

Combining conventional organic solvent extraction, ultrasound-assisted extraction, and chromatographic techniques to obtain pure betanin from beetroot for clinical purposes

Supplementary files



Figure S1: Freeze-dried pure betanin after betalains extraction employing 30% aqueous ethanol under orbital shaking followed by UAE and semi-preparative chromatography.

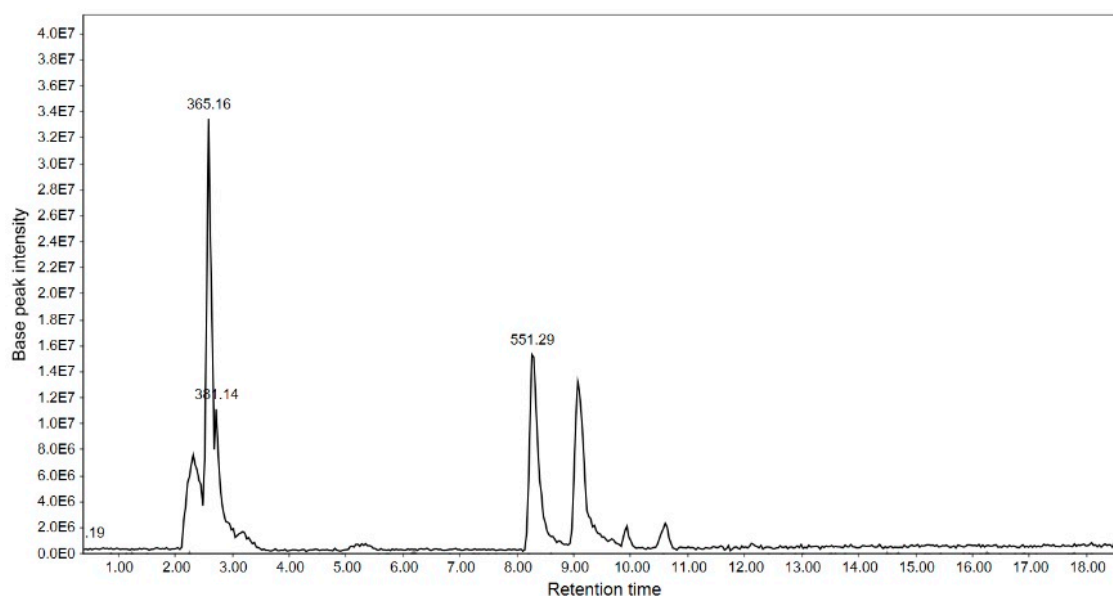


Figure S2: LC-MS spectra of commercial betanin showing sodium (M_w 22.9 $\text{g}\cdot\text{mol}^{-1}$) and sucrose (M_w 342 $\text{g}\cdot\text{mol}^{-1}$) adduct through the molecular ion m/z 365 at approximately 2.5 minutes.

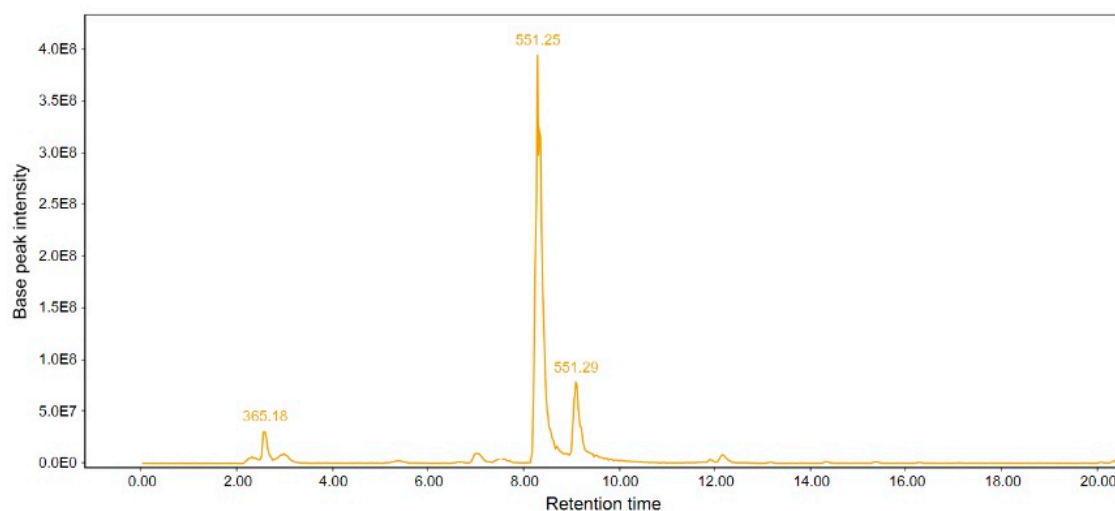


Figure S3: LC-MS spectra of purified betanin showing sodium ($M_w 22.9 \text{ g}\cdot\text{mol}^{-1}$) and sucrose ($M_w 342 \text{ g}\cdot\text{mol}^{-1}$) adduct through the molecular ion m/z 365 at approximately 2.5 minutes.

