

Supplementary tables and figures

Table S1: Experimental monoisotopic masses and its correspondent theoretical values from detected adducts or characteristic fragments of putatively identified compounds in peaks elicited by grapevine xylem sap.

| Strain | Medium | Dereplicated component | Molecular formula | Adduct | Calculated m/z | Experimental m/z | Error (ppm) |
|---|----------|-----------------------------------|---|--|----------------------|----------------------|--------------|
| <i>S. coelicolor</i> M145 | NMMP+SAP | Deoxydehydrochlorismic acid | C ₁₀ H ₈ O ₅ | M+Na ⁺ | 231,0264 | 231,0261 | -1,3 |
| <i>S. coelicolor</i> M145 | NMMP+SAP | ε-Actinorhodin | C ₂₃ H ₂₂ O ₁₅ | M+H ⁺ | 649,1188 | 649,1196 | 1,2 |
| <i>S. coelicolor</i> M145 | NMMP+SAP | γ-Actinorhodin | C ₂₃ H ₂₂ O ₁₄ | M+NH4 ⁺ | 648,1348 | 648,1349 | 0,2 |
| <i>S. coelicolor</i> M145 | NMMP+SAP | - | C ₂₃ H ₂₂ O ₆ | M+H ⁺ | 306,0972 | 306,0972 | 0,0 |
| <i>S. coelicolor</i> M145 | NMMP+SAP | - | C ₂₃ H ₂₂ O ₁₄ | M+NH4 ⁺ | 650,1504 | 650,1505 | 0,2 |
| <i>S. coelicolor</i> M145 | YEPD+SAP | B 26 / Anhydرو SEK-4B | C ₂₃ H ₂₂ O ₆ | M+H ⁺ | 301,0707 | 301,0705 | -0,7 |
| <i>S. coelicolor</i> M145 | YEPD+SAP | SEK-34 | C ₂₃ H ₂₂ O ₆ | M+H ⁺ | 303,0863 | 303,0860 | -1,0 |
| <i>S. coelicolor</i> M145 | YEPD+SAP | SEK-34B | C ₂₃ H ₂₂ O ₅ | M+H ⁺ | 285,0758 | 285,0757 | -0,4 |
| <i>S. coelicolor</i> M145 | YEPD+SAP | γ-Actinorhodin | C ₂₃ H ₂₂ O ₁₄ | M+NH4 ⁺ | 648,1348 | 648,1350 | 0,3 |
| <i>S. ambofaciens</i> | YEPD+SAP | Noocardamine | C ₂₃ H ₄₀ N ₂ O ₉ | M+H ⁺ | 601,3556 | 601,3555 | -0,2 |
| <i>S. griseus</i> subsp. <i>griseus</i> | YEPD+SAP | Chromomycin A3 | C ₃₅ H ₄₂ O ₂₆ | Fragment C ₃₅ H ₄₀ O ₁₆ ⁺ Fragment C ₃₅ H ₃₉ O ₁₉ ⁺ | 737,3015 867,3645 | 737,3003 867,3636 | -1,6 -1,0 |
| <i>S. argillaceus</i> | YEPD+SAP | 1H-Indole-5-carboxylic acid | C ₉ H ₁₁ NO ₂ | M+H ⁺ | 162,0550 | 162,0549 | -0,6 |
| <i>S. argillaceus</i> | YEPD+SAP | Xanthicin | C ₁₃ H ₁₃ N ₂ O ₅ | M+H ⁺ | 266,1023 | 266,1018 | -1,9 |
| <i>S. argillaceus</i> | YEPD+SAP | - | C ₁₃ H ₁₄ N ₂ O ₅ S | M+H ⁺ | 273,0329 | 273,0323 | -2,2 |
| <i>S. argillaceus</i> | YEPD+SAP | Mithramycin A | C ₂₃ H ₇₀ O ₂₄ | M+NH4 ⁺ | 1102,5065 | 1102,5061 | -0,4 |
| <i>S. olivaceus</i> | YEPD+SAP | Antibiotic BA 12100MY1 | C ₂₃ H ₂₂ O ₉ | M+H ⁺ | 469,1493 | 469,1492 | -0,2 |
| <i>S. olivaceus</i> | YEPD+SAP | - | C ₂₃ H ₂₂ NO ₁₀ | M+H ⁺ | 540,1864 | 540,1861 | -0,6 |
| <i>S. olivaceus</i> | YEPD+SAP | 5 coincidences in the DNP | C ₂₃ H ₂₂ O ₁₀ | M+H ⁺ | 487,1599 | 487,1596 | -0,6 |
| <i>S. olivaceus</i> | YEPD+SAP | Jadomycin Ala | C ₂₃ H ₂₂ NO ₉ | M+H ⁺ | 508,1602 | 508,1595 | -1,4 |
| <i>S. olivaceus</i> | YEPD+SAP | Coproporphyrin III | C ₃₈ H ₄₈ NO ₈ | M+H ⁺ | 655,2762 | 655,2757 | -0,8 |
| <i>S. olivaceus</i> | YEPD+SAP | 9-C-D-Olivosyltetralanol | C ₂₃ H ₂₂ O ₇ | M+H ⁺ | 435,1438 | 435,1430 | -1,8 |
| <i>S. rochei</i> | YEPD+SAP | Fungichromin | C ₃₅ H ₅₀ O ₁₂ | M-H ₂ O+H ⁺ | 653,3895 | 653,3891 | -0,6 |
| <i>S. rochei</i> | YEPD+SAP | Fungichromin B | C ₃₅ H ₅₀ O ₁₂ | M+H ⁺ | 667,4052 | 667,4050 | -0,3 |
| <i>S. rochei</i> | YEPD+SAP | - | C ₃₅ H ₅₀ O ₁₂ | M-H ₂ O+H ⁺ | 681,3845 | 681,3841 | -0,6 |
| <i>S. rochei</i> | YEPD+SAP | Actinomycin G4 | C ₆₁ H ₈₄ N ₂ O ₁₇ | M+H ⁺ | 629,3111 | 629,3133 | 3,5 |
| <i>S. rochei</i> | YEPD+SAP | Actinomycin Xαβ / Actinomycin Xαδ | C ₆₂ H ₈₆ N ₂ O ₁₇ | M+H ⁺ | 636,3180 | 636,3197 | 2,7 |
| <i>S. rochei</i> | YEPD+SAP | Actinomycin D | C ₆₂ H ₈₆ N ₂ O ₁₆ | M+H ⁺ | 628,3215 | 628,3222 | 1,1 |
| Streptomyces CA-128791 | YEPD+SAP | - | C ₂₃ H ₂₂ N ₂ O ₃ | M+H ⁺ | 179,0451 | 179,0451 | 0,0 |
| Streptomyces CA-128791 | YEPD+SAP | - | C ₂₃ H ₂₂ N ₂ O ₃ | M-H ₂ O+H ⁺ | 534,2486 | 534,2482 | -0,7 |

