

Supporting information

Conversion of furostanol saponins into spirostanol saponins improves the yield of diosgenin from *Dioscorea zingiberensis* by acid hydrolysis

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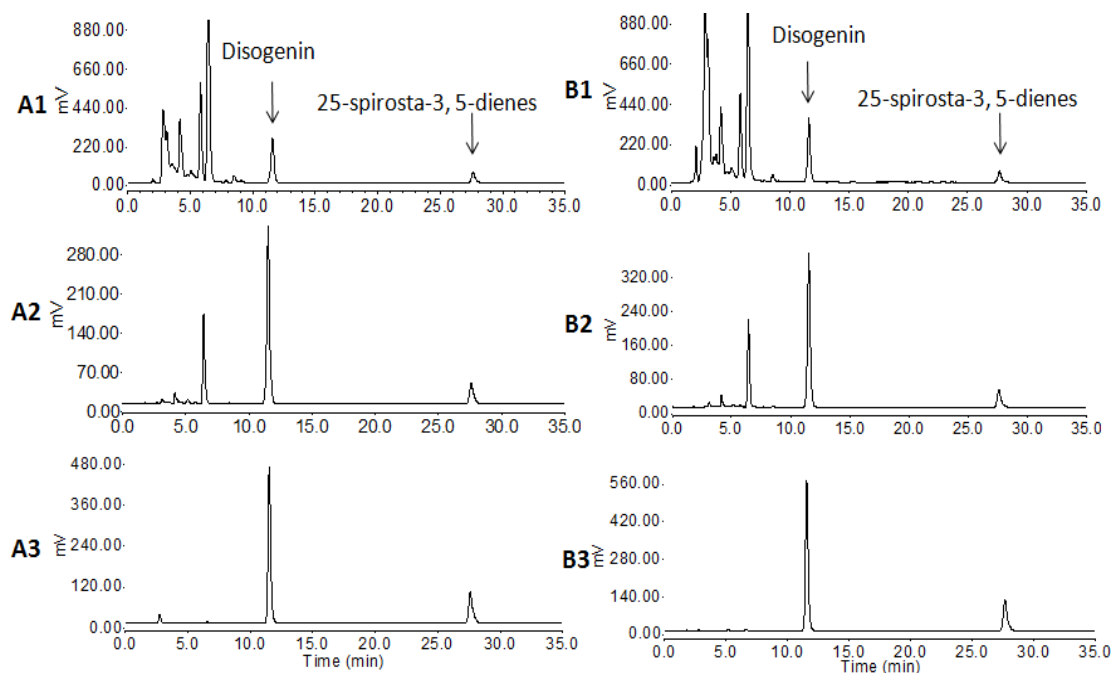


Fig. S1 HPLC-ELSD profiles of products from parvifloside (A) and deltoside (B) by acid hydrolysis in sulfuric acid solutions with different concentrations ($0.5 \text{ mol}\cdot\text{L}^{-1}$ for A1, B1; $2:1 \text{ mol}\cdot\text{L}^{-1}$ for A2, B2; $3:2 \text{ mol}\cdot\text{L}^{-1}$ for A3, B3; $3 \text{ mol}\cdot\text{L}^{-1}$ for A4, B4).

Determination of the yield of diosgenin from spontaneous fermented DZW

5 g smashed heat-dried DZW mixed with 30 mL water was incubated at $35 \text{ }^{\circ}\text{C}$ for 30 hours. Then, the incubated DZW was added to 70 mL of $3 \text{ mol}\cdot\text{L}^{-1}$ sulfuric acid and additional 6 mL of $18 \text{ mol}\cdot\text{L}^{-1}$ M sulfuric acid and (finally $3 \text{ mol}\cdot\text{L}^{-1}$ sulfuric acid), and then heated at $95 \text{ }^{\circ}\text{C}$ under reflux for 5 hours. After neutralized with NaOH and filtrated, the residue (together with filter paper) was dried at $80 \text{ }^{\circ}\text{C}$ and extracted with ethyl acetate at $85 \text{ }^{\circ}\text{C}$ under reflux for three times (100 mL, 70 mL, 50 mL, 1h each time). When the ethyl acetate was recovered, the residue was dissolved in 50 mL methanol and subjected to HPLC-ELSD with the mobile phase of acetonitrile-water (94:6, v/v).

