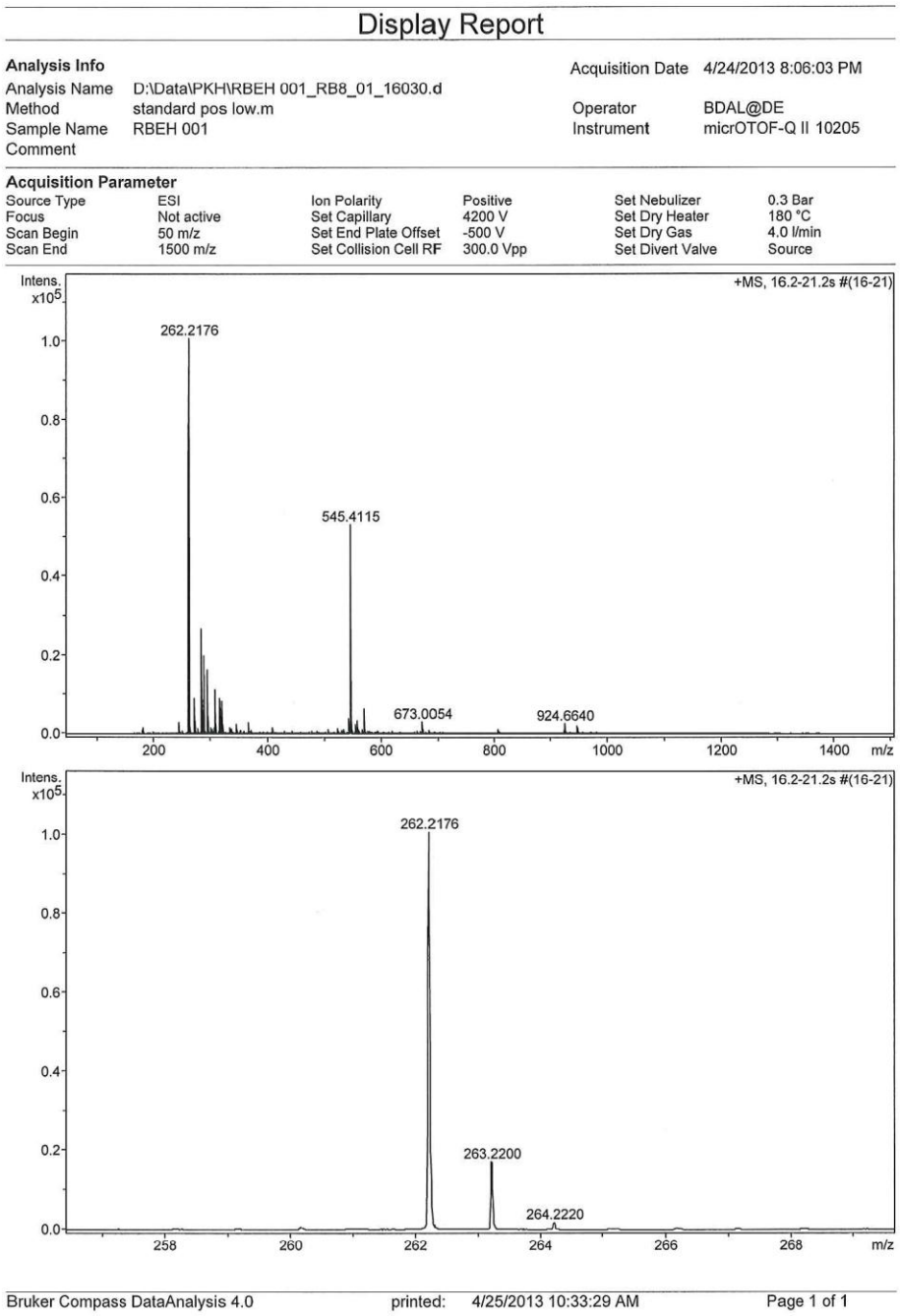

Fig. 3S HR-ESI-MS spectrum of compounds **1/2** with a quasi-molecular precursor ion at *m/z* 262.2176 $[M + H]^+$. The peak at *m/z* 545 corresponds to the adduct $[2M + Na]^+$.

