Supplementary Online Materials. Production of the intervention soft-drinks

Long-term dietary intervention study in humans (Hospital Dr. Peset-Valencia)

The following steps were followed:

- Liquid-Sucrose Syrup (Ingredient) is separately prepared in a tank: producing a liquid-syrup of approx. 67°Brix (67 g of soluble solids/100 g product).

Reverse Osmosis (RO) water (heated at 60°C) is added to 678.4 Kg of crystal sugar-sucrose (which contains 989 g of sucrose/Kg product) until a final weight of approx. 1331 Kg is obtained. Continuous stirring until complete solubilization.

The INTERVENTION and PLACEBO SOFT-DRINKS were produced as follows:

- All the ingredients are weighed and added to the preparation tank (containing the Water-RO), under continuous gentle stirring:
  1) Fruit Up® 70°Brix and/or liquid-sucrose syrup (67°Brix);
  2) Citric Acid monohydrate E-330;
  3) Natural Color-Black Carrot Colour Extract (E-163. Anthocyanins);
  4) Natural Flavouring;
  5) Sodium Citrate dihydrate E-331 until desired pH;
  6) Preservative addition (E-202).

7) Final Water-RO addition until total volume is reached.

- Pasteurization: both drinks were immediately pasteurized ("belt pasteurization tunnel") at 72 +/- 2°C, for 6 minutes, on an industrial scale, and were then packaged in food grade aluminum cans; 0,250 L). The cans were kept at 0-5°C.

- Quality control and/or monitoring of the soft-drinks.

- Product release after Quality approval.
**PRODUCTION FLOW-CHART**

**PROCESS: Water Extraction (by diffusion)**
- Temperature: approx. 40-50ºC
- Carob Raw Extract/Juice (approx. 15ºBrix)

**PROCESS: Blending (and stirring)**
- Carob by-product (Carob already extracted and coming out of the FRUIT UP's production flow chart)

**PROCESS: Pasteurization**
- Temperature: approx. 90 ± 2 ºC. Time: min. 60 seconds

**PROCESS: Clarification by Ultra-Filtration**
- Clear Carob Extract/Juice (approx. 14ºC)

**PROCESS: ION-EXCHANGE & ADSORPTION and/or REFINING**

**PROCESS: Concentration (from 65ºBrix until 80ºBrix)**
- Temperature: approx. 105 ± 5 ºC. Time: min. 90 seconds

**PROCESS: FRUIT JUICES Mix**
- Carob Raw Extract/Juice (approx. 14ºBrix)

**PROCESS: Input – Raw Material**
- FRUIT UP – Deionised Fruit Juices Mix (diluted approx. 14ºBrix)

**PROCESS: FRUITUP®**
- Clear Apple Juice (approx. 14ºBrix)
- Clear White Grape Juice (approx. 14ºBrix)

**PROCESS: Dilution with Reverse-Osmose Water**
- Clear Apple JC (70ºBrix)
- Clear White Grape JC (65ºBrix)

**PROCESS: Concentration (from 65ºBrix until 80ºBrix)**
- Temperature: approx. 90 ± 2 ºC. Time: min. 60 seconds

**PROCESS: Pasteurization & FILTRATION-FILLING**
- Temperature: approx. 105 ± 5 ºC.
- Time: min. 90 seconds

**PROCESS: Output – final food ingredient**
- FRUIT UP® (different Ref. according ºBrix, packaging formats)
- CAROBO® PODS (not seeds) from Ceratonia siliqua

**PROCESS: Water Extraction (by diffusion)**
- Temperature: approx. 40-50ºC
- Water (Reverse Osmose-Water and/or Soft-Water)