

# Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

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### Introduction

The development of many chronic and degenerative diseases, such as cancer (1), heart disease (5), and neuronal degeneration such as Alzheimer's (4) and Parkinson's disease (9) has been theorized to be caused, in part, by oxidative stress. Oxidative stress has also been implicated in the process of aging (2). It is known that reactive oxygen species can damage biological molecules such as proteins, lipids, and DNA. While the human body has developed a number of systems to eliminate free radicals from the body, it is not 100% efficient (20).

Diets rich in fruits, nuts, and vegetables have long been considered to be an excellent source of antioxidants. A number of minerals and vitamins have a role as dietary antioxidants in addition to their other biological functions. These include vitamin C (ascorbic acid), vitamin E and its isomers (tocopherols and tocotrienols), and selenium. Data for these are included in the USDA National Nutrient Database for Standard Reference (SR) (18). USDA has also published a number of Special Interest Databases on various antioxidants: Carotenoids (14) (now merged with SR); isoflavones (15), flavonoids (16), and proanthocyanidins (17). However, there is no database of antioxidant activity for selected foods.

As part of the National Food and Nutrient Analysis Program (NFNAP) (12), USDA, in collaboration with the Produce for Better Health Foundation, undertook the analysis of 59 individual fruits, nuts, and vegetables. In addition to the traditional proximates, minerals, and vitamins analyses, which are included in SR, these foods were analyzed for a number of potentially bioactive compounds. These foods, along with a few foods collected for the food composition database for American Indians and Alaskan Natives, were also analyzed for their oxygen radical absorbance capacity (ORAC) by Wu et al. (19) at the Arkansas Children's Nutrition Center, ARS, USDA. These data as well as a limited amount of analytical data from the literature were compiled for the ORAC database.

In addition to the ORAC assay, other common measures of antioxidant capacity (AC) include ferric ion reducing antioxidant power (FRAP) and trolox equivalence antioxidant capacity (TEAC) assays. These assays are based on different underlying mechanisms using different radical or oxidant sources and therefore generate different values and cannot be compared directly. The ORAC assay is considered by some to be a preferable method because of its biological relevance to the in vivo antioxidant efficacy (3). In general, a food that has a high value for one measure of AC will also be high for another measure. However, because antioxidant compounds with different chemical structures interact with different radical sources differently, the relationship between any two AC methods will be quite low if considered across all foods. Thus, it is not possible to develop a mathematical relationship between 2 methods across a wide spectrum of foods. Like the content of any food component, AC values will differ due to a wide array of reasons, such as cultivar, growing conditions, harvesting, food processing and preparation, sampling, and analytical procedures.

## Methods

The analytical method developed by Prior et al (13) was used as the reference method for evaluating analytical methods from other published sources. This method uses fluorescein as the fluorescent probe and assays hydrophilic as well as lipophilic antioxidants. Analytical data from literature based on methods that used B-phycoerythrin (B-PE) as the probe were not used in this compilation as B-PE may produce inconsistent results in some foods, is not photostable, and may involve nonspecific protein binding with polyphenols (11).

ORAC Values are reported for hydrophilic-ORAC (H-ORAC), lipophilic-ORAC (L-ORAC), total-ORAC, and total phenolics (TP). H-ORAC, L-ORAC and total-ORAC are reported in  $\mu\text{mol}$  of Trolox Equivalents per 100 grams ( $\mu\text{molTE}/100\text{ g}$ ), while TP is reported in mg gallic acid equivalents per 100 grams (mgGAE/100 g). When only an H-ORAC value was available for a particular food item low in fat, H-ORAC value was also utilized for the Total ORAC value. In some cases values for H-ORAC, L-ORAC and Total-ORAC may come from different sources, and the sum of the average values for H-ORAC and L-ORAC may not equal the value for Total-ORAC.

## Data Evaluation

The data were evaluated for quality using procedures developed by scientists at the NDJ as part of the Nutrient Databank System (7). These procedures were based on criteria described earlier (6, 10) with some modifications. Procedures developed for the first release in 2003 of the flavonoid database were followed (8). The five categories of documentation which were evaluated included: sampling plan, sample handling, number of samples, analytical method, and analytical quality control. NDJ modified the criteria for the sampling plan rating at the aggregation stage to accommodate data from international sources. For aggregated data which included data from countries other than the United States, the number of countries replaced the number of regions within a country. The information presented in each reviewed paper was evaluated for each category, which then received a rating ranging from 0 to 20 points. The ratings for each of the five categories are summed to yield a quality index (QI) with the maximum possible score of 100 points. A confidence code (CC) is derived from the QI and is an indicator of the relative quality of the data and the reliability of a given mean. The CC is assigned as indicated in Table 1:

Table 1.—Confidence Codes (CC) derived from Quality Index (QI)

QI Points	CC
75-100	A
74-50	B
49-25	C
<25	D

The data were aggregated where possible to match the food descriptions in the USDA National Nutrient Database for Standard Reference (SR). Subsequently, the mean value (mg/100g), standard error of the mean (SEM), minimum (Min), and maximum (Max.) values were determined for each food and ORAC value. Mean values are weighted to account for the different number of samples among the various studies used. The weighted mean is, in turn, used to calculate the standard error based on the total number of samples in each aggregated food.