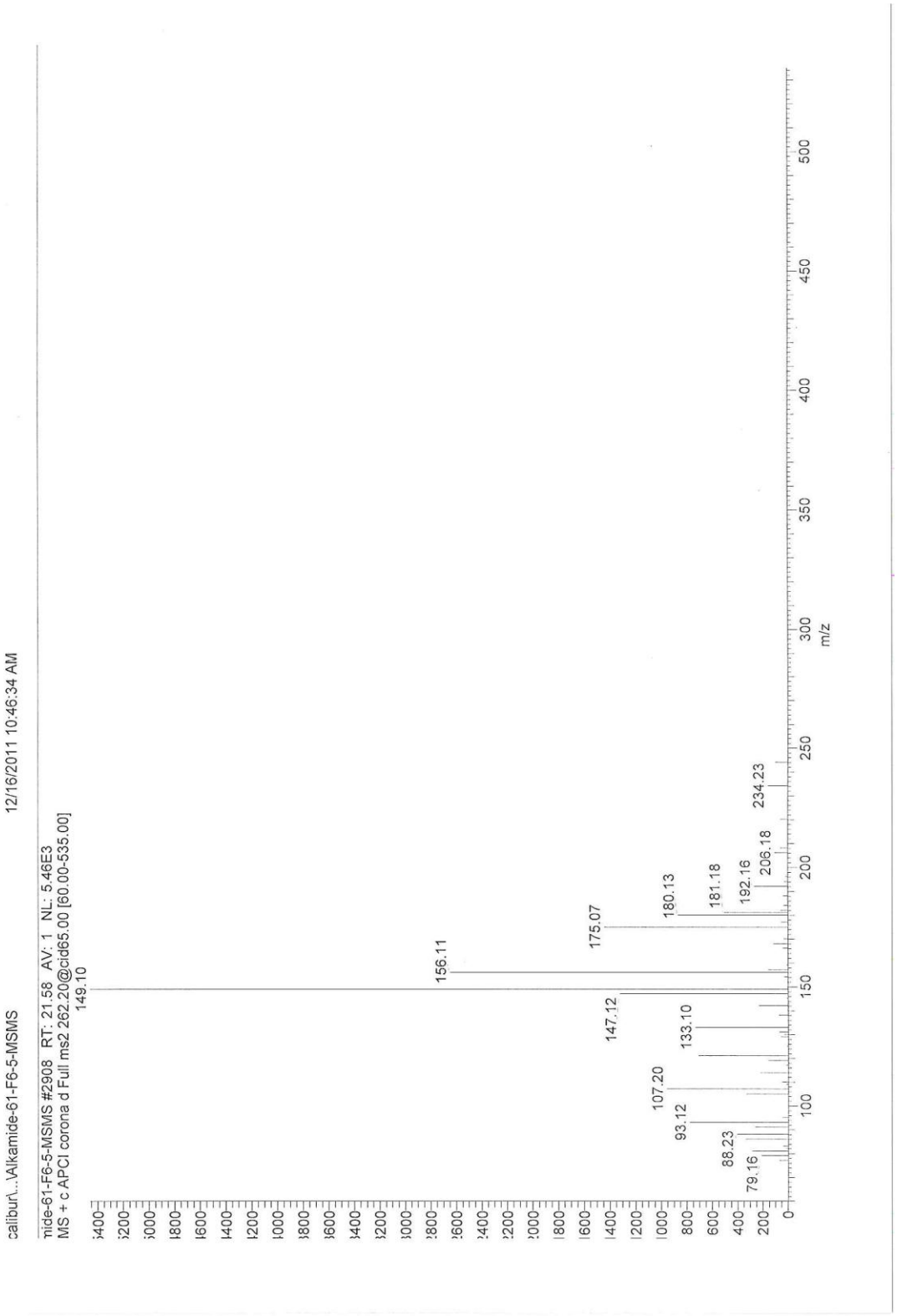

Fig. 4S MS/MS spectrum of the quasi-molecular precursor ion (*m/z* 262 $[M + H]^+$) of compounds **1**/**2**.

