**Table S1.** The producers' information contained on the supplement label

| Form | Code | Number of dosage units | Product net weight (g) | The content of beetroot extract or preserves/dosage unit | Declared weight of the dosage unit (g) | Recommen-dation (dosage units/day) | Origin country |
|---|---|---|---|---|---|---|---|
| CAPSULES | A1 | 90 | 45 | 400 mg of root extract; 40 mg of nitrates | 0.5 | 1x1 caps. | Poland (PL) |
| | A2 | | | | | | Poland (PL) |
| | B1 | 90 | 45 | 400 mg root extract (15:1); gelatine | 0.5 | 1x1 caps. | Poland (PL) |
| | B2 | | | | | | Poland (PL) |
| | C1 | 60 | 35.76 | dried juice concentrate; 38 mg of vitamin C; 2.8 mg of iron; capsule shell (gelatin of animal origin) | 0.596 | 2x1 caps. during meal | Poland (PL) |
| | C2 | | | | | | Poland (PL) |
| | D1 | 30 | 11.3 | 268 mg of beetroot concentrate; vitamin C 20 mg ; iron gluconate 12 mg (1.4 mg iron); starch; anti-caking agent: magnesium salts of fatty acids; silicon dioxide | 0.376 | 1x3 caps. | Poland (PL) |
| | D2 | | | | | | Poland (PL) |
| | E1 | 60 | 41.4 | 550 mg of *Beta vulgaris* extract 4:1; pullulan capsule | 0.69 | 1x2 caps. | Poland (PL) |
| | E2 | | | | | | Poland (PL) |
| | F1 | 100 | NA* | 500 mg of beetroot; magnesium stearate; gelatin capsule | NA* | 2-3x2 caps. | USA |
| | G1 | 60 | NA* | 700 mg of organic prepared beetroot (beetroot extract, maltodextrin) corresponding to 4620 mg of dried beetroot); vegetable capsule shell (hydroxypropylmethylcellulose) | NA* | 1x2 caps. during meal | United Kingdom (UK) |
| | H1 | 100 | NA* | 500 mg of beetroot; vegetable capsules (modified cellulose); cellulose; silica; magnesium stearate | NA* | 3x2 caps. during meal | USA |
| | I1 | 90 | NA* | 500 mg of beetroot extract (*Beta vulgaris*) (standardized for 0.3% betanin); cellulosan; silicon dioxide; vegetable fatty; vegetable mineral salts | NA* | 3x1 caps. during meal | USA |
| | J1 | 60 | NA* | 450 mg of beetroot extract; bulking agent: microcrystalline cellulose; shells: hydroxypropyl methylcellulose | NA* | 1x1-2 caps. | USA |
| CAPSULES | K1 | 90 | NA* | 500 mg of beetroot extract (*Beta vulgaris*) (5:1); bulking agents: maltodextrin, microcrystalline cellulose; vegetable capsule shell: hydroxypropyl methylcellulose; anti-caking agents: silicon dioxide, vegetable magnesium stearate | NA* | 1x1 caps. | USA |
| | L1 | 60 | NA* | 300 mg of freeze-dried juice from organic pickled beetroot; micronized apple fiber; cellulose capsule shell | 0.3 | 2x1 caps. before meal | Poland (PL) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TABLETS | M1 | 60 | 33 | 500 mg of dried juice concentrate (refers to 2.75 g fresh beetroot); 1 mg of $B_6$; 1.25μg of $B_{12}$; bulking agent: microcrystalline cellulose; anti-caking agents: fatty magnesium salts, silicon dioxide | 0.55 | 1-2x3 caps. | Poland (PL) |
