**Supplementary Appendix**

*Table S1- Participant demographics and baseline characteristics of full intention to treat- study population by study centre*

| **Demographic/****characteristic** | **Total Study****(*n* =184)**  | **New Zealand** | **Italy** | **Japan** |
| --- | --- | --- | --- | --- |
| **HC** **(*n* =23)** | **FC** **(*n* =19)** | **IBS-C** **(*n* =21)** | **HC** **(*n* =20)** | **FC** **(*n* =20)** | **IBS-C** **(*n* =20)** | **HC** **(*n* =20)** | **FC** **(*n* =21)** | **IBS-C** **(*n* =20)** |
| Sex, n (%) |  |  |  |  |  |  |  |  |  |  |
|  Female | 136 (73.9) | 14 (60.9) | 16 (84.2) | 21 (100) | 10 (50.0) | 13 (65.0) | 18 (90.0) | 13 (65.0) | 14 (66.7) | 17 (85.0) |
|  Male | 48 (26.1) | 9 (39.1) | 3 (15.8) | 0 (0) | 10 (50.0) | 7 (35.0) | 2 (10.0) | 7 (35.0) | 7 (33.3) | 3 (15.0) |
| Age, years |  |  |  |  |  |  |  |  |  |  |
|  Mean (SD) | 35.5 (14.58) | 42.4 (14.68) | 45.5 (15.02) | 46.8 (13.47) | 30.6 (8.80) | 39.2 (14.10) | 41.0 (12.99) | 28.6 (11.96) | 30.3 (14.31) | 32.6 (13.00) |
|  Range | 18 - 65 | 23 – 64 | 23 – 64 | 19 - 63 | 24 – 54 | 23 – 64 | 21 – 64 | 19 – 59 | 18 – 65 | 19 – 56 |
| Ethnicity, n (%) |  |  |  |  |  |  |  |  |  |  |
|  European | 109 (59.2) | 18 (78.2) | 16 (84.1) | 16 (76.2) | 19 (95.0) | 20 (100.0) | 20 (100.0) |  |  |  |
|  Maori | 3 (1.6) | 2 (8.7) | 1 (5.3) |  |  |  |  |  |  |  |
|  Indian | 1 (0.5) |  |  |  | 1 (5.0) |  |  |  |  |  |
|  Japanese | 64 (34.9) | 0 (0) | 1 (5.3) | 2 (9.5) |  |  |  | 20 (100.0) | 21 (100.0) | 20 (100.0) |
|  Hispanic /Latino | 2 (1.1) | 1 (4.4) | 1 (5.3) |  |  |  | 78 (13.4) |  |  |  |
|  Other | 5 (2.7) | 2 (8.7) | 0 (0) | 3 (14.3) |  |  |  |  |  |  |
| Weight |  |  |  |  |  |  |  |  |  |  |
|  Mean  (SD) | 64.4(14.73) | 75.3 (17.12) | 74.1(17.75) | 65.7 (11.17) | 66.5 (12.49) | 68.4 (16.65) | 63.4 (12.53) | 56.5 (8.29) | 55.1 (8.29) | 53.6 (6.66) |
|  Range | 54.0-128.0 | 52.5– 101.7 | 57.0– 128.0 | 49.5 – 94.5 | 49 – 88 | 48 – 120 | 51 – 100 | 42 – 70 | 42 – 76 | 42 – 67 |
| Height, m |  |  |  |  |  |  |  |  |  |  |
|  Mean (SD) | 1.67 (0.093) | 1.71 (0.102) | 1.69 (0.078) | 1.63 (0.063) | 1.72 (0.106) | 1.68 (0.108) | 1.67 (0.069) | 1.66 (0.102) | 1.64 (0.070) | 1.60 (0.067) |
|  Range | 1.46-1.95 | 1.55 – 1.92 | 1.58 - 1.90 | 1.53 – 1.73 | 1.57 – 1.95 | 1.46 - 1.88 | 1.57 – 1.82 | 1.51 – 1.83 | 1.54 – 1.80 | 1.51 – 1.71 |
| Body mass index (BMI), kg/m2 |  |  |  |  |  |  |  |  |  |  |
|  Mean (SD) | 23.0(4.00) | 25.6 (4.48) | 25.8 (4.70) | 24.9 (3.92) | 22.2 (2.95) | 24.0 (4.17) | 22.8 (3.90) | 20.4 (1.82) | 20.6 (2.38) | 20.9 (1.83) |
|  Range | 16.6-35.5 | 19.3 – 35.3 | 19.8 – 35.5 | 19.5 – 35.1 | 17.6 – 27.8 | 17.0 – 34.0 | 17.5 – 32.3 | 16.9 – 23.0  | 16.6 – 26.0  | 17.9 – 25.2 |

HC, Healthy Controls; FC, Functional Constipation; IBS-C, Irritable Bowel Syndrome with predominant constipation; SD, Standard Deviation.

*Table S2: Adverse events table for kiwifruit (KF) and psyllium (PSY) interventions*

|  | Full study cohort | NZ study centre | Italy study centre | Japan study centre |
| --- | --- | --- | --- | --- |
| Adverse Event | Possibly related to study treatment? | Intervention |  | Possibly related to study treatment? | Intervention | Total | Possibly related to study treatment? | Intervention |  | Possibly related to study treatment? | Intervention |  |
|  | No | Yes | KF | PSY | Total | No | Yes | KF | PSY | No | Yes | KF | PSY | Total | No | Yes | KF | PSY | Total |
| Abdominal distension | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acne | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arthropod bite | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Device capturing issue | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diarrhoea | 4 | 1 | 0 | 1 | 5 | 4 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| Dyspepsia | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Food poisoning | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fall | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Foot fracture | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Gastroenteritis  | 3 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Gastro-oesophageal reflux disease | 0 | 2 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Headache | 8 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Injury (unnamed) | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Migraine | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Muscle spasms | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Musculoskeletal discomfort | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nasal congestion | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nasopharyngitis | 5 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nausea | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nausea during blood sampling | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Oropharyngeal pain | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Pyrexia | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Seasonal allergy | 5 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sleep disorder | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Urinary tract infection | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Viral infection | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vomiting | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Wisdom teeth removal | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 49 | 6 | 0 | 6 | 55 | 38 | 4 | 0 | 4 | 42 | 10 | 1 | 0 | 1 | 11 | 1 | 1 | 0 | 1 | 2 |

*Table S3: Responder rates*

|  |  |  |
| --- | --- | --- |
| **Responder type** | **Group** | **Intervention** |
| **Kiwifruit** | **Psyllium** |
| Stool frequency\* | FC | 52.8% | 39.3% |
| IBS-C | 53.6% | 56.9% |
| Abdominal pain intensity\*\* | FC | 32.0% | 28.3% |
| IBS-C | 42.3% | 30.4% |
| Weekly\*\*\* | FC | 20.0% | 17.0% |
| IBS-C | 21.2% | 16.1% |

\* Stool frequency weekly responder rates, those experiencing an increase of at least one CSBM per week from baseline

\*\*Abdominal pain intensity weekly responders, calculated using the GSRS Abdominal Pain domain scores.

\*\*\*Weekly responders, as defined by the FDA guidance document are those that are both a weekly responder in both pain intensity and stool frequency.[22]