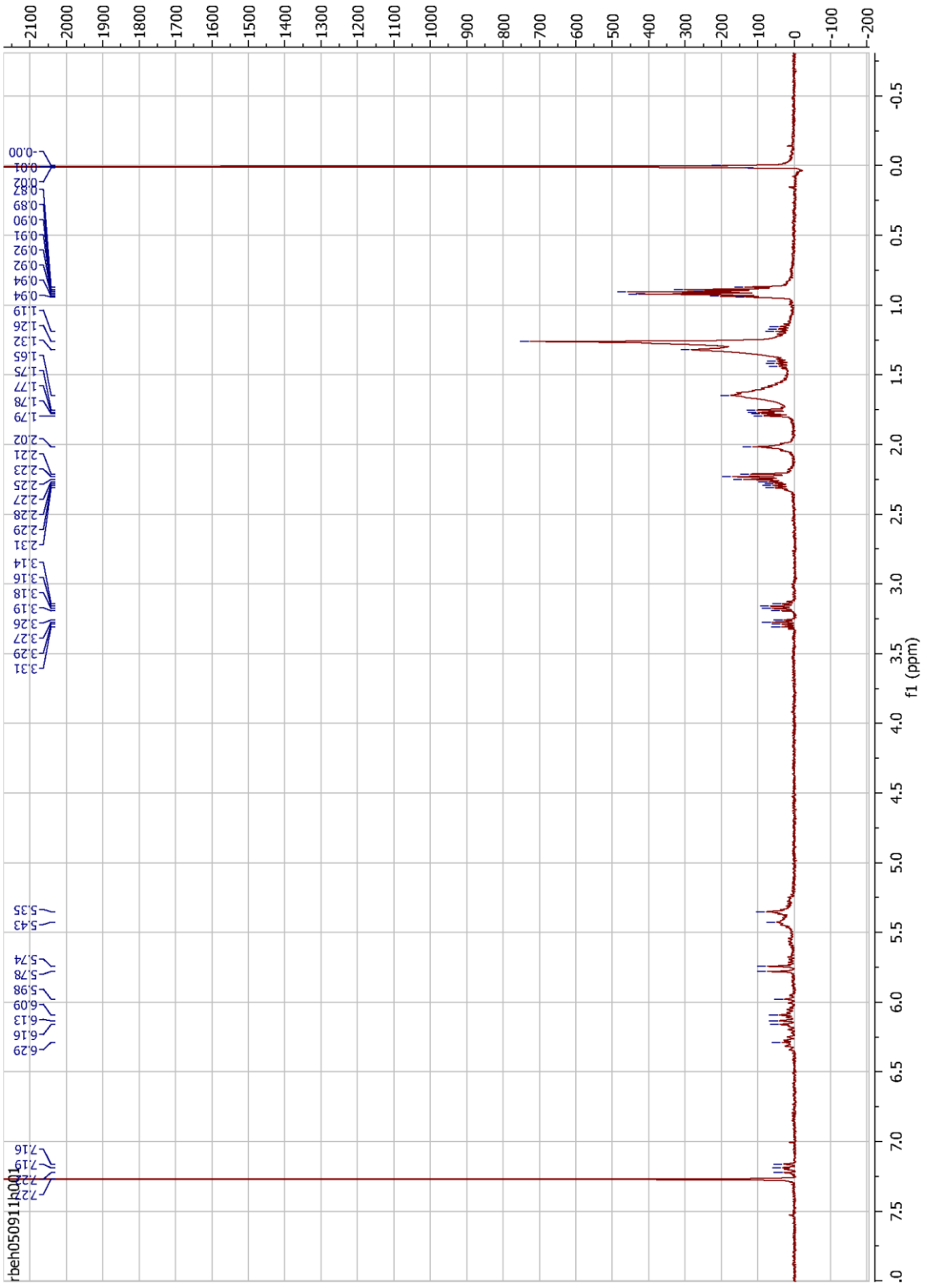

Fig. 5S ^{1}H NMR spectrum of compounds **1**/**2**.

