

SI.1 List of chemicals and reagents used for the study according to suppliers

- Ultrapure water (UPW) was produced using a Purite Select Fusion water deionisation unit (Suez Water Technologies & Solutions, USA).
- Glacial acetic acid, maleic acid, and sodium carbonate were sourced from Ajax FineChem, Australia. Chlorogenic acid ($\geq 95\%$) was sourced from Alfa Aesar, United States.
- 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate was sourced from Apollo Scientific, UK.
- Sucrose (purity not stated), malic acid, succinic acid, and tartaric acid were sourced from BDH Laboratory Supplies, UK.
- Bromocresol green was obtained from BDH Ltd, UK.
- Potassium sulphate was sourced from ECP Ltd, New Zealand.
- Ferulic acid ($\geq 98\%$), kaempferol, and kaempferol-3-O-rutinoside ($\geq 98\%$) were sourced from Extrasynthese, France.
- Methanol, ethanol, acetonitrile, ammonium acetate, d-glucose anhydrous, chloroform, and formic acid were sourced from Fisher Scientific, UK.
- Gallic acid was sourced from LobaChemie, India.
- Copper sulphate pentahydrate was sourced from Merck KGaA, Germany.
- Methyl red was obtained from May & Baker Ltd, UK.
- Xylitol was sourced from Nirvana Organics, Australia.
- D(-)-Fructose was sourced from Panreac, Spain.
- Strata C18-E (500 mg/3 mL) SPE cartridges were sourced from Phenomenex, USA.
- Sodium tetraborate decahydrate (borax) was sourced from PureScience, New Zealand.
- Iron (III) chloride was sourced from Scharlau Chemie, Spain.
- 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid (Trolox, 97%), 2,4,6-tripyridyl-S-triazine (TPTZ), Amino Acid Standard A9906, neocuporine ($\geq 98\%$), ellagic acid ($\geq 95\%$), Multielement Standard Solution 6, Folin & Ciocalteu's phenol reagent, L-alanine-2,3,3,3-d4, dry acetonitrile, 1-kestose ($\geq 98\%$), nystose ($\geq 98\%$), catechin, epicatechin ($\geq 90\%$), caffeic acid ($\geq 98\%$), citric acid, p-coumaric acid ($\geq 98\%$), rutin trihydrate ($\geq 94\%$), isorhamnetin ($\geq 95\%$), myricetin ($\geq 96\%$), quinic acid, malonic acid, fumaric acid, salicylic acid, 2,2-Di(4-tert-octylphenyl)-1-picrylhydrazyl (DPPH), and sodium acetate (anhydrous) were sourced from Sigma-Aldrich, USA.
- Sodium acetate trihydrate was sourced from Thermo Fisher Scientific, New Zealand.
- Sulphuric acid (95-98%), hydrochloric acid (36%), nitric acid (70%), boric acid, and sodium hydroxide (97%) were sourced from Univar, USA.