### **File Formats**

Each food was given a Nutrient Data Bank (NDB) number, the five digit numerical code used in the SR to identify each unique food entry if it matches a food in SR. As the data came from various sources both in the United States and other countries, there are a number of foods which are not included in the SR database. Temporary NDB numbers, beginning with either “97” or “99”, were assigned to foods that are not included in the SR. While efforts were made to assign the same “temporary” NDB Numbers to the same foods as in other Special Interest Databases, some numbers may have been used to encode different foods in other Special Interest Databases produced by the NDL, and therefore may not be unique. Minimum and maximum values are not reported when the number of samples = 1. A reference number corresponding to the publications in the sources of data section of the documentation is included in the table. Table 2 contains ORAC values for 277 foods and is arranged in alphabetical order and is also provided as a Microsoft<sup>®</sup> Access database.

This table of ORAC values will provide the user with a listing of antioxidant capacity as measured by the oxygen radical absorbance capacity method for a number of food items. When used in tandem with the phytonutrient Special Interest Tables developed by NDL, the user can assess the various sources of antioxidants in the food supply.

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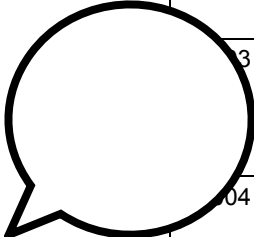
6

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
35193	Agave, cooked (Southwest)	H-ORAC	umol TE/100 g	2938	1				B	13
		L-ORAC	umol TE/100 g	136	1				B	13
		Total-ORAC	umol TE/100 g	2938	1				B	13
		TP	mg GAE/100 g	376	1				B	13
35194	Agave, dried (Southwest)	H-ORAC	umol TE/100 g	7274	1				B	13
		L-ORAC	umol TE/100 g	250	1				B	13
		Total-ORAC	umol TE/100 g	7274	1				B	13
		TP	mg GAE/100 g	1359	1				B	13
35192	Agave, raw (Southwest)	H-ORAC	umol TE/100 g	1247	1				B	13
		L-ORAC	umol TE/100 g	47	1				B	13
		Total-ORAC	umol TE/100 g	1247	1				B	13
		TP	mg GAE/100 g	87	1				B	13
14096	Alcoholic beverage, wine, table, red	H-ORAC	umol TE/100 g	3873	35	153.57	2547	6380	B	3, 11
		Total-ORAC	umol TE/100 g	3873	35	153.57	2547	6380	B	3, 11
		TP	Mg GAE/100 g	184	25	5.92	130	243	A	3
14097	Alcoholic Beverage, wine, table, red, Cabernet Sauvignon	H-ORAC	umol TE/100 g	5034	11	280.06	3470	6380	A	3
		Total-ORAC	umol TE/100 g	5034	11	280.06	3470	6380	A	3
		TP	mg GAE/100 g	203	11	8.10	143	243	A	3
99439	Alcoholic beverage, wine, table, rose	H-ORAC	umol TE/100 g	1005	3	79.61	895	1120	A	3
		Total-ORAC	umol TE/100 g	1005	3	79.61	895	1120	A	3
		TP	Mg GAE/100 g	42	3	1.91	39	44	A	3
14106	Alcoholic beverage, wine, table, white	H-ORAC	umol TE/100 g	392	12	10.74	318	484	B	3, 11
		Total-ORAC	umol TE/100 g	392	12	10.74	318	484	B	3, 11
		TP	Mg GAE/100 g	20	2	1.98	19	21	A	3
11001	Alfalfa seeds, sprouted, raw	H-ORAC	umol TE/100 g	1510	4	0.00	1510	1510	C	2
		Total-ORAC	umol TE/100 g	1510	4	0.00	1510	1510	C	2
		TP	mg GAE/100 g	53	4	0.00	53	53	C	2
09016	Apple juice, canned or bottled, unsweetened, without added ascorbic acid	H-ORAC	umol TE/100 g	408	66	1.07	402	477	B	11, 8
		Total-ORAC	umol TE/100 g	408	66	1.07	402	477	B	11, 8
99416	Apples, dried to 40% moisture (purchased in Italy)	H-ORAC	umol TE/100 g	6681	4	0.00	6681	6681	C	2
		Total-ORAC	umol TE/100 g	6681	4	0.00	6681	6681	C	2
		TP	mg GAE/100 g	324	4	0.00	324	324	C	2
97066	Apples, Fuji, raw, with skin	H-ORAC	umol TE/100 g	2568	4	401.99	1661	3304	A	13
		L-ORAC	umol TE/100 g	21	4	6.09	10	35	A	13
		Total-ORAC	umol TE/100 g	2589	4	398.80	1682	3314	A	13
		TP	mg GAE/100 g	210	4	18.76	165	237	A	13



