**Supplemental Table S1. Nutritional composition of sweet cherry**

| **Proximates** | **Value per 100 g FW** |
|---|---|
| Water (g) | 82.25 |
| Energy (kcal) | 63 |
| Protein (g) | 1.06 |
| Total lipid (fat) (g) | 0.2 |
| Carbohydrate, by difference (g) | 16.01 |
| Fiber, total dietary (g) | 2.1 |
| Sugars, total (g) | 12.82 |
| **Minerals** | |
| Calcium, Ca (mg) | 13 |
| Iron, Fe (mg) | 0.36 |
| Magnesium, Mg (mg) | 11 |
| Phosphorus, P (mg) | 21 |
| Potassium, K (mg) | 222 |
| Sodium, Na (mg) | 0 |
| Zinc, Zn (mg) | 0.07 |
| **Vitamins** | |
| Vitamin C, total ascorbic acid (mg) | 7 |
| Thiamin (mg) | 0.027 |
| Riboflavin (mg) | 0.033 |
| Niacin (mg) | 0.154 |
| Vitamin B-6 (mg) | 0.049 |
| Folate, DFE (µg) | 4 |
| Vitamin B-12 (µg) | 0 |
| Vitamin A, RAE (µg) | 3 |
| Vitamin A, IU (IU) | 64 |
| Vitamin E (alpha-tocopherol) (mg) | 0.07 |
| Vitamin D (D2 + D3) (µg) | 0 |
| Vitamin D (IU) | 0 |
| Vitamin K (phylloquinone) (µg) | 2.1 |
| **Lipids** | |
| Fatty acids, total saturated (g) | 0.038 |
| Fatty acids, total monounsaturated (g) | 0.047 |
| Fatty acids, total polyunsaturated (g) | 0.052 |
| Fatty acids, total trans (g) | 0 |
| Cholesterol (mg) | 0 |

Nutritional composition of sweet cherry expressed for 100 g fresh weight (FW). Data obtained from the U.S. Department of Agriculture [1].

**Supplemental Table S2. Phenolic composition of sweet cherry.**

| **Flavonoids** | | **mg per 100 g FW** |
|---|---|---|
| Anthocyanins | Cyanidin 3-O-glucoside | 18.73 |
| | Cyanidin 3-O-rutinoside | 143.27 |
| | Pelargonidin 3-O-rutinoside | 1.24 |
| | Peonidin 3-O-glucoside | 0.76 |
| | Peonidin 3-O-rutinoside | 7.42 |
| Flavanols | (+)-Catechin | 1.5 |
| | (-)-Epicatechin | 7.78 |
| | (-)-Epicatechin 3-O-gallate | 0.09 |
| | (-)-Epigallocatechin | 0.05 |
| | Procyanidin dimer B1 | 0.23 |
| | Procyanidin dimer B2 | 2.1 |
| | Procyanidin dimer B3 | 0.08 |
| | Procyanidin dimer B4 | 0.18 |
| | Procyanidin dimer B5 | 0.2 |
| | Procyanidin dimer B7 | 1.01 |
| | Procyanidin trimer C1 | 1.85 |
| **Phenolic acids** | | |
| Hydroxycinnamic acids | 3-Caffeoylquinic acid | 44.71 |
| | 3-Feruloylquinic acid | 0.43 |
| | 3-p-Coumaroylquinic acid | 38.43 |
| | 4-Caffeoylquinic acid | 0.77 |
| | 4-p-Coumaroylquinic acid | 1.27 |
| | 5-Caffeoylquinic acid | 2.2 |

Phenolic composition of sweet cherry expressed as mg/ 100 g fresh weight (FW).

Data obtained from Phenol explorer [2].

**Supplemental Table S3. Nutritional composition of the standard and cafeteria diets.**

| | gr/100 gr of diet | |
|---|---|---|
| | **STD** | **CAF** |
| **Proteins** | 16.1 | 5.8 |
| **Lipids** | 3.1 | 8.4 |
| Of which saturated fatty acids | 0.65 | 2.6 |
| **Carbohydrates** | 60.4 | 32.9 |
| Of which total sugars | 1.9 | 19.6 |
| **Fibres** | 3.9 | 1.8 |
| **Moisture** | 11.9 | 48.0 |

Nutritional composition of the standard (STD) and cafeteria (CAF). The sources of carbohydrates of the STD diet were 100% from cereals, and the protein sources were 66.7% from vegetal origin and a 33.3 % from animal origin. The ingredients of the cafeteria diet were bacon (8-12 gr), biscuits with pâté (12-15 gr) and cheese (10-12 gr), muffins (8-10 gr), carrots (6-9 gr) and sweetened milk (22% sucrose w/v; 50 mL) in addition to the standard chow diet.