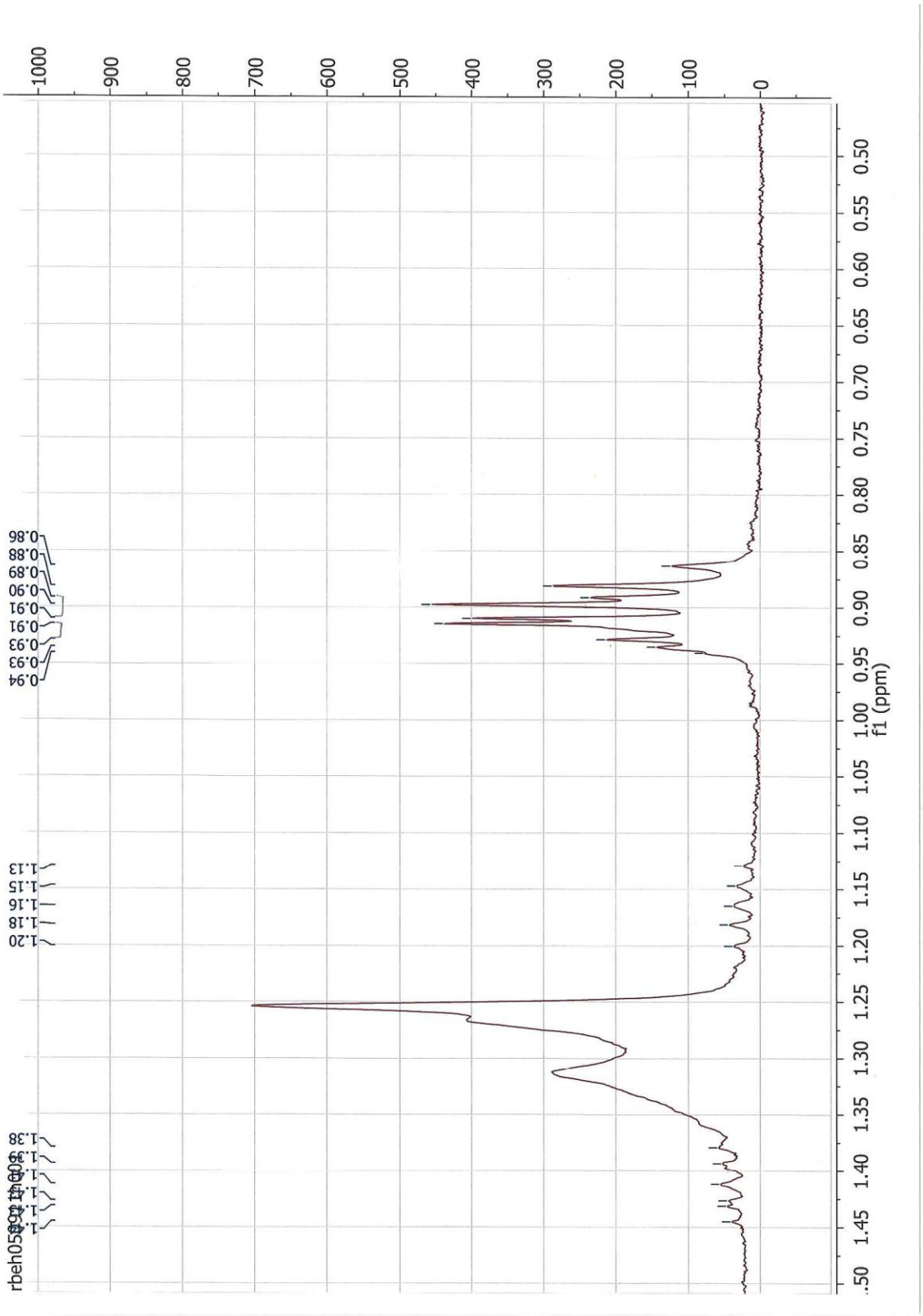

Fig. 6S [1]H NMR spectrum of compounds **1**/**2** expanded in the region of ≈ 0.4–1.5 ppm.