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NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
97067	Apples, Gala, raw, with skin	H-ORAC	umol TE/100 g	2793	3	99.84	2639	2916	A	13
		L-ORAC	umol TE/100 g	35	3	5.49	29	44	A	13
		Total-ORAC	umol TE/100 g	2828	3	103.44	2670	2959	A	13
		TP	mg GAE/100 g	262	3	20.26	231	287	A	13
97069	Apples, Golden Delicious, raw, with skin	H-ORAC	umol TE/100 g	2644	4	93.24	2486	2844	A	13
		L-ORAC	umol TE/100 g	26	4	3.35	18	31	A	13
		Total-ORAC	umol TE/100 g	2670	4	95.23	2504	2872	A	13
		TP	mg GAE/100 g	248	4	10.31	222	262	A	13
97068	Apples, Golden Delicious, raw, without skin	H-ORAC	umol TE/100 g	2204	2	371.06	1942	2467	B	13
		L-ORAC	umol TE/100 g	5	2	1.81	4	7	B	13
		Total-ORAC	umol TE/100 g	2210	2	372.87	1946	2473	B	13
		TP	mg GAE/100 g	217	2	9.60	210	224	B	13
97070	Apples, Granny Smith, raw, with skin	H-ORAC	umol TE/100 g	3859	4	271.05	3588	4561	A	13
		L-ORAC	umol TE/100 g	39	4	6.36	29	52	A	13
		Total-ORAC	umol TE/100 g	3898	4	275.86	3619	4613	A	13
		TP	mg GAE/100 g	341	4	21.75	316	396	A	13
97073	Apples, raw, with skin	H-ORAC	umol TE/100 g	3056	23	166.95	1661	4811	A	2, 13
		L-ORAC	umol TE/100 g	32	19	2.59	10	52	A	13
		Total-ORAC	umol TE/100 g	3082	23	168.72	1682	4852	A	2, 13
		TP	mg GAE/100 g	262	23	13.48	165	396	A	2, 13
97074	Apples, raw, without skin	H-ORAC	umol TE/100 g	2567	4	314.35	1942	3265	A	13
		L-ORAC	umol TE/100 g	6	4	0.79	4	7	A	13
		Total-ORAC	umol TE/100 g	2573	4	314.94	1946	3272	A	13
		TP	mg GAE/100 g	225	4	10.61	210	251	A	13
97071	Apples, Red Delicious, raw, without skin	H-ORAC	umol TE/100 g	2929	2	475.94	2592	3265	B	13
		L-ORAC	umol TE/100 g	7	2	0.21	7	7	B	13
		Total-ORAC	umol TE/100 g	2936	2	475.72	2599	3272	B	13
		TP	mg GAE/100 g	232	2	26.15	214	251	B	13
97072	Apples, Red Delicious, raw, with skin	H-ORAC	umol TE/100 g	4234	4	236.27	3884	4811	A	13
		L-ORAC	umol TE/100 g	41	4	1.00	39	43	A	13
		Total-ORAC	umol TE/100 g	4275	4	236.01	3927	4852	A	13
		TP	mg GAE/100 g	347	4	22.20	301	394	A	13
09019	Applesauce, canned, unsweetened, without added ascorbic acid	H-ORAC	umol TE/100 g	1965	1				B	13
		Total-ORAC	umol TE/100 g	1965	1				B	13
		TP	mg GAE/100 g	217	1				B	13
99417	Apricots, dried to 40% moisture (purchased in Italy)	H-ORAC	umol TE/100 g	3234	4	0.00	3234	3234	C	2
		Total-ORAC	umol TE/100 g	3234	4	0.00	3234	3234	C	2



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NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		TP	mg GAE/100 g	248	4	0.00	248	248	C	2
09021	Apricots, raw	H-ORAC	umol TE/100 g	1108	5	51.74	1058	1309	B	2, 13
		L-ORAC	umol TE/100 g	32	1				B	13
		Total-ORAC	umol TE/100 g	1115	5	58.34	1058	1341	B	2, 13
		TP	mg GAE/100 g	79	5	13.93	65	133	B	2, 13
11007	Artichokes, (globe or french), raw	H-ORAC	umol TE/100 g	6552	4	0.00	6552	6552	C	6
		Total-ORAC	umol TE/100 g	6552	4	0.00	6552	6552	C	6
		TP	mg GAE/100 g	373	4	0.00	373	373	C	6
99362	Artichokes, Ocean Mist, boiled	H-ORAC	umol TE/100 g	9221	1				B	13
		L-ORAC	umol TE/100 g	195	1				B	13
		Total-ORAC	umol TE/100 g	9416	1				B	13
		TP	mg GAE/100 g	703	1				B	13
99363	Artichokes, Ocean Mist, Microwaved	H-ORAC	umol TE/100 g	9332	1				B	13
		L-ORAC	umol TE/100 g	70	1				B	13
		Total-ORAC	umol TE/100 g	9402	1				B	13
		TP	mg GAE/100 g	881	1				B	13
11012	Asparagus, cooked, boiled, drained	H-ORAC	umol TE/100 g	1644	4	177.61	1250	1992	A	13
		Total-ORAC	umol TE/100 g	1644	4	177.61	1250	1992	A	13
		TP	mg GAE/100 g	159	4	8.52	141	177	A	13
11011	Asparagus, raw	H-ORAC	umol TE/100 g	2150	8	281.20	1288	3336	A	6, 13
		L-ORAC	umol TE/100 g	102	4	10.57	81	123	A	13
		Total-ORAC	umol TE/100 g	2150	8	281.20	1288	3336	A	6, 13
		TP	mg GAE/100 g	106	8	11.50	72	156	A	6, 13
97080	Avocados, Hass, raw	H-ORAC	umol TE/100 g	1381	8	135.35	681	1768	A	13
		L-ORAC	umol TE/100 g	552	8	69.73	310	830	A	13
		Total-ORAC	umol TE/100 g	1933	8	183.74	991	2433	A	13
		TP	mg GAE/100 g	187	8	8.61	143	208	A	13
03165	Babyfood, fruit, apple and blueberry, junior	H-ORAC	umol TE/100 g	4822	1				B	13
		Total-ORAC	umol TE/100 g	4822	1				B	13
		TP	mg GAE/100 g	563	1				B	13
03116	Babyfood, fruit, applesauce, strained	H-ORAC	umol TE/100 g	4123	1				B	13
		Total-ORAC	umol TE/100 g	4123	1				B	13
		TP	mg GAE/100 g	612	1				B	13
97017	Babyfood, fruit, bananas	H-ORAC	umol TE/100 g	2658	1				B	13
		Total-ORAC	umol TE/100 g	2658	1				B	13
		TP	mg GAE/100 g	590	1				B	13
97019	Babyfood, fruit, peaches	H-ORAC	umol TE/100 g	6257	1				B	13