| | M2 | | | | | | Poland (PL) |
| | N1 | 60 | 39 | 488 mg of beetroot concentrate; vitamin C 20 mg; iron gluconate 12 mg (1.4 mg iron); starch; anti-caking agent: magnesium salts of fatty acids; silicon dioxide | 0.65 | 1x3 | Poland (PL) |
| | N2 | | | | | | Poland (PL) |
| | O1 | 120 | 111 | 500 mg of dried juice (refers to 3.5 g of fresh beetroot); anti-caking agent: magnesium salts of fatty acids; silicon dioxide | 0.925 | 1-2x3 caps. during a meal or after a meal | Poland (PL) |
| | O2 | | | | | | Poland (PL) |
| | P1 | 100 | 35 | 132.375 mg of dicalcium phosphate; 132.375 mg of microcrystalline cellulose; 80 mg of beetroot extract (including 1% betaine); 2.25 mg vegetable magnesium stearate | 0.35 | 1x2 tabl. | United Kingdom (UK) |
| | Q1 | 60 | 37.8 | 500 mg of fresh beetroot; maltodextrin; 40 mg of L-ascorbic acid (vitamin C); 7 mg iron II fumarate (iron); bulking agent: sorbitols; anti-caking agents: magnesium salts of fatty acids, silicon dioxide | 0.63 | 1-2x1 tabl. | Poland (PL) |
| | R1 | 60 | 39 | beetroot concentrate 500 mg; vitamin C 20 mg; 12 mg iron (II) gluconate (1.4 mg iron); starch; anti-caking agent: magnesium salts of fatty acids, silicon dioxide | 0.65 | 3x1tabl. | Poland (PL) |
| | S1 | 60 | NA* | 500 mg of dried red beetroot concentrate; 1 mg vitamin $B_6$; 1.25 mg vitamin $B_{12}$; anti-caking agents: magnesium salts of fatty acids, silicon dioxide | NA* | 3x1-2 tabl. | Poland (PL) |
| TABLETS | T1 | 120 | 42 | 350 mg of beetroot extract 20:1 (80 mg of betanins); binder: dicalcium phosphate; emulsifier: microcrystalline cellulose; stabilizer: magnesium salts of fatty acids | 0.35 | 1x1-2 tabl. during meal | United Kingdom (UK) |
| | U1 | 100 | 146 | 1000 mg of beetroot extract; bulking agent: microcrystalline cellulose; anti-caking agent: stearic acid, magnesium stearate; stabilizer and solubiliser: sodium croscarmellose | 1.46 | 1-3x1 tabl. | USA |
| | W1 | 120 | 42 | 160 mg of 10:1 beetroot extract (provides 1% nitrate); bulking agents: calcium hydrogen phosphate and cellulose; anti-caking agent: magnesium salts of fatty acids and silicon dioxide | 0.35 | 1x1 tabl. | United Kingdom (UK) |
| | Y1 | 90 | NA* | 300 mg of beetroot extract; bulking agents: dicalcium phosphate, microcrystalline cellulose; anti-caking agents: stearic acid, silicon dioxide, magnesium stearate; glazing agents: hydroxypropyl methylcellulose, glycerin, carnauba wax | NA* | 3x1 tabl. | United Kingdom (UK) |