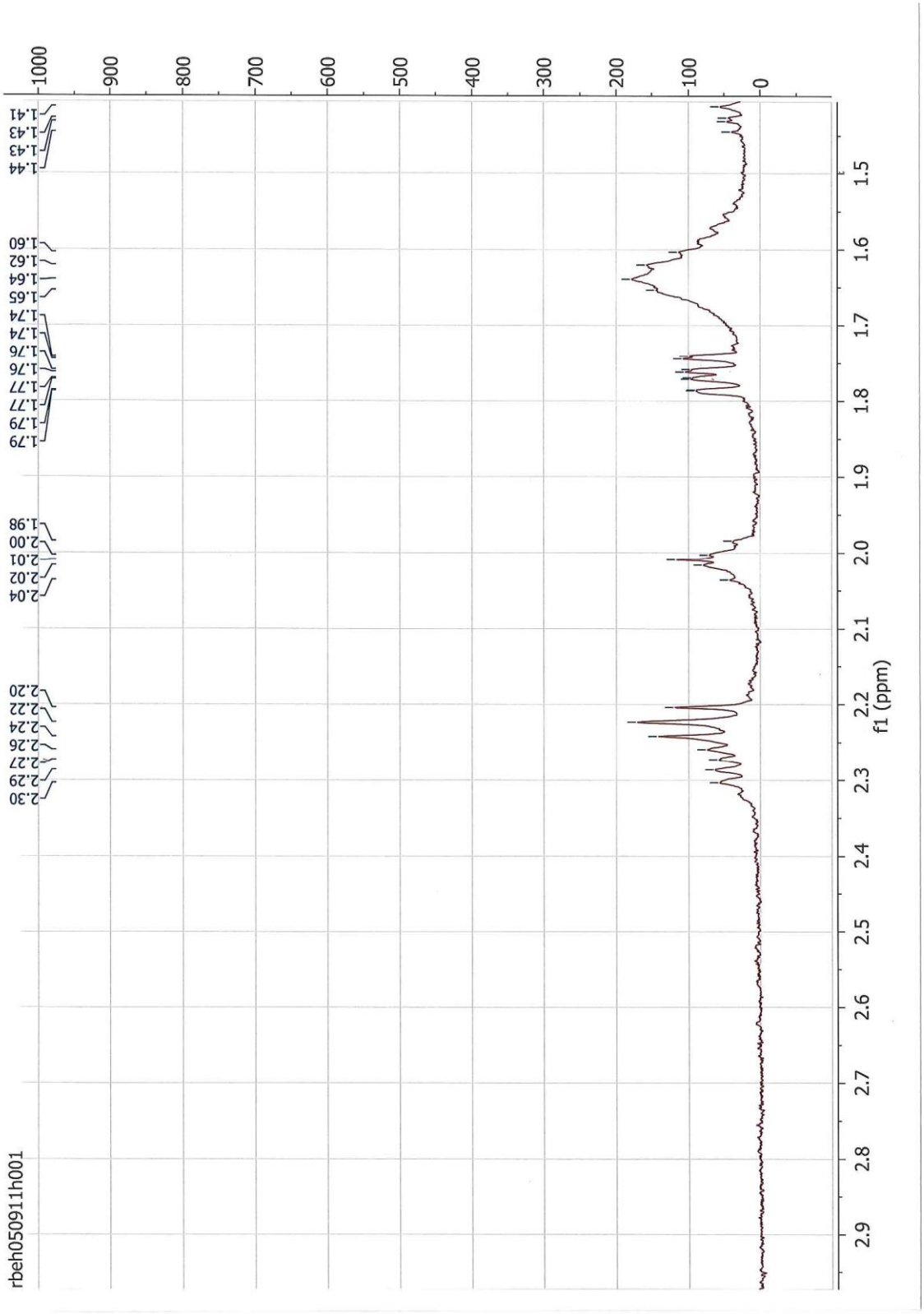

Fig. 7S ^{1}H NMR spectrum of compounds **1/2** expanded in the region ≈ 1.4–3.0 ppm.