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NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		Total-ORAC	umol TE/100 g	6257	1				B	13
		TP	mg GAE/100 g	916	1				B	13
03131	Babyfood, fruit, peaches, junior	H-ORAC	umol TE/100 g	2551	1				B	13
		Total-ORAC	umol TE/100 g	2551	1				B	13
		TP	mg GAE/100 g	673	1				B	13
43408	Babyfood, juice, pear	H-ORAC	umol TE/100 g	414	3	0.00	414	414	C	11
		Total-ORAC	umol TE/100 g	414	3	0.00	414	414	C	11
19078	Baking chocolate, unsweetened, squares	H-ORAC	umol TE/100 g	51335	8	11450.83	19100	104322	B	4, 13
		L-ORAC	umol TE/100 g	859	8	47.88	670	1100	B	4, 13
		Total-ORAC	umol TE/100 g	49926	12	7539.83	20200	105160	B	4, 5, 13
		TP	mg GAE/100 g	5146	2	4705.41	2691	5177	B	5, 13
09040	Bananas, raw	H-ORAC	umol TE/100 g	813	4	58.79	686	924	A	13
		L-ORAC	umol TE/100 g	66	4	7.89	53	85	A	13
		Total-ORAC	umol TE/100 g	879	4	51.36	771	976	A	13
		TP	mg GAE/100 g	230	4	34.87	150	295	A	13
02044	Basil, fresh	H-ORAC	umol TE/100 g	4805	4	0.00	4805	4805	C	6
		Total-ORAC	umol TE/100 g	4805	4	0.00	4805	4805	C	6
		TP	mg GAE/100 g	264	4	0.00	264	264	C	6
16016	Beans, black turtle soup, mature seeds, raw	H-ORAC	umol TE/100 g	6416	6	561.79	4430	8402	C	14
		Total-ORAC	umol TE/100 g	6416	6	561.79	4430	8402	C	14
		TP	mg GAE/100 g	469	6	46.41	305	633	C	14
16014	Beans, black, mature seeds, raw	H-ORAC	umol TE/100 g	7593	1				B	13
		L-ORAC	umol TE/100 g	447	1				B	13
		Total-ORAC	umol TE/100 g	8040	1				B	13
		TP	mg GAE/100 g	880	1				B	13
16032	Beans, kidney, red, mature seeds, raw	H-ORAC	umol TE/100 g	8410	8	1290.85	6371	14539	B	13, 14
		L-ORAC	umol TE/100 g	196	2	263.75	9	382	B	13
		Total-ORAC	umol TE/100 g	8459	8	1323.00	6371	14921	B	13, 14
		TP	mg GAE/100 g	637	8	124.39	368	1247	B	13, 14
11033	Beans, lima, immature seeds, canned, regular pack, solids and liquids	H-ORAC	umol TE/100 g	215	1				B	13
		L-ORAC	umol TE/100 g	27	1				B	13
		Total-ORAC	umol TE/100 g	243	1				B	13
		TP	mg GAE/100 g	96	1				B	13
16037	Beans, navy, mature seeds, raw	H-ORAC	umol TE/100 g	1406	4	215.28	1202	2019	B	13, 14
		L-ORAC	umol TE/100 g	454	1				B	13
		Total-ORAC	umol TE/100 g	1520	4	335.19	1202	2474	B	13, 14
		TP	mg GAE/100 g	94	4	45.19	52	223	B	13, 14

