SUPPLEMENTARY MATERIALS

UHPLC-QTOF analysis

Screenings of bioactive compounds in *Averrhoa bilimbi* extracts were performed on Agilent 1290 UHPLC Rapid Resolution system. It consists of a binary pump and degasser, well-plate auto sampler with thermostat, temperature-controlled column compartment and an Agilent G6550A Q-TOF mass spectrometer. The chromatographic separation was performed using a InertSustain C18 column (5 µm, 250 mm × 4.6 mm, GL Sciences Inc, Japan), maintained at 40 ºC during the run. The analysis was performed in positive and negative mode. LC parameters: solvent A was 0.1% formic acid in 100% water and solvent B was 0.1% formic acid in 100% ACN. The elution scheme was at gradient: 0–20 min, 5–50% B; 20–23 min, 50–95% B; 23–24 min, 95-5% B; 24–25 min, 5% B. The flow rate was 1.0 mL/min and the injection volume was 20 µL. Total run time was 25 minutes for each analysis. ESI source settings were: V Cap 3500 V, nozzle 3500 V, fragmentor 175V and skimmer 65V. The nebulizer was set at 35 psig and the nitrogen drying gas was set at a flow rate of 13 L/min. Drying gas temperature was maintained at 225°C. Sheath gas temperature was maintained 350 °C at flow rate 11 L/min. Data was acquired at a rate of 1 spectra/ second at a mass ranged from m/z 100 to 1700. Auto calibration was performed before each batch of analysis and reference mass correction was enabled throughout the run. The mass spectrometer was tuned to allow detection of compounds to accuracy of ± 2 ppm before the analysis. The reference mass correction (<2 ppm) was done during each run with a reference mass of 1033.9881.

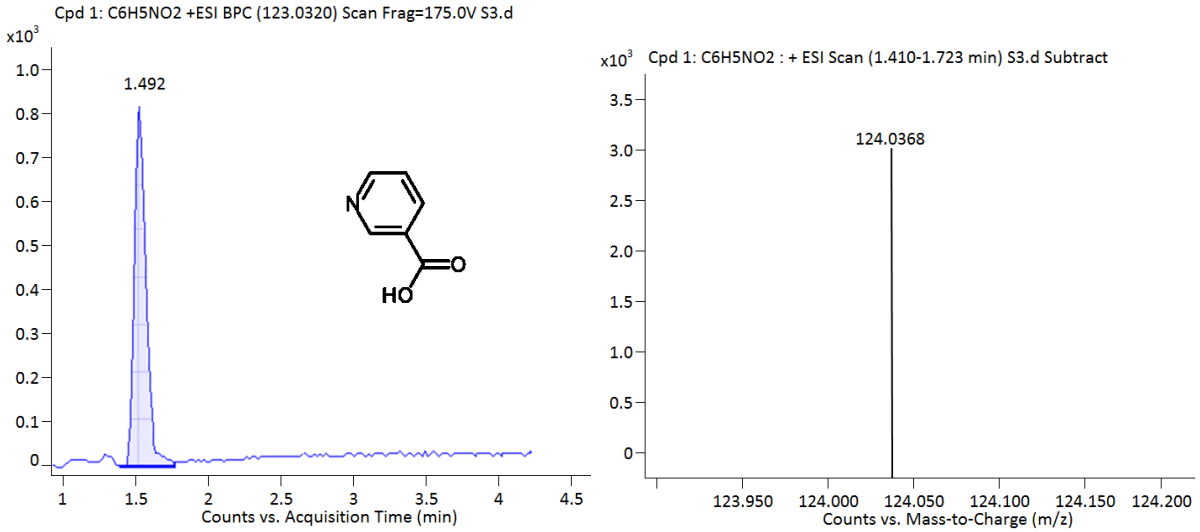

Fig. 1: UHPLC/QTOF-MS extracted ion chromatogram and mass spectra of nicotinic acid in *A. bilimbi*

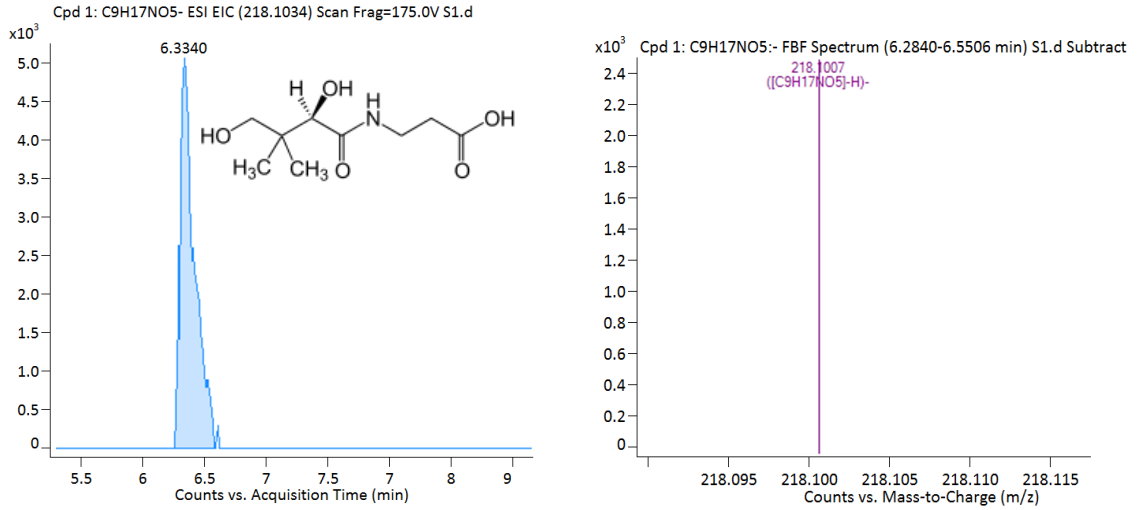

Fig. 2: UHPLC/QTOF-MS extracted ion chromatogram and mass spectra of pantothenic acid in *A. bilimbi*