Table S2: Characteristics of the *Streptomyces* strains from our collection

| Strain | PKS-I | PKS-II | NRPS | Closest Match (Ezbiocloud)* | Similarity* |
|-----------|-------|--------|------|--|-------------|
| CA-126369 | no | yes | no | <i>Streptomyces glaucescens</i> NBRC 100913(T) | 99,278 |
| CA-126414 | yes | yes | yes | <i>Streptomyces globisporus</i> subsp. <i>globisporus</i> NRRL B-2293(T) | 99,587 |
| CA-126521 | no | yes | yes | <i>Streptomyces caelestis</i> NRRL 2418(T) | 99,383 |
| CA-126542 | no | yes | yes | <i>Streptomyces misionensis</i> NBRC 13063(T) | 98,759 |
| CA-128791 | no | yes | no | <i>Streptomyces pactum</i> NBRC 13433(T) | 100 |
| CA-128875 | no | yes | yes | <i>Streptomyces halstedii</i> NBRC 12783(T) | 100 |
| CA-128878 | yes | yes | no | <i>Streptomyces lienomycini</i> LMG 20091(T) | 100 |
| CA-128883 | no | yes | no | <i>Streptomyces flavovirens</i> NBRC 3716(T) | 100 |
| CA-128888 | no | yes | yes | <i>Streptomyces violascens</i> NBRC 12920(T) | 100 |
| CA-128911 | no | yes | yes | <i>Streptomyces mutomycini</i> NBRC 100999(T) | 99,897 |
| CA-129322 | yes | yes | yes | <i>Streptomyces gelatus</i> NRRL B-2928(T) | 97,708 |
| CA-131129 | no | yes | yes | <i>Streptomyces tendae</i> ATCC 19812(T) | 99,879 |

*16S RNA sequencing
<https://www.ezbiocloud.net/identify>

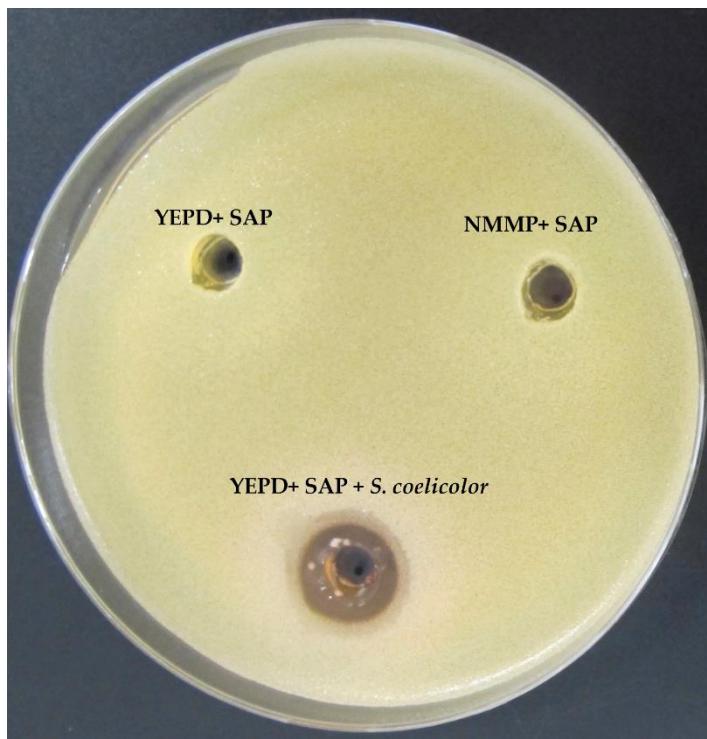


Figure S1: Antibiotic activity against *M. luteus*. In each well 100 µL of the indicated media + xylem sap (SAP) has been added. As a positive control 100 µL of a culture of *S. coelicolor* in YEPD + SAP was used.