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
16040	Beans, pink, mature seeds, raw	H-ORAC	umol TE/100 g	8320	3	0.00	8320	8320	C	14
		Total-ORAC	umol TE/100 g	8320	3	0.00	8320	8320	C	14
		TP	mg GAE/100 g	345	3	0.00	345	345	C	14
16043	Beans, pinto, mature seeds, cooked, boiled, without salt	H-ORAC	umol TE/100 g	846	4	324.69	368	1462	A	13
		L-ORAC	umol TE/100 g	57	4	3.64	50	66	A	13
		Total-ORAC	umol TE/100 g	904	4	327.48	418	1527	A	13
		TP	mg GAE/100 g	128	4	13.18	96	149	A	13
16042	Beans, pinto, mature seeds, raw	H-ORAC	umol TE/100 g	7610	5	1748.42	4637	12465	B	13, 14
		L-ORAC	umol TE/100 g	423	2	19.80	409	437	B	13
		Total-ORAC	umol TE/100 g	7779	5	1847.70	4637	12902	B	13, 14
		TP	mg GAE/100 g	618	5	162.68	341	1052	B	13, 14
11054	Beans, snap, green variety, canned, regular pack, solids and liquids	H-ORAC	umol TE/100 g	206	1				B	13
		L-ORAC	umol TE/100 g	84	1				B	13
		Total-ORAC	umol TE/100 g	290	1				B	13
		TP	mg GAE/100 g	61	1				B	13
11052	Beans, snap, green, raw	H-ORAC	umol TE/100 g	758	52	10.69	213	769	B	7, 13
		L-ORAC	umol TE/100 g	55	1				B	13
		Total-ORAC	umol TE/100 g	759	52	9.65	267	769	B	7, 13
		TP	mg GAE/100 g	92	1				B	13
11086	Beet greens, raw	H-ORAC	umol TE/100 g	1946	8	157.18	1168	2724	C	2, 6
		Total-ORAC	umol TE/100 g	1946	8	157.18	1168	2724	C	2, 6
		TP	mg GAE/100 g	55	8	1.03	50	60	C	2, 6
11080	Beets, raw	H-ORAC	umol TE/100 g	1767	30	73.88	1428	3632	B	6, 7, 13
		L-ORAC	umol TE/100 g	9	1				B	13
		Total-ORAC	umol TE/100 g	1767	30	74.01	1428	3632	B	6, 7, 13
		TP	mg GAE/100 g	188	5	14.48	174	244	B	6, 13
09042	Blackberries, raw	H-ORAC	umol TE/100 g	5245	4	516.08	4622	6570	A	13
		L-ORAC	umol TE/100 g	103	4	18.72	63	133	A	13
		Total-ORAC	umol TE/100 g	5347	4	529.79	4686	6702	A	13
		TP	mg GAE/100 g	660	4	164.83	413	1011	A	13
09050	Blueberries, raw	H-ORAC	umol TE/100 g	6520	9	439.11	4775	9209	A	12, 13
		L-ORAC	umol TE/100 g	36	8	6.90	15	67	A	13
		Total-ORAC	umol TE/100 g	6552	9	436.50	4790	9209	A	12, 13
		TP	mg GAE/100 g	531	8	36.19	337	685	A	13
99449	Bread, butternut whole grain	H-ORAC	umol TE/100 g	1986	1				B	13
		L-ORAC	umol TE/100 g	118	1				B	13
		Total-ORAC	umol TE/100 g	2104	1				B	13

# Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		TP	mg GAE/100 g	246	1				B	13
18035	Bread, mixed-grain (includes whole-grain, 7-grain)	H-ORAC	umol TE/100 g	1298	1				B	13
		L-ORAC	umol TE/100 g	123	1				B	13
		Total-ORAC	umol TE/100 g	1421	1				B	13
		TP	mg GAE/100 g	171	1				B	13
99448	Bread, Oatnut	H-ORAC	umol TE/100 g	1224	1				B	13
		L-ORAC	umol TE/100 g	94	1				B	13
		Total-ORAC	umol TE/100 g	1318	1				B	13
		TP	mg GAE/100 g	183	1				B	13
18044	Bread, pumpernickel	H-ORAC	umol TE/100 g	1835	1				B	13
		L-ORAC	umol TE/100 g	128	1				B	13
		Total-ORAC	umol TE/100 g	1963	1				B	13
		TP	mg GAE/100 g	271	1				B	13
11097	Broccoli raab, cooked	H-ORAC	umol TE/100 g	1526	5	118.04	1201	1722	A	13
		L-ORAC	umol TE/100 g	65	2	8.91	58	71	B	13
		Total-ORAC	umol TE/100 g	1552	5	116.79	1259	1793	A	13
		TP	mg GAE/100 g	291	5	70.98	158	521	A	13
11096	Broccoli raab, raw	H-ORAC	umol TE/100 g	2809	2	858.18	2202	3416	B	13
		L-ORAC	umol TE/100 g	274	2	0.97	273	275	B	13
		Total-ORAC	umol TE/100 g	3083	2	857.21	2477	3689	B	13
		TP	mg GAE/100 g	366	2	79.78	310	423	B	13
11091	Broccoli, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	2377	8	381.93	841	3529	A	6, 13
		L-ORAC	umol TE/100 g	33	2	10.39	26	41	B	13
		Total-ORAC	umol TE/100 g	2386	8	378.11	882	3529	A	6, 13
		TP	mg GAE/100 g	225	8	52.96	124	567	A	6, 13
11094	Broccoli, frozen, spears, unprepared	H-ORAC	umol TE/100 g	496	4	0.00	496	496	C	2
		Total-ORAC	umol TE/100 g	496	4	0.00	496	496	C	2
		TP	mg GAE/100 g	68	4	0.00	68	68	C	2
11090	Broccoli, raw	H-ORAC	umol TE/100 g	1352	138	4.17	1099	1700	A	7, 13
		L-ORAC	umol TE/100 g	172	8	8.92	144	205	A	13
		Total-ORAC	umol TE/100 g	1362	138	6.17	1255	1844	A	7, 13
		TP	mg GAE/100 g	337	8	23.31	247	406	A	13
99447	Cabbage, black, cooked	H-ORAC	umol TE/100 g	1773	4	0.00	1773	1773	C	6
		Total-ORAC	umol TE/100 g	1773	4	0.00	1773	1773	C	6
		TP	mg GAE/100 g	123	4	0.00	123	123	C	6
11110	Cabbage, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	856	4	0.00	856	856	C	6
		Total-ORAC	umol TE/100 g	856	4	0.00	856	856	C	6