**Supplemental Table S4. Primers for the Q-PCR analysis.**

| | Forward (5'...3') | Reverse (5'...3') |
|---|---|---|
| *Hprt* | TCCCAGCGTCGTGATTAGTGA | CCTTCATGACATCTCGAGCAAG |
| *Actb* | GCAGGAGTACGATGAGTCCG | ACGCAGCTCAGTAACAGTCC |
| *Ppia* | CTTCGAGCTGTTTGCAGACAA | AAGTCACCACCCTGGCACATG |
| *Acacα* | GCGGCTCTGGAGGTATATGT | TCTGTTTAGCGTGGGGATGT |
| *Atgl* | GAAGACCCTGCCTGCTGATT | CACATAGCGCACCCCTTGAA |
| *Fasn* | TAAGCGGTCTGGAAAGCTGA | CACCAGTGTTTGTTCCTCGG |
| *Gpat* | GAATACAGCCTTGGCCGATG | GAGGCGTGCATGAATAGCAA |
| *Hsl* | AGTTCCCTCTTTACGGGTGG | GCTTGGGGTCAGAGGTTAGT |
| *Prdm16* | GTTCTGCGTGGATGCCAATC | TGGCGAGGTTTTGGTCATCA |
| *Cebpα* | TGTACTGTATGTCGCCAGCC | TGGTTTAGCATAGACGCGCA |
| *Mgll* | ATCATCCCCGAGTCAGGACA | TGACTCCCCTAGACCACGAG |
| *Ucp1* | GGTACCCACATCAGGCAACA | TCTGCTAGGCAGGCAGAAAC |
| *Lpl* | GGCCCAGCAACATTATCCAG | ACTCAAAGTTAGGCCCAGCT |
| *Had* | ATCGTGAACCGTCTCTTGGT | AGGACTGGGCTGAAATAAGG |
| *Cpt1b* | GCAAACTGGACCGAGAAGAG | CCTTGAAGAAGCGACCTTTG |
| *Pparα* | CGGCGTTGAAAACAAGGAGG | TTGGGTTCCATGATGTCGCA |
| *Fatp1* | CTACCACTCAGCAGGGAACA | GCGGCATATTTCACCGATGT |
| *Cd36* | CAGTGCAGAAACAGTGGTTGTCT | TGACATTTGCAGGTCCATCTATG |
| *Pparγ* | AGGGCGATCTTGACAGGAAA | CGAAACTGGCACCCTTGAAA |
| *Bmal1* | GTAGATCAGAGGGCGACGGCTA | CTTGTCTGTAAAACTTGCCTGTGAC |
| *Cry1* | TGGAAGGTATGCGTGTCCTC | TCCAGGAGAACCTCCTCACG |
| *Per2* | CGGACCTGGCTTCAGTTCAT | AGGATCCAAGAACGGCACAG |

Hypoxanthine-guanine phosphoribosyltransferase (*Hprt*), Actin beta (*Actb*), Peptidylprolyl Isomerase A (*Ppia*), acetyl-CoA carboxylase alpha (*Acacα*), adipose triglyceride lipase (Atgl), fatty acid synthase (*Fasn*), glycerol-3-phosphate acyltransferase (*Gpat*), hormone-sensitive lipase (*Hsl*), PR domain containing 16 (*Prdm16*), CCAAT/enhancer-binding protein alpha (*C/ebpα*), monoglyceride lipase (*Mgll*), uncoupling protein 1 (*Ucp1*), lipoprotein lipase (*Lpl*), hydroxyacyl-CoA dehydrogenase (*Had*), carnitine palmitoyltransferase 1B (*CPT1b*), peroxisome proliferator-activated receptor alpha (*Pparα*), fatty acid transport protein 1 (*Fatp1*), cluster of differentiation 36 (*Cd36*), peroxisome proliferator-activated receptor gamma (*Pparγ*), brain and muscle ARNT-like1 (*Bmal1*), cryptochrome circadian clock 1 (*Cry1*) and period circadian clock 2 (*Per2*).

## References


1. US Department of Agriculture, Agricultural Research Service, N. D. L. USDA Food Composition Databases Available online: https://ndb.nal.usda.gov/ndb/ (accessed on Jun 8, 2018).
2. Vos, F.; Crespy, V.; Chaffaut, L.; Mennen, L.; Knox, C.; Neveu, V. Phenol-Explorer : an online comprehensive database on polyphenol contents in foods. *Database Oxf.* **2010**, *2010*, 1–14, doi:10.1093/database/bap024.