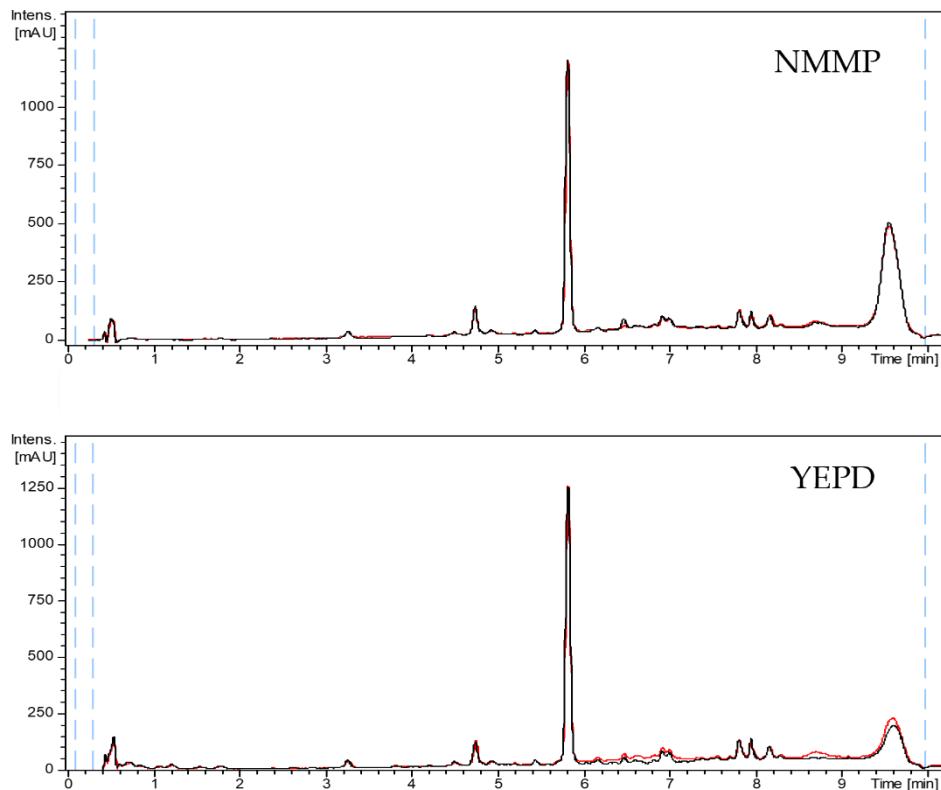


Figure S2: Metabolites present in culture media, NMMP or YEPD diluted ½ with xylem sap (red) or with water (black) detected by UV-Vis absorbance (200-900 nm).

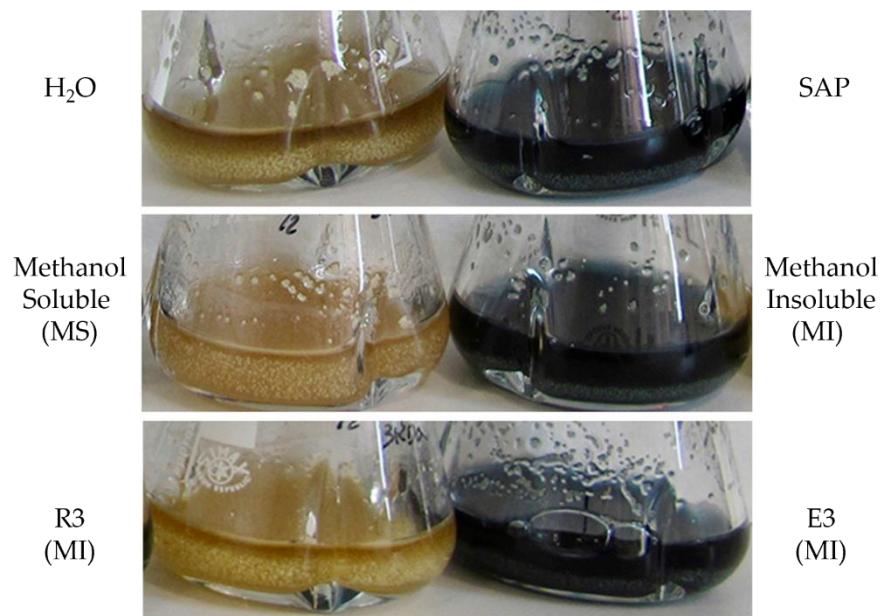


Figure S3: ACT production (blue color) in NMMP medium by *S. coelicolor* induced by SAP (upper right). Effect soluble and insoluble fractions of SAP in methanol (middle) over the production of ACT. Effect of the retained fraction (R3) or eluted fraction (E3) (MWCO 3 kDa) from the methanol insoluble fraction on ACT production.