Chemical characterization of spontaneous fermented DZW and its acid hydrolyzate.

The fermented DZW (heat-dried) was extracted with 70% EtOH at $95 \text{ }^{\circ}\text{C}$ for 1 hour. After filtration, the extract was subjected to HPLC-ELSD analysis using the gradient mobile phase consisting of acetonitrile-water (0.00-17.00-19.00-20.00-25.00-25.01-35.00-40.00 min, 27%-27%-35%-45%-45%-66%-66%-90% acetonitrile) (Fig. S2). Chemical characterization of the acid

hydrolyzate was performed using HPLC-ELSD with the gradient mobile phase consisting of menthol-water (0.00-14.00-14.01-35.00 min, 97%-97%-100%-100% menthol) (Fig. S3).

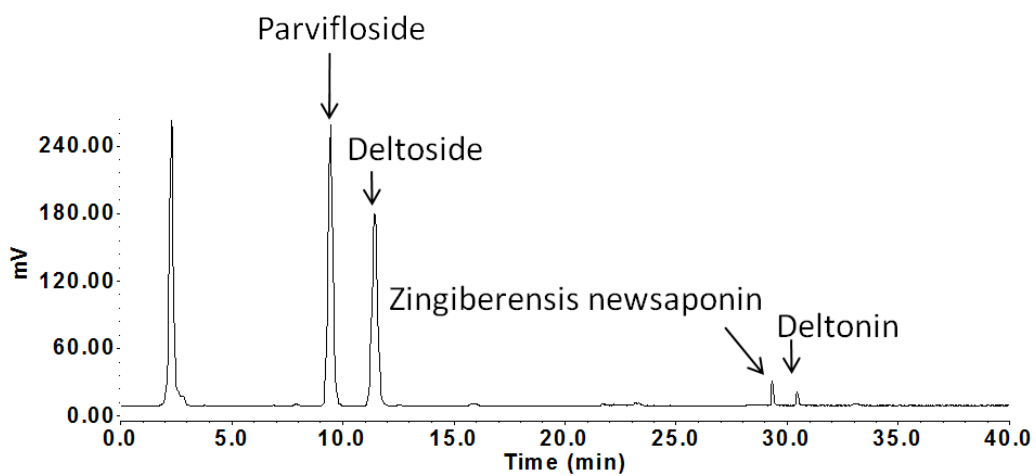


Fig. S2 HPLC-ELSD profile of spontaneous fermented DZW (heat-dried).

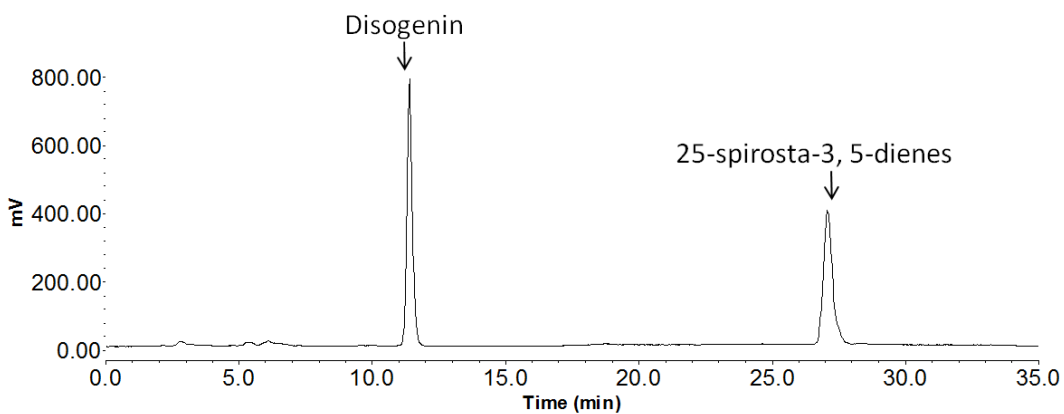


Fig. S3 HPLC-ELSD profile of acid hydrolyzate from spontaneous fermented DZW (heat-dried).