*NA - no data on the label provided from the manufacturer

**Table S2.** Analysis of iron and zinc content in dietary supplements

| Form | Product | Average iron content | | Declared added iron compound | Declared iron (elemental) content (mg/dosage unit) | % of producers declaration | Recom-menda-tion (dosage units/day) | Realization of RDA (%) | | Average zinc content | | Realization of RDA (%) | | Zn:Fe ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (mg/g) | (mg/ dosage unit) | | | | | women; 18 mg | men; 10 mg | (mg/g) | (mg/ dosage unit) | women; 8 mg | men; 11 mg | |
| CAPSULES | A1 | 0.016 | 0.006 | *NA | *NA | *ND | 1 | 0.04 | 0.06 | 0.002 | 0.001 | 0.01 | 0.01 | 1:6 |
| | A2 | 0.031 | 0.012 | *NA | *NA | *ND | 1 | 0.07 | 0.12 | 0.002 | 0.001 | 0.01 | 0.01 | 1:12 |
| | B1 | 0.014 | 0.006 | *NA | *NA | *ND | 1 | 0.03 | 0.06 | 0.002 | 0.001 | 0.01 | 0.01 | 1:6 |
| | B2 | 0.035 | 0.014 | *NA | *NA | *ND | 1 | 0.08 | 0.14 | 0.004 | 0.001 | 0.02 | 0.01 | 1:14 |
| | C1 | 5.41 | 2.777 | iron(II) gluconate | 2.8 | 99.17 | 2 | 30.85 | 55.54 | 0.007 | 0.004 | 0.10 | 0.07 | 1:694 |
| | C2 | 6.75 | 3.394 | | 2.8 | 121.22 | 2 | 37.71 | 67.88 | 0.008 | 0.004 | 0.09 | 0.07 | 1:848 |
| | D1 | 3.89 | 1.214 | | 1.4 | 86.69 | 3 | 20.23 | 36.42 | 0.008 | 0.003 | 0.09 | 0.07 | 2:809 |
| | D2 | 5.86 | 1.772 | | 1.4 | 126.60 | 3 | 29.54 | 53.16 | 0.008 | 0.004 | 0.14 | 0.10 | 1:443 |
| | E1 | 0.016 | 0.007 | *NA | *NA | *ND | 2 | 0.08 | 0.14 | <LOQ | <LOQ | 0.00 | 0.00 | *ND |
| | E2 | 0.012 | 0.006 | *NA | *NA | *ND | 2 | 0.06 | 0.12 | <LOQ | <LOQ | 0.00 | 0.00 | *ND |
| | F1 | 0.001 | 0.003 | *NA | *NA | *ND | 3 | 0.06 | 0.09 | <LOQ | <LOQ | 0.00 | 0.00 | *ND |
| | G1 | <LOQ | <LOQ | *NA | *NA | *ND | 2 | 0.0 | 0.00 | 0.010 | 0.007 | 0.18 | 0.13 | *ND |
| | H1 | <LOQ | <LOQ | *NA | *NA | *ND | 6 | 0.0 | 0.00 | 0.014 | 0.008 | 0.58 | 0.42 | *ND |
| | I1 | <LOQ | <LOQ | *NA | *NA | *ND | 3 | 0.0 | 0.00 | 0.001 | 0.001 | 0.03 | 0.02 | *ND |
| | J1 | <LOQ | <LOQ | *NA | *NA | *ND | 2 | 0.0 | 0.00 | <LOQ | <LOQ | 0.00 | 0.00 | *ND |
| | K1 | <LOQ | <LOQ | *NA | *NA | *ND | 1 | 0.0 | 0.00 | 0.007 | 0.004 | 0.06 | 0.04 | *ND |
| | L1 | 0.017 | 0.015 | *NA | *NA | *ND | 2 | 0.17 | 0.30 | 0.032 | 0.009 | 0.23 | 0.17 | 3:5 |
| TABLET s | M1 | 0.012 | 0.007 | *NA | *NA | *ND | 6 | 0.22 | 0.42 | 0.003 | 0.005 | 0.40 | 0.29 | 5:7 |
| | M2 | 0.015 | 0.008 | *NA | *NA | *ND | 6 | 0.28 | 0.48 | 0.007 | 0.004 | 0.28 | 0.20 | 1:2 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N1 | 1.77 | 1.189 | iron(II) gluconate | 1.4 | 84.91 | 3 | 19.81 | 35.67 | 0.008 | 0.005 | 0.19 | 0.14 | 1:238 |
| N1 | 2.99 | 1.970 | | 1.4 | 140.69 | 3 | 32.83 | 59.10 | 0.007 | 0.004 | 0.16 | 0.12 | 2:985 |
| O1 | 0.039 | 0.040 | *NA | *NA | *ND | 6 | 1.33 | 2.40 | 0.003 | 0.004 | 0.29 | 0.21 | 1:10 |
| O2 | 0.039 | 0.040 | *NA | *NA | *ND | 6 | 1.34 | 2.40 | 0.002 | 0.003 | 0.20 | 0.15 | 3:40 |
| P1 | 0.006 | 0.007 | *NA | *NA | *ND | 2 | 0.08 | 0.14 | 0.014 | 0.005 | 0.13 | 0.09 | 5:7 |
| Q1 | 3.83 | 8.960 | iron(II) fumarate | 7.0 | 128.01 | 2 | 99.56 | 179.20 | 0.004 | 0.003 | 0.06 | 0.05 | *ND |
| R1 | 0.639 | 1.378 | iron(II) gluconate | 1.4 | 98.46 | 3 | 22.97 | 41.34 | 0.007 | 0.005 | 0.18 | 0.13 | 2:551 |
| S1 | 0.001 | 0.005 | *NA | *NA | *ND | 6 | 0.16 | 0.30 | 0.001 | 0.001 | 0.11 | 0.08 | 1:5 |
| T1 | 0.0013 | 0.015 | *NA | *NA | *ND | 2 | 0.17 | 0.30 | 0.002 | 0.001 | 0.02 | 0.02 | 1:15 |
| U1 | <LOQ | <LOQ | *NA | *NA | *ND | 3 | 0.00 | 0.00 | <LOQ | <LOQ | 0.00 | 0.00 | *ND |
| W1 | 0.004 | 0.005 | *NA | *NA | *ND | 1 | 0.03 | 0.05 | 0.002 | 0.001 | 0.01 | 0.01 | 1:5 |
| Y1 | 0.003 | 0.005 | *NA | *NA | *ND | 6 | 0.17 | 0.30 | 0.003 | 0.002 | 0.09 | 0.07 | 2:5 |