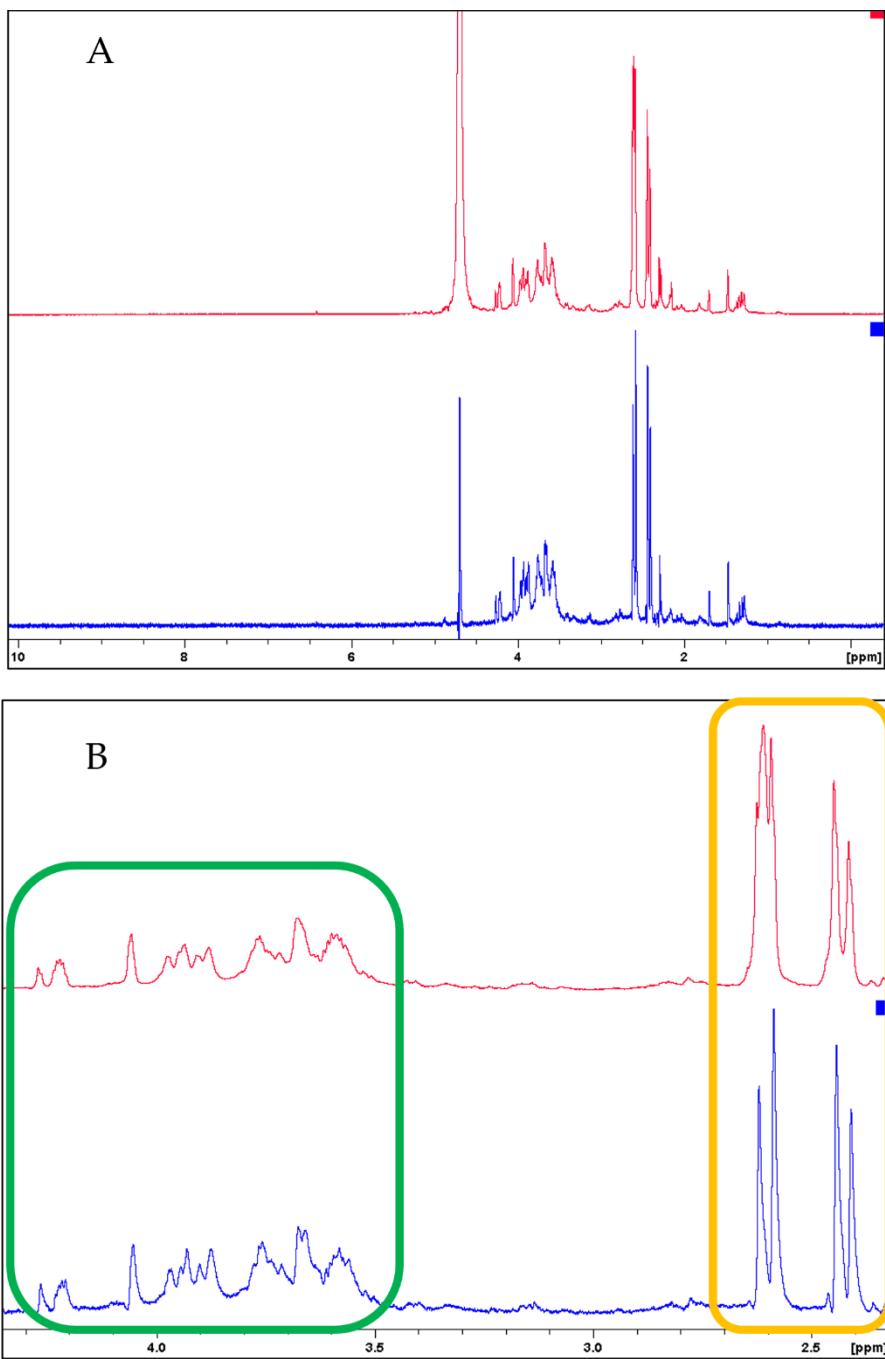


Figure S4: **A)** Standard ^1H NMR (red trace) and diffusion filtered ^1H NMR (blue trace) spectra of the active fraction (fraction 6) from the grapevine xylem sap LH-20 fractionation (registered in D_2O , 24 °C at 500 MHz) **B)** Expanded regions of the standard ^1H NMR (red trace) and diffusion filtered ^1H NMR (blue trace) spectra highlighting the signals associated to citrate (orange box) and di-D-fructose dianhydrides (green box). The citrate signals perfectly matched those reported for citric acid in the Biological Magnetic Resonance Databank ([doi:10.13018/BMSE000076](https://doi.org/10.13018/BMSE000076)).