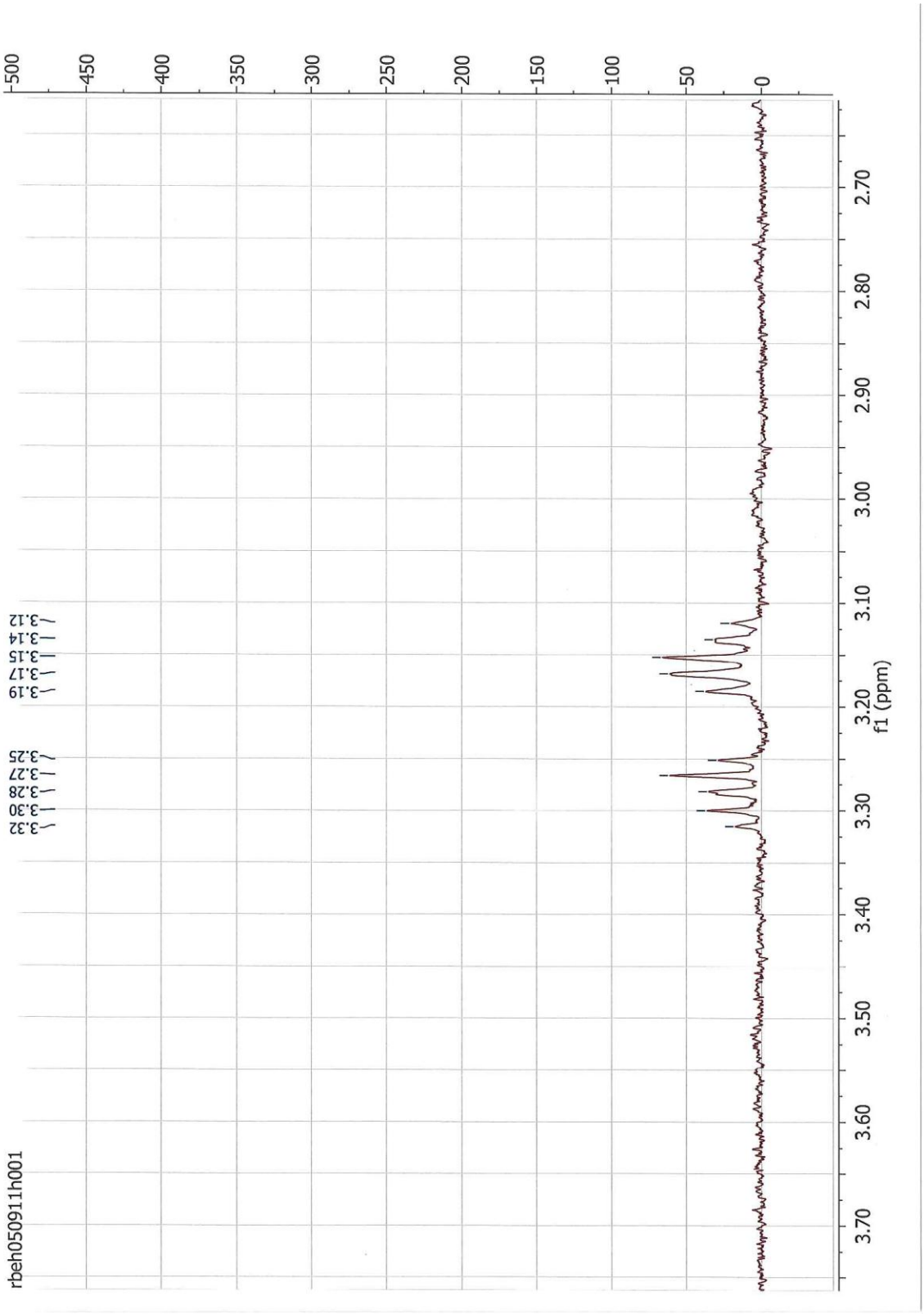

Fig. 8S ^{1}H NMR spectrum of compounds **1/2** expanded in the region ≈ 2.6–3.8 ppm.

