**Table S1 List of literature sources reporting specific and non-specific biomarkers for seaweed consumption**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Food item | Compound investigated | sample type | Discriminating metabolites/Potential candidate biomarkers | Source | Primary Reference |
| Brown seaweed | Phlorotannin | Hydrolyzed urine | Hydroxytrifuhalol A, 7-hydroxyeckol, C-O-C dimer of phloroglucinol | Web-database | [1] |
| Brown seaweed | Phlorotannin | Urine | Hydroxytrifurahol A-glucuronide, dioxinodehydroeckol glucuronide, C-O-C dimer of phloroglucinol-sulfate, fucophloroethol glucuronide, diphlorethol sulfate | Web-database | [2] |
| Brown seaweed | Fucoxanthin | Plasma | Fucoxanthinol | Web-database | [3] |
| Brown seaweed | Fucoxanthin | Plasma | Fucoxanthinol | reference list | [4] |
| Brown seaweed | Phlorotannin | Urine | Pyrogallol sulfate | Web-database | [2] |
| Brown seaweed | Phlorotannin | Urine | Phloroglucinol sulfate | Web-database | [2] |
| Green seaweed | Astaxanthin | Plasma | Astaxanthin | Web-database | [5] |
| Green seaweed | Astaxanthin | Serum | Astaxanthin | Web-database | [6] |
| Green seaweed | Astaxanthin | Plasma | Astaxanthin | Web-database | [7, 8] |
| Red seaweed | β-carotene | Serum | β-carotene | Web-database | [9] |

**Text S1 Validation criteria for biomarkers of food intake**

Q1: Is the marker compound plausible as a specific BFI for the food or food group (chemical/biological plausibility)?

Q2: Is there a dose-response relationship at relevant intake levels of the targeted food (quantitative aspect)?

Q3: Is the biomarker kinetics described adequately to make a wise choice of sample type, frequency and time window (time-response)

Q4: Has the marker been shown to be robust after intake of complex meals reflecting dietary habits of the targeted population (robustness)?

Q5: Has the marker been shown to compare well with other markers or questionnaire data for the same food/food group (reliability)

Q6: Is the marker chemically and biologically stable during biospecimen collection and storage, making measurements reliable and feasible (stability)?

Q7: Are analytical variability (CV%), accuracy, sensitivity and specificity known as adequate for at least one reported analytical method (analytical performance)

Q8: Has the analysis been successfully reproduced in another laboratory (reproducibility)?









Fig. S1. Free structures of candidate biomarkers (without sulfate or glucuronide)

**Reference**

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