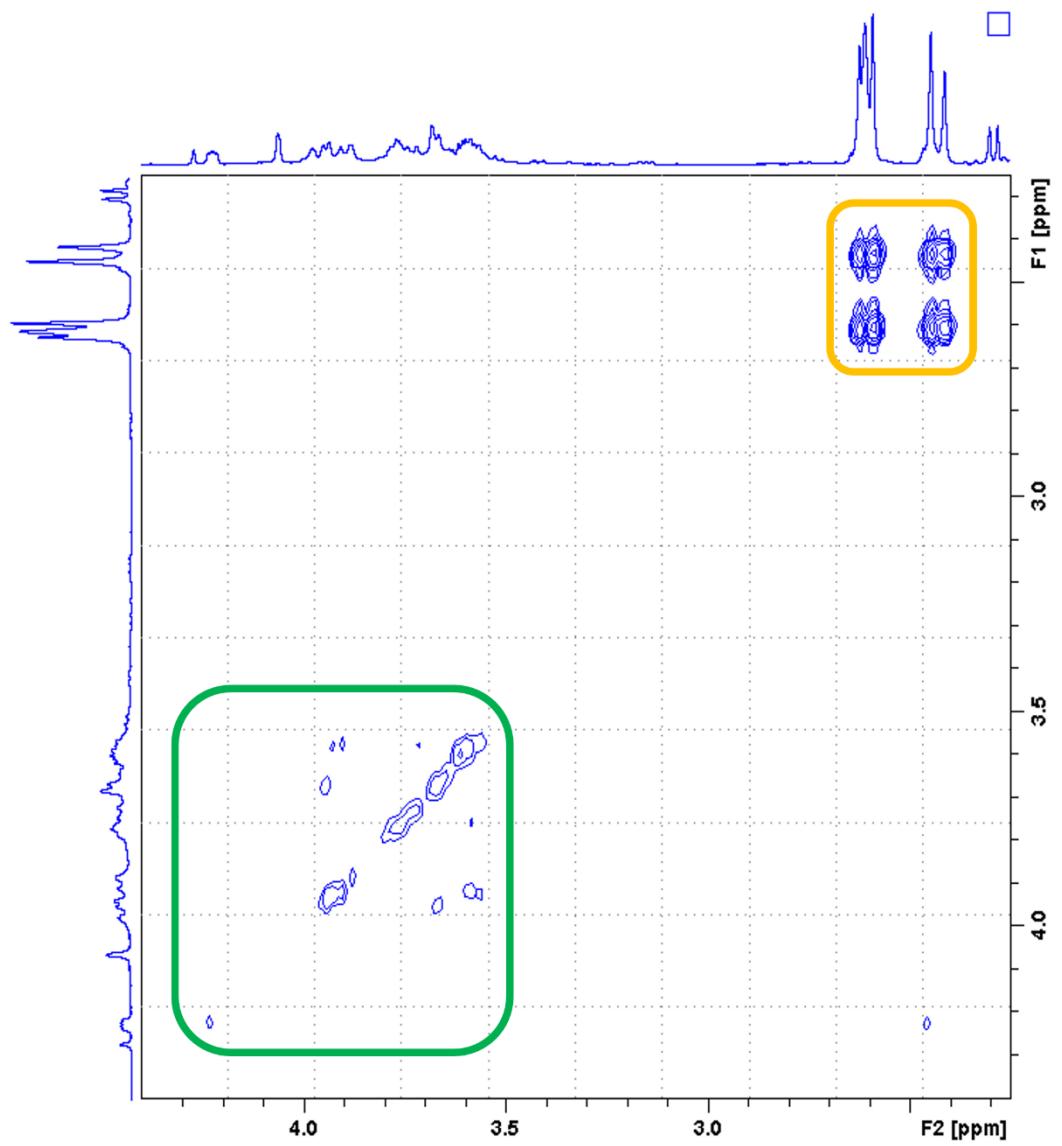


Figure S5: Zoomed region of the COSY spectrum of the active fraction (fraction 6) highlighting the signals associated to citrate (orange box) and di-D-fructose dianhydrides (green box). The citrate signals perfectly matched those reported for citric acid in the Biological Magnetic Resonance Databank ([doi:10.13018/BMSE000076](https://doi.org/10.13018/BMSE000076)).

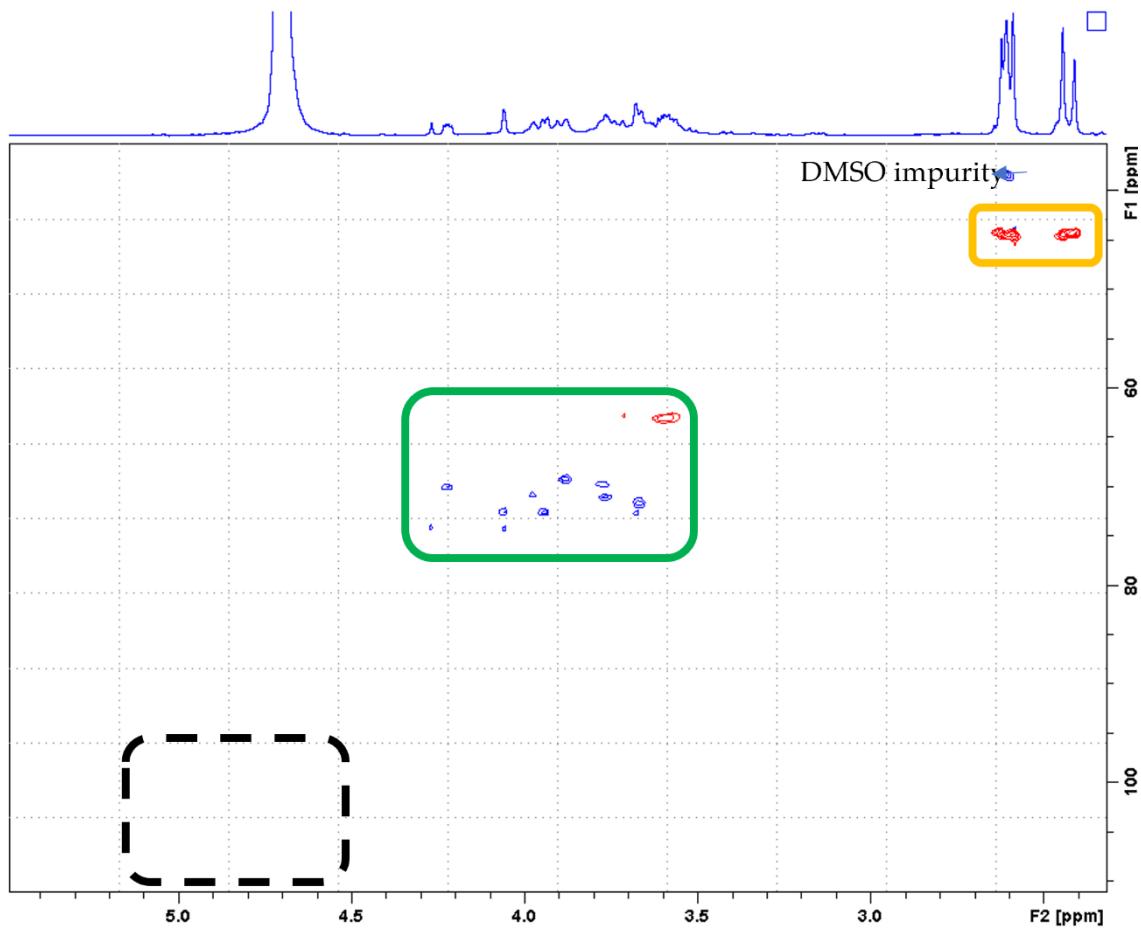


Figure S6: Edited HSQC spectrum highlighting the signals of the active fraction (fraction 6) associated to citrate (orange box) and di-D-fructose dianhydrides (green box). Clearly no anomeric methine signal is observed on its typical region (dashed black box). The citrate signals perfectly matched those reported for citric acid in the Biological Magnetic Resonance Databank ([doi:10.13018/BMSE000076](https://doi.org/10.13018/BMSE000076)).