Supplements enriched with iron compounds are highlighted in gray in the table.
*ND - not available; value cannot be calculated due to lack of data
*NA - no data from the manufacturer
LOQ $_{Fe}$ = 0.158 μg/mL; LOQ $_{Zn}$ = 0.03 μg/mL;

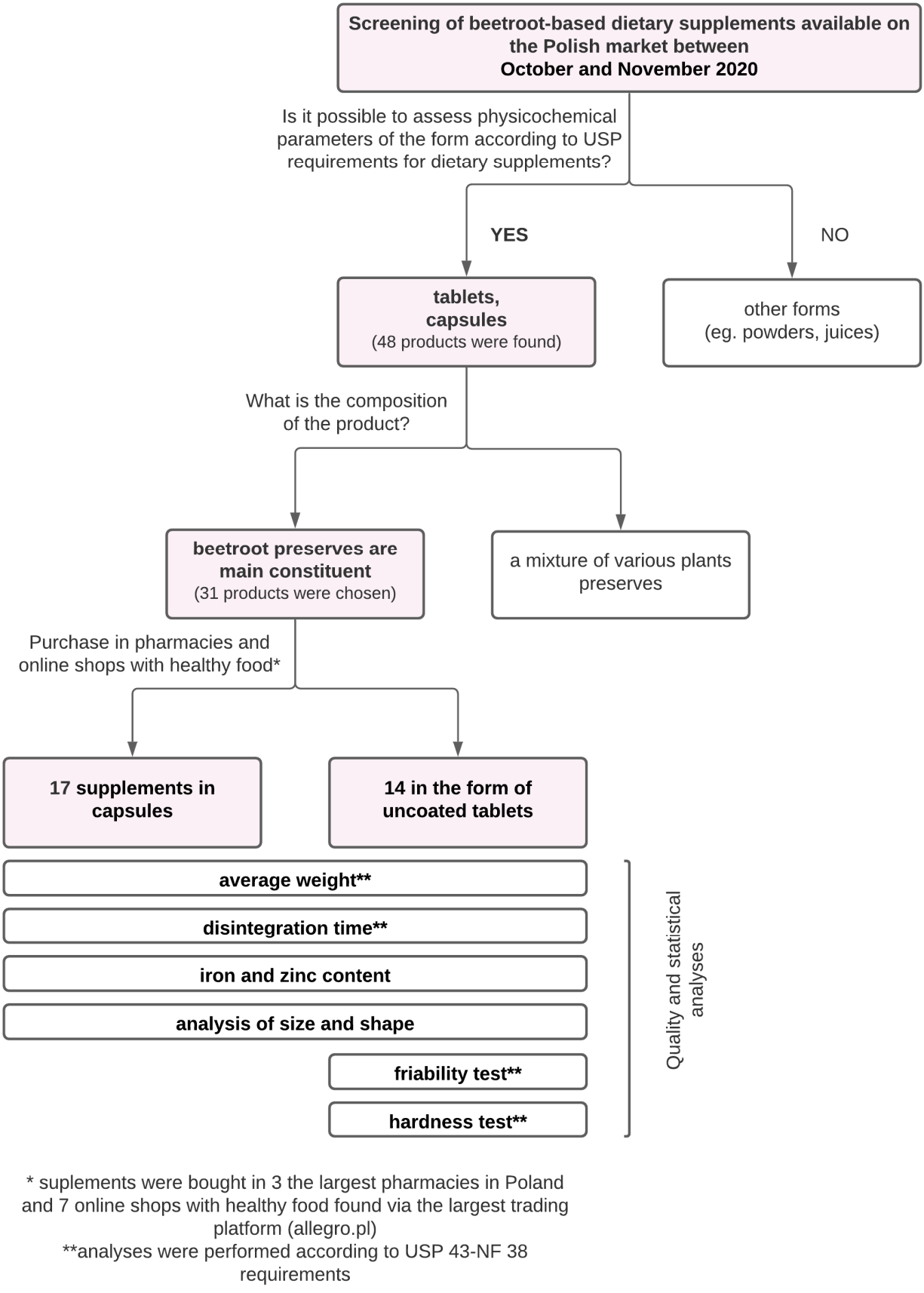


**Figure S1:** A diagram illustrating the experimental design