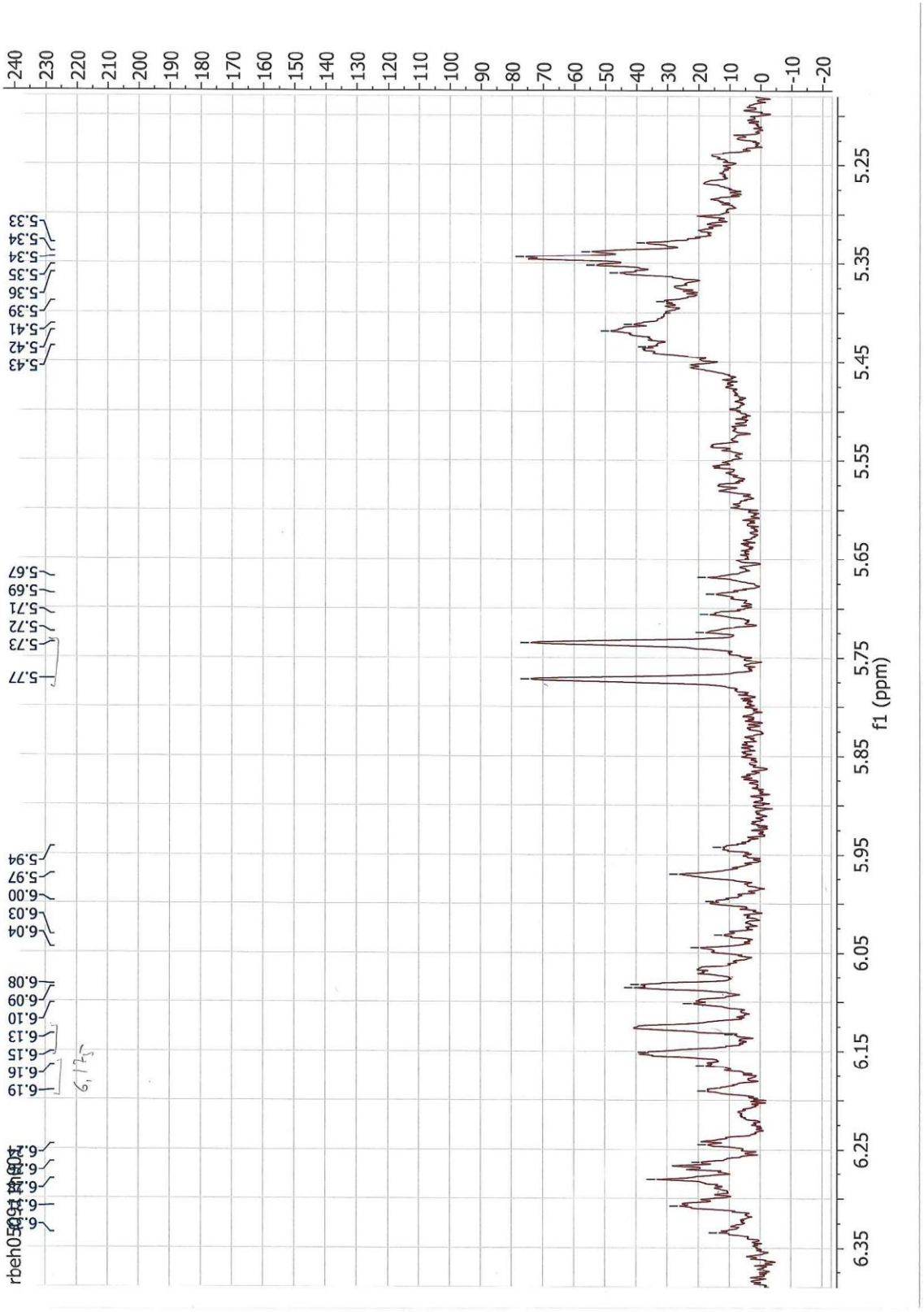

Fig. 9S ^{1}H NMR spectrum of compounds **1**/**2** expanded in the region ≈ 5.15–6.40 ppm.

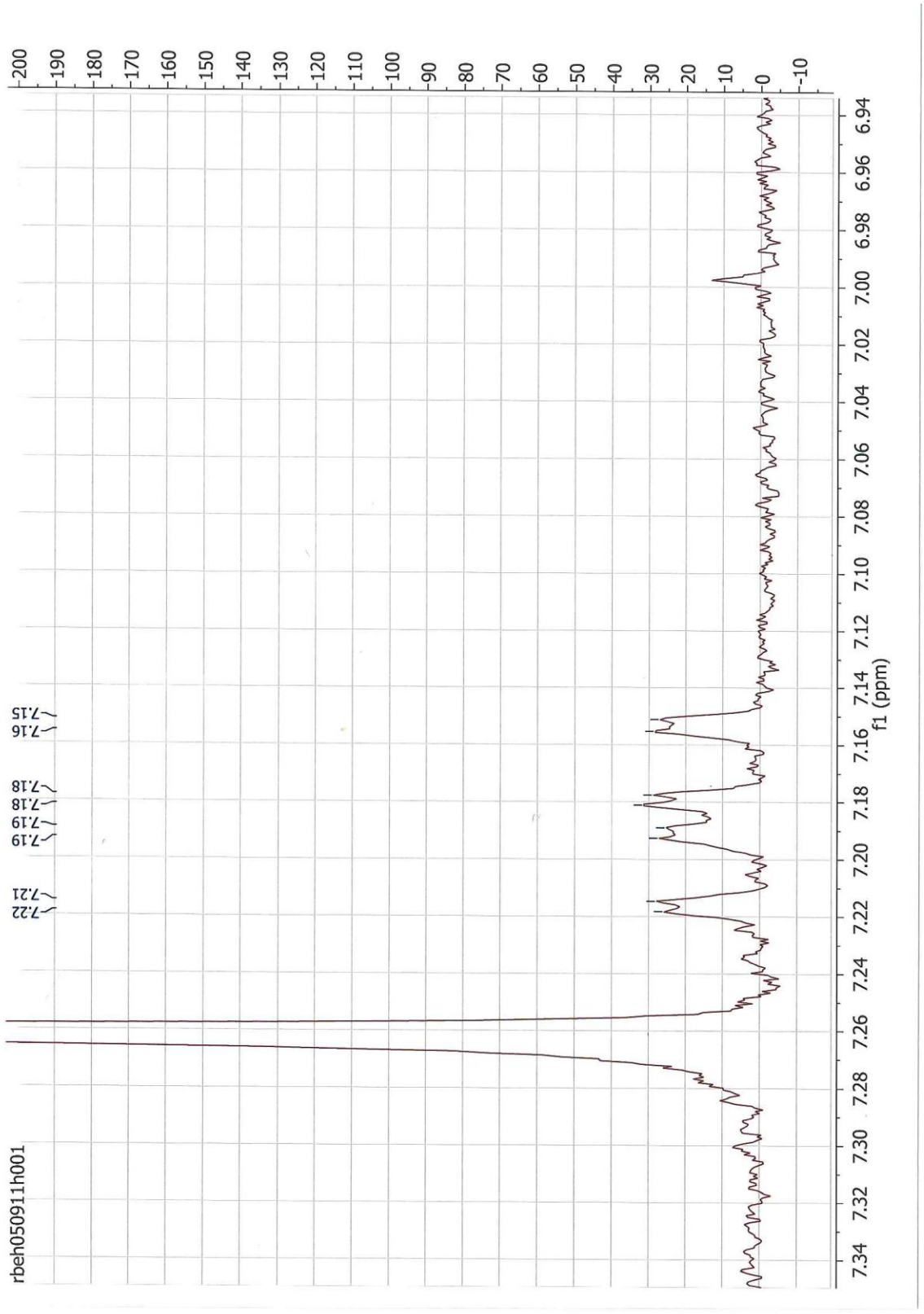

Fig. 10S [1]H NMR spectrum of compounds **1/2** expanded in the region ≈ 6.94–7.34 ppm.