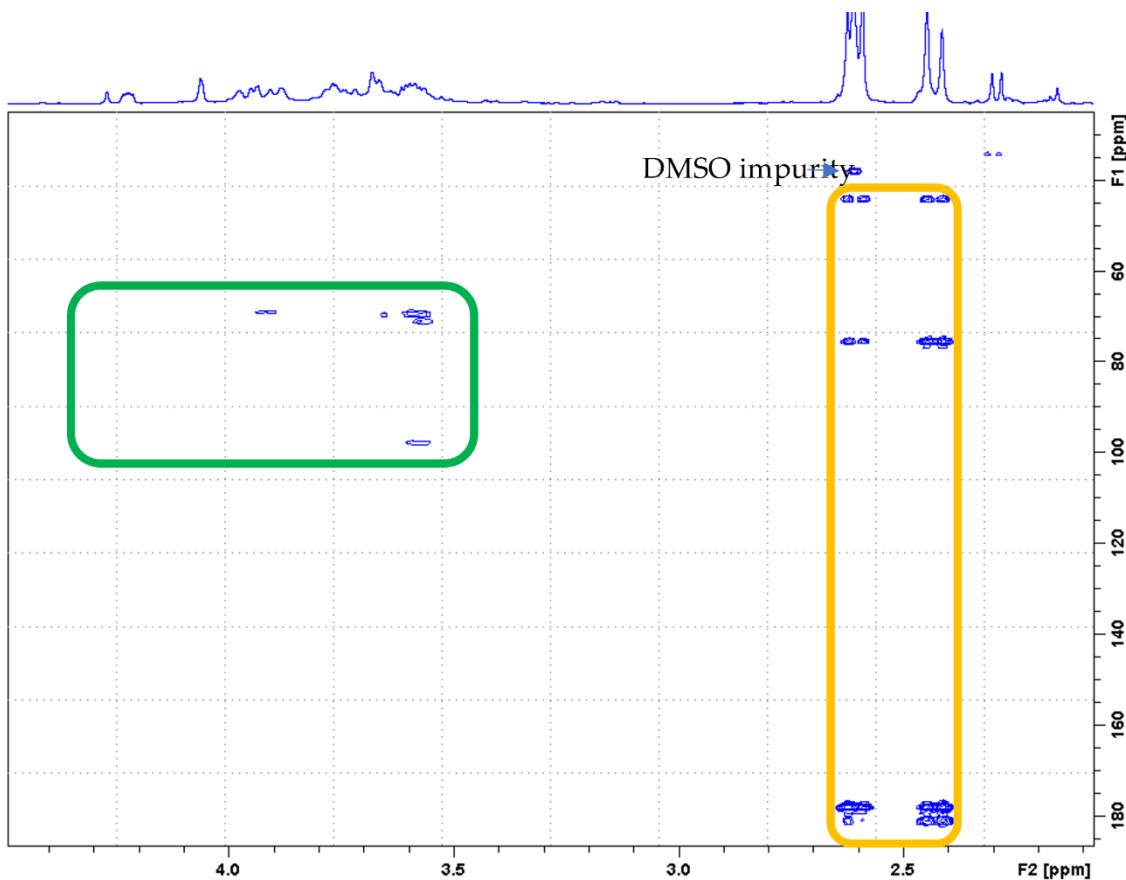


Figure S7: Zoomed region of the HMBC spectrum of the active fraction (fraction 6) highlighting the signals associated to citrate (orange box) and di-D-fructose dianhydrides (green box). The citrate is much more concentrated than the carbohydrate and thus renders very strong long-range correlation cross peaks. The citrate signals perfectly matched those reported for citric acid in the Biological Magnetic Resonance Databank ([doi:10.13018/BMSE000076](https://doi.org/10.13018/BMSE000076)).