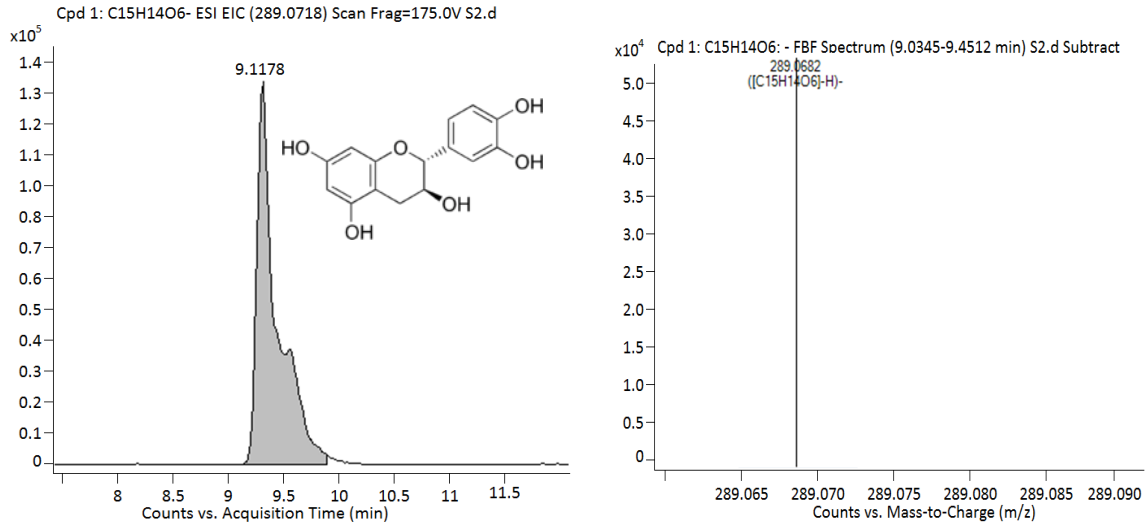

Fig. 3: UHPLC/QTOF-MS extracted ion chromatogram and mass spectra of catechin in *A. bilimbi*

Particle size distribution of the powdered dried *Averrhoa bilimbi* fruit

Laser diffraction particle analyser (Malvern MasterSizer 2000, Malvern Instruments Co., Worcestershire, UK) equipped with an automated dry powder dispersion unit (Scirocco 2000). The particle size distribution was characterised by the volume weighted mean as in Figure 1. The grounded particles has the size ranged from 2.8 to 893.4 µm with volume weighted mean diameter [$D_{4,3}$] of 195 µm.

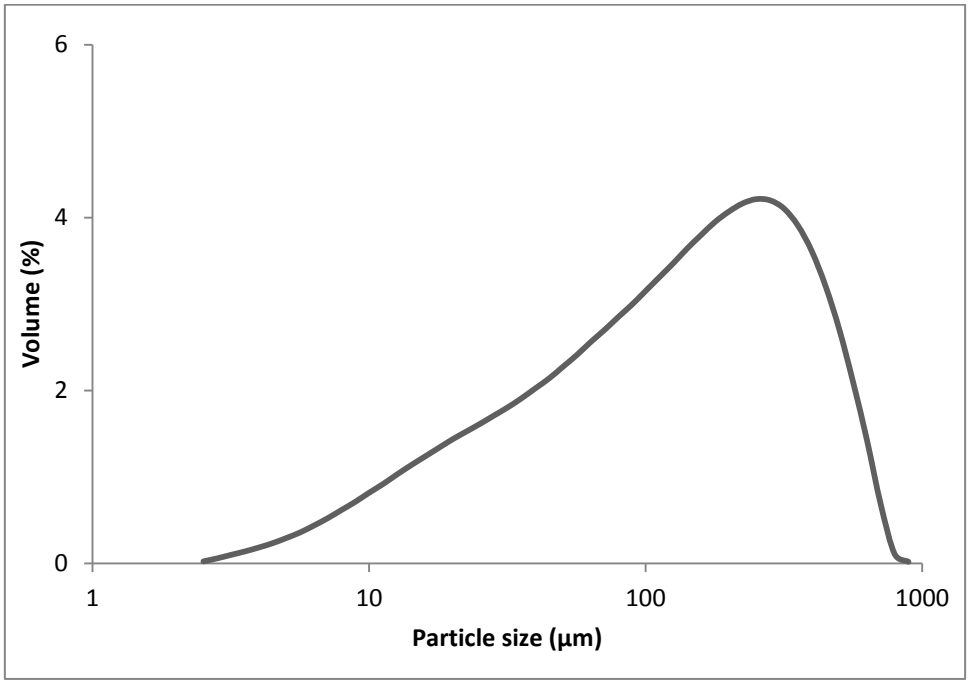

Figure 1: Particle size distribution of lyophilised grounded *A. bilimbi*