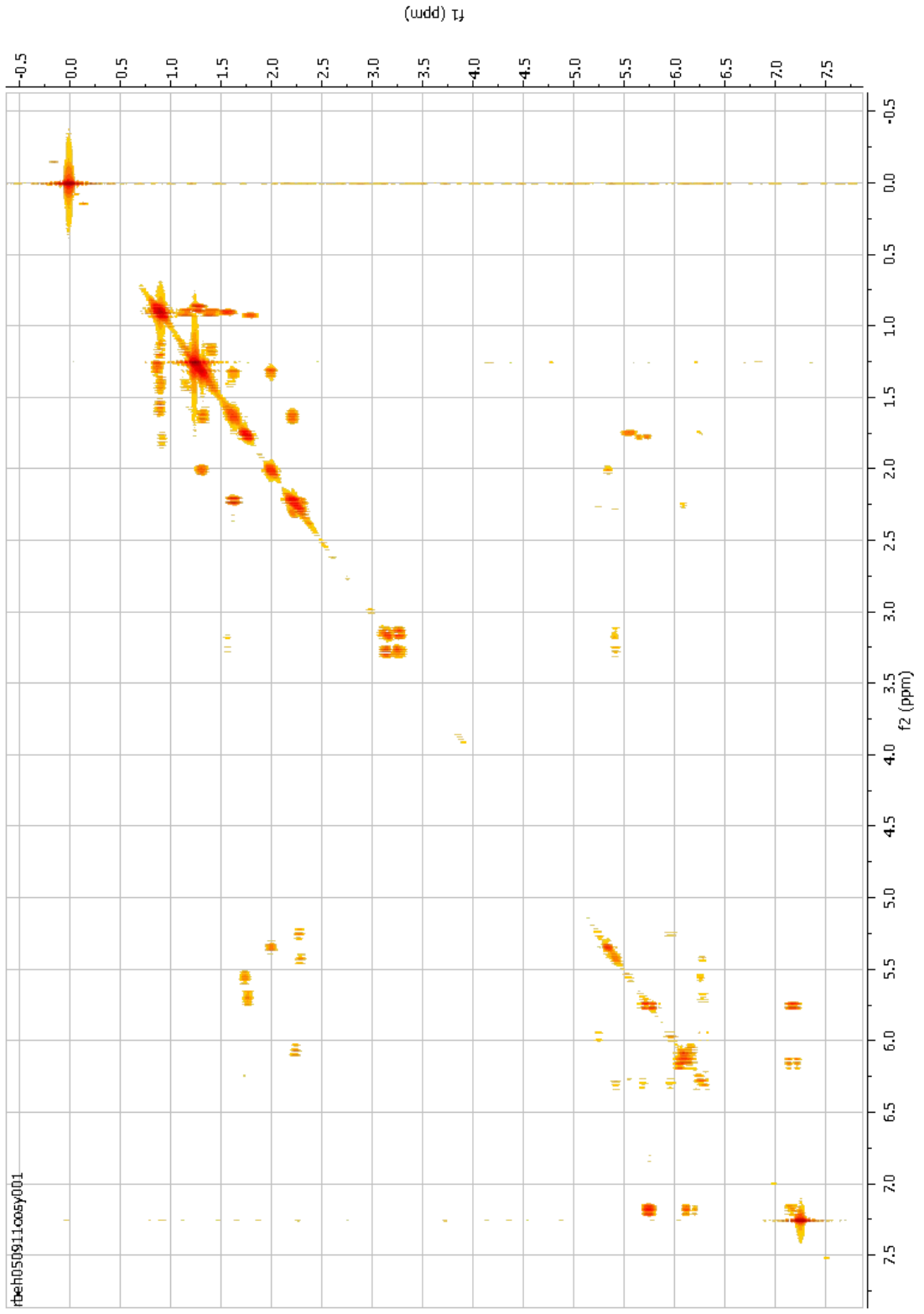

Fig. 11S $^{1}H–^{1}H$ COSY spectrum of compounds **1/2**.