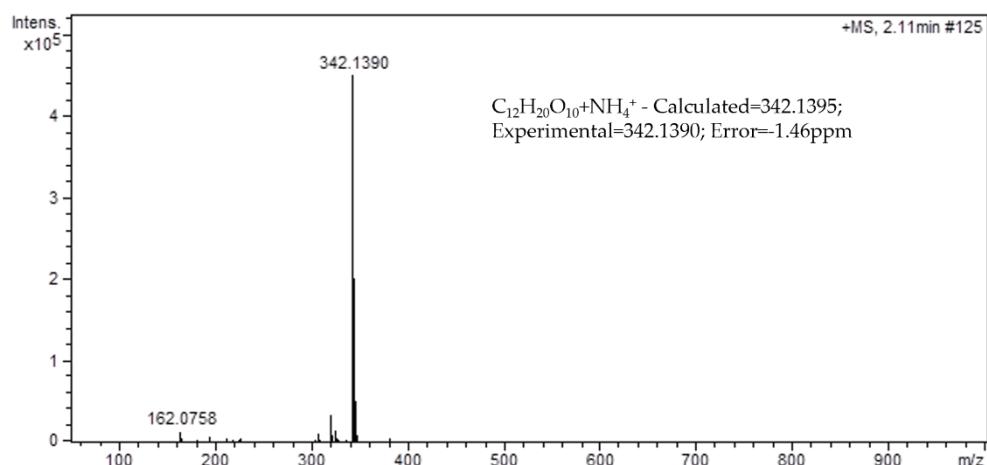
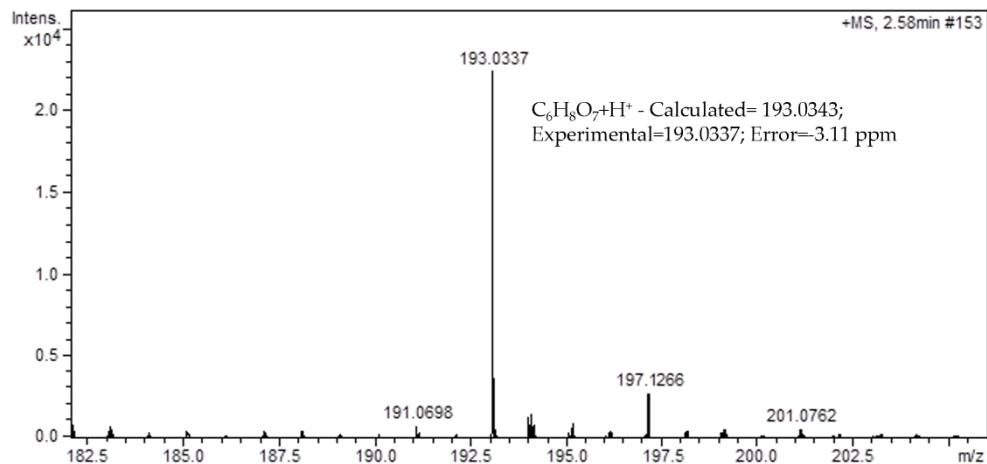
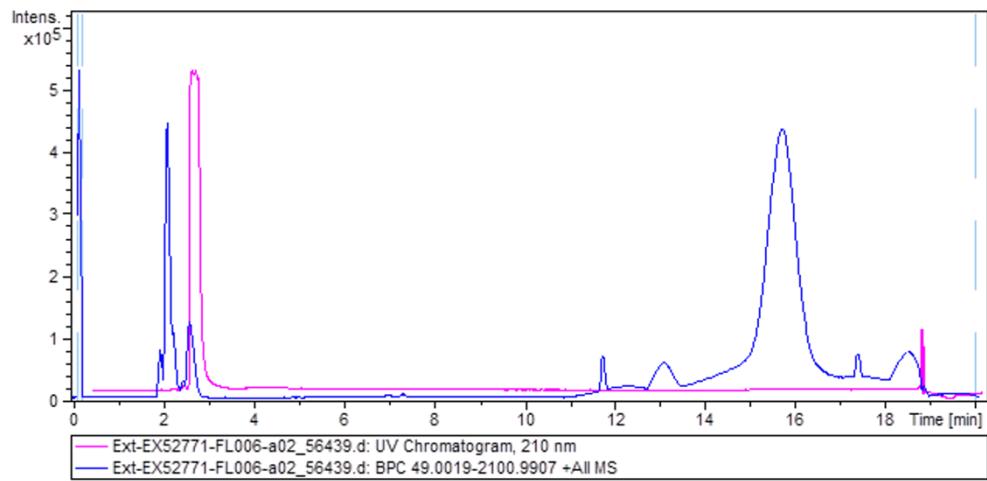


Figure S8: LC-HRMS analysis of the active fraction (fraction 6) from the grapevine xylem sap LH-20 fractionation. The corresponding MS spectra of citric acid ($C_6H_8O_7$) and the di-D-fructose dianhydrides ($C_{12}H_{20}O_{10}$) are shown. Although citrate is present at much higher concentration in the sample (as revealed by NMR), its response in positive ionization mode is poorer than the carbohydrate due to its triacidic nature.