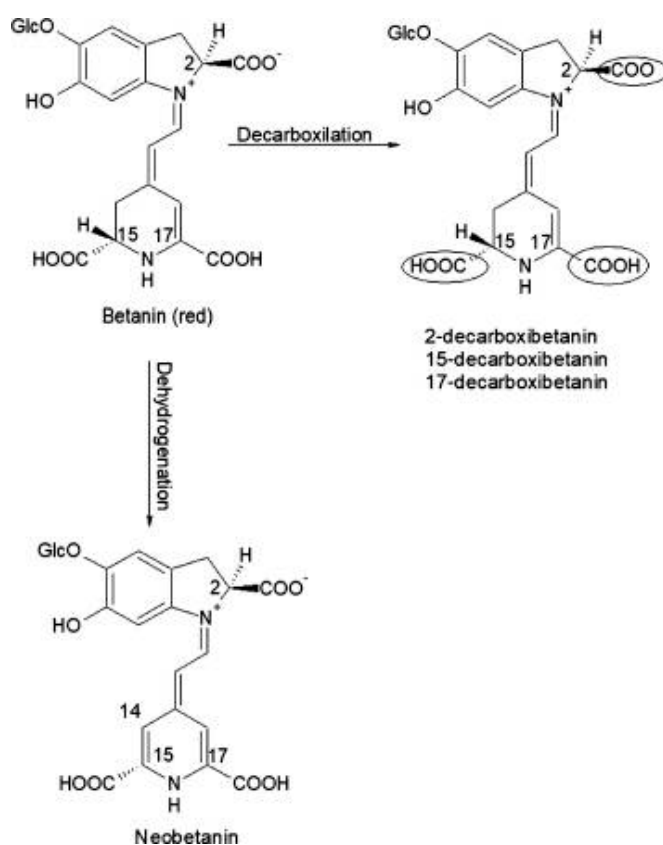


Figure S4: Main degradation products of betanin generated after decarboxylation and/or dehydrogenation generated during processing. Reproduced from Aztatzi-Ruggerio et al. [26].

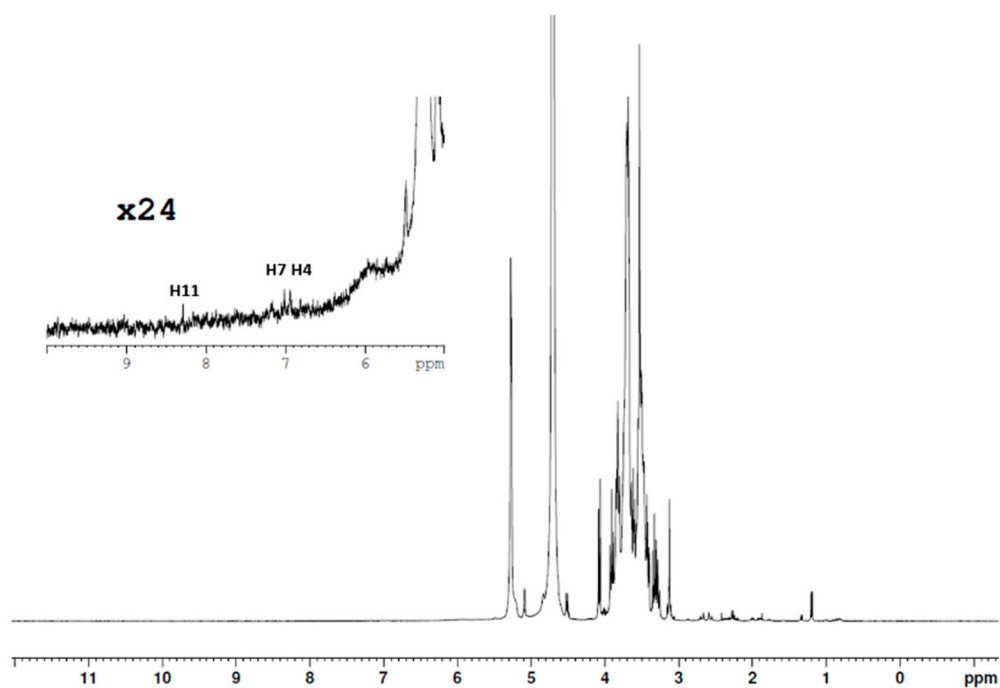


Figure S5: ^1H NMR spectrum of commercial betanin at a 24x magnification depicting suppressed H4, H7, and H11 hydrogen signals from betanin molecule due to the high sugar contents.