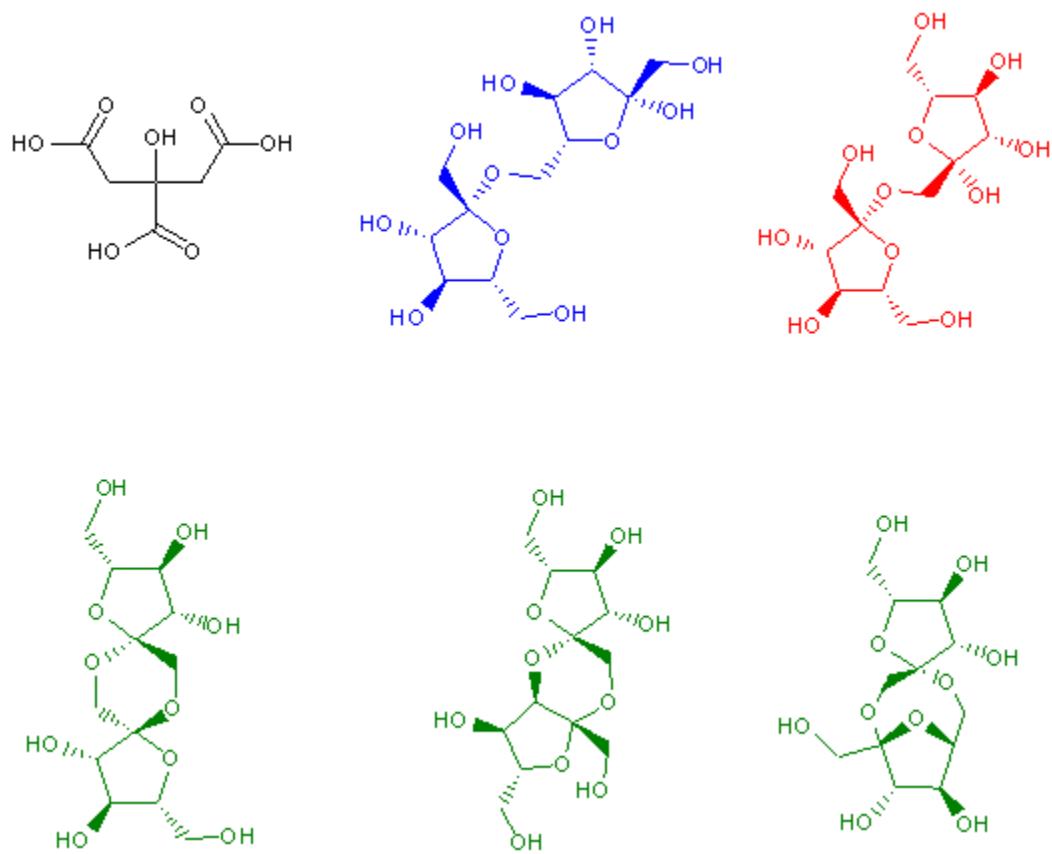


Figure S9: Chemical structure of citric acid (black), levabiose (blue), inulobiose (red) and some representative di-D-fructose dianhydrides (green) reported to be formed during thermal treatment of the fructan inulin in the presence of citric acid (Christian et al. *J. Agric. Food Chem.* 2000, 48, 5, 1823–1837; <https://doi.org/10.1021/jf9911186>).

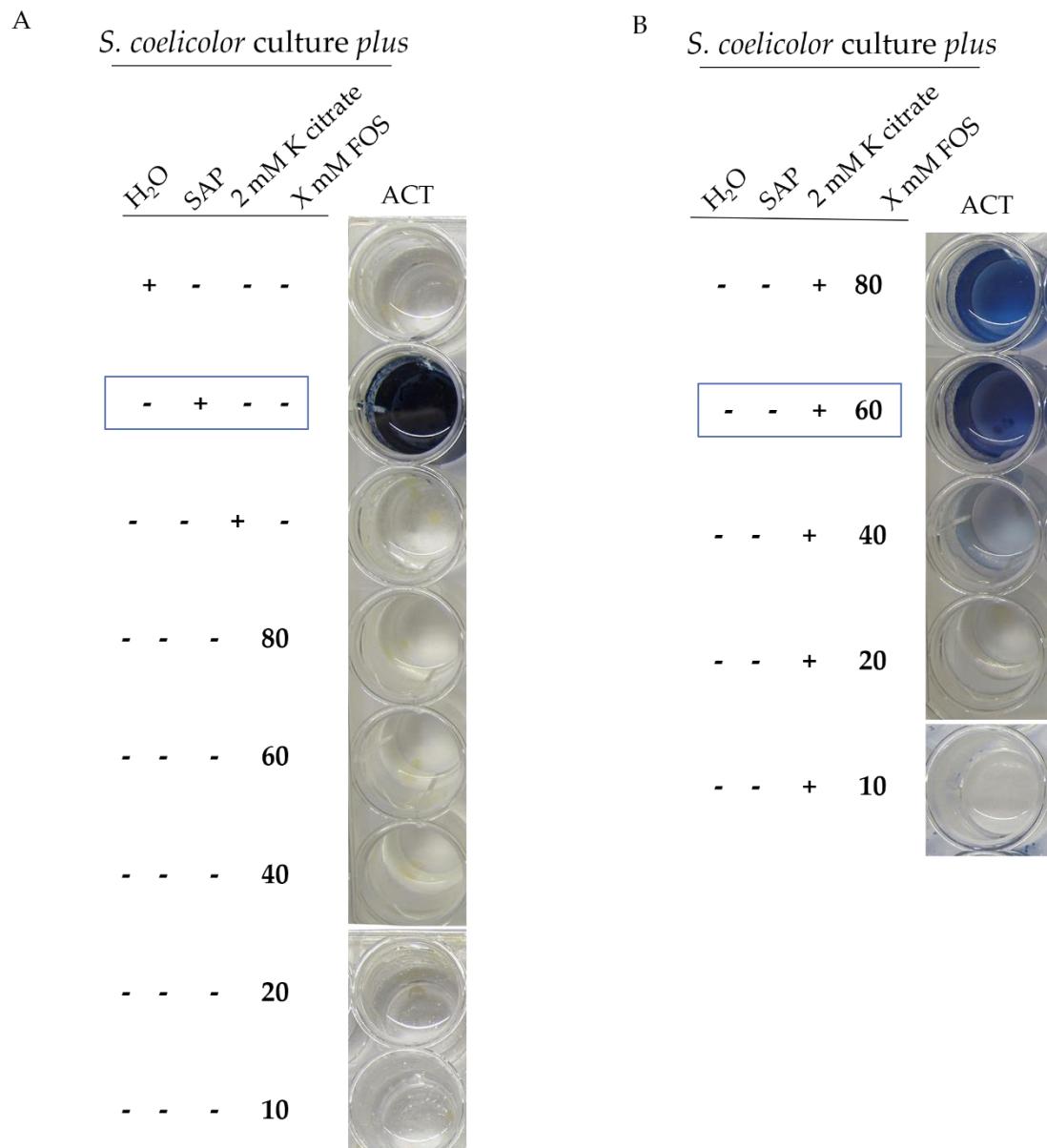


Figure S10: (A) ACT production (blue color) by *S. coelicolor* induced by xylem sap (SAP), potassium citrate (K citrate) or different concentrations of fructooligosaccharides (FOS) in NMMP medium. (B) ACT production by *S. coelicolor* induced by 2mM potassium citrate (K citrate) and different concentrations of fructooligosaccharides (FOS).