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
11109	Cabbage, raw	TP	mg GAE/100 g	59	4	0.00	59	59	C	6
		H-ORAC	umol TE/100 g	508	115	15.66	477	1756	A	7, 13
		L-ORAC	umol TE/100 g	21	4	3.57	15	28	A	13
		Total-ORAC	umol TE/100 g	508	115	15.66	477	1756	A	7, 13
11113	Cabbage, red, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	3145	4	346.12	2362	3793	A	13
		Total-ORAC	umol TE/100 g	3145	4	346.12	2362	3793	A	13
		TP	mg GAE/100 g	321	4	33.06	274	402	A	13
11112	Cabbage, red, raw	H-ORAC	umol TE/100 g	2252	4	219.80	1948	2753	A	13
		L-ORAC	umol TE/100 g	20	4	8.02	10	41	A	13
		Total-ORAC	umol TE/100 g	2252	4	219.80	1948	2753	A	13
		TP	mg GAE/100 g	254	4	10.29	237	279	A	13
11115	Cabbage, savoy, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	2050	4	0.00	2050	2050	C	6
		Total-ORAC	umol TE/100 g	2050	4	0.00	2050	2050	C	6
		TP	mg GAE/100 g	119	4	0.00	119	119	C	6
99412	Candies, chocolate, dark	H-ORAC	umol TE/100 g	21800	5	0.00	21800	21800	C	4
		L-ORAC	umol TE/100 g	880	5	0.00	880	880	C	4
		Total-ORAC	umol TE/100 g	20823	14	551.03	15170	24600	B	4, 5
		TP	mg GAE/100 g	1297	9	29.67	1173	1488	B	5
19120	Candies, milk chocolate	H-ORAC	umol TE/100 g	7203	7	592.10	5132	9249	A	4, 13
		L-ORAC	umol TE/100 g	881	7	96.32	670	1208	A	4, 13
		Total-ORAC	umol TE/100 g	7528	10	593.01	4170	10430	B	4, 5, 13
		TP	mg GAE/100 g	507	4	118.58	317	696	B	5, 13
19080	Candies, semisweet chocolate	Total-ORAC	umol TE/100 g	18053	9	152.34	17400	19030	B	5
		TP	mg GAE/100 g	1238	9	10.07	1176	1288	B	5
11960	Carrots, baby, raw	H-ORAC	umol TE/100 g	355	7	60.40	202	662	A	13
		L-ORAC	umol TE/100 g	81	7	9.06	45	104	A	13
		Total-ORAC	umol TE/100 g	436	7	58.64	299	742	A	13
		TP	mg GAE/100 g	45	7	5.66	31	70	A	13
11125	Carrots, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	310	8	22.74	263	442	A	2, 13
		L-ORAC	umol TE/100 g	18	3	6.65	11	29	A	2, 13
		Total-ORAC	umol TE/100 g	317	8	25.69	263	471	A	2, 13
		TP	mg GAE/100 g	88	8	22.77	20	193	A	2, 13
11124	Carrots, raw	H-ORAC	umol TE/100 g	663	79	16.02	107	1405	B	2, 6, 7, 13
		L-ORAC	umol TE/100 g	48	5	13.59	5	80	A	13
		Total-ORAC	umol TE/100 g	666	79	17.22	107	1462	B	2, 6, 7, 13
		TP	mg GAE/100 g	35	20	2.57	16	68	A	6, 2, 13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
11935	Catsup	H-ORAC	umol TE/100 g	535	1				B	13
		L-ORAC	umol TE/100 g	43	1				B	13
		Total-ORAC	umol TE/100 g	578	1				B	13
		TP	mg GAE/100 g	249	1				B	13
11136	Cauliflower, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	620	4	0.00	620	620	C	2
		Total-ORAC	umol TE/100 g	620	4	0.00	620	620	C	2
		TP	mg GAE/100 g	61	4	0.00	61	61	C	2
11135	Cauliflower, raw	H-ORAC	umol TE/100 g	828	62	3.91	610	925	B	6, 7, 13
		L-ORAC	umol TE/100 g	37	1				B	13
		Total-ORAC	umol TE/100 g	829	62	3.37	647	925	B	6, 7, 13
		TP	mg GAE/100 g	111	5	41.99	70	274	B	6, 13
11143	Celery, raw	H-ORAC	umol TE/100 g	470	12	53.17	261	837	A	6, 13
		L-ORAC	umol TE/100 g	40	8	2.48	29	49	A	13
		Total-ORAC	umol TE/100 g	497	12	55.47	289	878	A	6, 13
		TP	mg GAE/100 g	42	12	6.60	15	86	A	6, 13
99450	Cereals ready-to-eat, granola, low-fat, with raisins	H-ORAC	umol TE/100 g	2168	1				B	13
		L-ORAC	umol TE/100 g	126	1				B	13
		Total-ORAC	umol TE/100 g	2294	1				B	13
		TP	mg GAE/100 g	367	1				B	13
99452	Cereals ready-to-eat, oat bran	H-ORAC	umol TE/100 g	1971	2	285.67	1769	2173	B	13
		L-ORAC	umol TE/100 g	212	2	133.64	117	306	B	13
		Total-ORAC	umol TE/100 g	2183	2	419.31	1886	2479	B	13
		TP	mg GAE/100 g	167	2	5.66	163	171	B	13
99453	Cereals ready-to-eat, oatmeal, toasted squares	H-ORAC	umol TE/100 g	2013	1				B	13
		L-ORAC	umol TE/100 g	130	1				B	13
		Total-ORAC	umol TE/100 g	2143	1				B	13
		TP	mg GAE/100 g	271	1				B	13
08049	Cereals ready-to-eat, QUAKER, QUAKER OAT LIFE, plain	H-ORAC	umol TE/100 g	1422	1				B	13
		L-ORAC	umol TE/100 g	95	1				B	13
		Total-ORAC	umol TE/100 g	1517	1				B	13
		TP	mg GAE/100 g	117	1				B	13
99454	Cereals ready-to-eat, toasted oatmeal	H-ORAC	umol TE/100 g	2086	1				B	13
		L-ORAC	umol TE/100 g	89	1				B	13
		Total-ORAC	umol TE/100 g	2175	1				B	13
		TP	mg GAE/100 g	183	1				B	13
08147	Cereals ready-to-eat, wheat, shredded, plain, sugar and salt	H-ORAC	umol TE/100 g	1222	1				B	13
		L-ORAC	umol TE/100 g	81	1				B	13

# Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
	free	Total-ORAC	umol TE/100 g	1303	1				B	13
		TP	mg GAE/100 g	94	1				B	13
08122	Cereals, oats, instant, fortified, plain, dry	H-ORAC	umol TE/100 g	2026	1				B	13
		L-ORAC	umol TE/100 g	282	1				B	13
		Total-ORAC	umol TE/100 g	2308	1				B	13
		TP	mg GAE/100 g	183	1				B	13
97103	Cereals, oats, old fashioned, uncooked	H-ORAC	umol TE/100 g	1402	1				B	13
		L-ORAC	umol TE/100 g	306	1				B	13
		Total-ORAC	umol TE/100 g	1708	1				B	13
		TP	mg GAE/100 g	163	1				B	13
99455	Cereals, oats, quick, uncooked	H-ORAC	umol TE/100 g	1763	1				B	13
		L-ORAC	umol TE/100 g	406	1				B	13
		Total-ORAC	umol TE/100 g	2169	1				B	13
		TP	mg GAE/100 g	183	1				B	13
97097	Cereals, ready-to-eat, corn flakes	H-ORAC	umol TE/100 g	2302	1				B	13
		L-ORAC	umol TE/100 g	57	1				B	13
		Total-ORAC	umol TE/100 g	2359	1				B	13
		TP	mg GAE/100 g	842	1				B	13
09070	Cherries, sweet, raw	H-ORAC	umol TE/100 g	3348	4	225.94	3102	3930	A	13
		L-ORAC	umol TE/100 g	17	4	7.03	7	32	A	13
		Total-ORAC	umol TE/100 g	3365	4	232.16	3108	3962	A	13
		TP	mg GAE/100 g	339	4	23.70	295	388	A	13
16056	Chickpeas (garbanzo beans, bengal gram), mature seeds, raw	H-ORAC	umol TE/100 g	847	3	0.00	847	847	C	14
		Total-ORAC	umol TE/100 g	847	3	0.00	847	847	C	14
		TP	mg GAE/100 g	90	3	0.00	90	90	C	14
35133	Chilchen (Red Berry Beverage) (Navajo)	H-ORAC	umol TE/100 g	740	1				B	13
		Total-ORAC	umol TE/100 g	740	1				B	13
		TP	mg GAE/100 g	20	1				B	13
11156	Chives, raw	H-ORAC	umol TE/100 g	2094	4	0.00	2094	2094	C	6
		Total-ORAC	umol TE/100 g	2094	4	0.00	2094	2094	C	6
		TP	mg GAE/100 g	85	4	0.00	85	85	C	6
99445	Chocolale, dutched powder	H-ORAC	umol TE/100 g	39900	2	0.00	39900	39900	C	4
		L-ORAC	umol TE/100 g	300	2	0.00	300	300	C	4
		Total-ORAC	umol TE/100 g	40200	2	0.00	40200	40200	C	4
14181	Chocolate syrup	Total-ORAC	umol TE/100 g	6330	3	356.93	5750	6670	C	5
		TP	mg GAE/100 g	417	3	40.59	366	479	C	5
99012	Chokeberry, raw	H-ORAC	umol TE/100 g	15820	1				C	12



## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	242	1				C	12
		Total-ORAC	umol TE/100 g	16062	1				C	12
		TP	mg GAE/100 g	2010	1				C	12
14192	Cocoa mix, powder	H-ORAC	umol TE/100 g	485	2	0.00	485	485	C	11
		Total-ORAC	umol TE/100 g	485	2	0.00	485	485	C	11
19165	Cocoa, dry powder, unsweetened	H-ORAC	umol TE/100 g	82000	3	0.00	82000	82000	C	4
		L-ORAC	umol TE/100 g	600	3	0.00	600	600	C	4
		Total-ORAC	umol TE/100 g	80933	12	1021.22	72000	87500	B	4, 5
		TP	mg GAE/100 g	5240	9	132.13	4530	6020	B	5
11165	Coriander (cilantro) leaves, raw	H-ORAC	umol TE/100 g	5141	4	0.00	5141	5141	C	6
		Total-ORAC	umol TE/100 g	5141	4	0.00	5141	5141	C	6
		TP	mg GAE/100 g	151	4	0.00	151	151	C	6
11170	Corn, sweet, yellow, canned, brine pack, regular pack, solids and liquids	H-ORAC	umol TE/100 g	361	1				B	13
		L-ORAC	umol TE/100 g	52	1				B	13
		Total-ORAC	umol TE/100 g	413	1				B	13
		TP	mg GAE/100 g	169	1				B	13
11178	Corn, sweet, yellow, frozen, kernels cut off cob, unprepared	H-ORAC	umol TE/100 g	447	1				B	13
		L-ORAC	umol TE/100 g	75	1				B	13
		Total-ORAC	umol TE/100 g	522	1				B	13
		TP	mg GAE/100 g	174	1				B	13
11167	Corn, sweet, yellow, raw	H-ORAC	umol TE/100 g	593	1				B	13
		L-ORAC	umol TE/100 g	135	1				B	13
		Total-ORAC	umol TE/100 g	728	1				B	13
		TP	mg GAE/100 g	211	1				B	13
16062	Cowpeas, common (blackeyes, crowder, southern), mature seeds, raw	H-ORAC	umol TE/100 g	3707	1				B	13
		L-ORAC	umol TE/100 g	636	1				B	13
		Total-ORAC	umol TE/100 g	4343	1				B	13
		TP	mg GAE/100 g	647	1				B	13
09078	Cranberries, raw	H-ORAC	umol TE/100 g	9382	3	85.17	9291	9519	A	13
		L-ORAC	umol TE/100 g	202	3	25.92	161	229	A	13
		Total-ORAC	umol TE/100 g	9584	3	61.53	9508	9679	A	13
		TP	mg GAE/100 g	718	3	3.90	715	725	A	13
11206	Cucumber, peeled, raw	H-ORAC	umol TE/100 g	126	4	18.84	94	171	A	13
		L-ORAC	umol TE/100 g	14	4	4.79	6	24	A	13
		Total-ORAC	umol TE/100 g	126	4	18.84	94	171	A	13
		TP	mg GAE/100 g	22	4	1.74	18	25	A	13
11205	Cucumber, with peel, raw	H-ORAC	umol TE/100 g	214	12	21.83	89	344	A	6, 13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	28	4	1.74	24	31	A	13
		Total-ORAC	umol TE/100 g	214	12	21.83	89	344	A	6, 13
		TP	mg GAE/100 g	29	12	1.50	20	37	A	6, 13
09083	Currants, european black, raw	H-ORAC	umol TE/100 g	10060	6	1445.97	4900	10060	B	12
		L-ORAC	umol TE/100 g	84	6	8.09	68	115	B	12
		Total-ORAC	umol TE/100 g	7960	6	866.80	5010	9290	B	12
		TP	mg GAE/100 g	1330	6	113.33	840	1410	B	12
99044	Currants, red, raw	H-ORAC	umol TE/100 g	3260	1				C	12
		L-ORAC	umol TE/100 g	127	1				C	12
		Total-ORAC	umol TE/100 g	3387	1				C	12
		TP	mg GAE/100 g	540	1				C	12
09087	Dates, deglet noor	H-ORAC	umol TE/100 g	3863	7	131.20	3579	4514	A	13
		L-ORAC	umol TE/100 g	32	7	6.35	16	59	A	13
		Total-ORAC	umol TE/100 g	3895	7	130.03	3609	4536	A	13
		TP	mg GAE/100 g	661	7	45.20	436	797	A	13
09421	Dates, medjool	H-ORAC	umol TE/100 g	2360	2	446.68	2044	2676	B	13
		L-ORAC	umol TE/100 g	27	2	9.16	21	34	B	13
		Total-ORAC	umol TE/100 g	2387	2	455.84	2065	2709	B	13
		TP	mg GAE/100 g	572	2	30.38	551	594	B	13
02045	Dill weed, fresh	H-ORAC	umol TE/100 g	4392	4	0.00	4392	4392	C	6
		Total-ORAC	umol TE/100 g	4392	4	0.00	4392	4392	C	6
		TP	mg GAE/100 g	243	4	0.00	243	243	C	6
11210	Eggplant, cooked, boiled, drained, without salt	H-ORAC	umol TE/100 g	245	4	0.00	245	245	C	2
		Total-ORAC	umol TE/100 g	245	4	0.00	245	245	C	2
		TP	mg GAE/100 g	21	4	0.00	21	21	C	2
11209	Eggplant, raw	H-ORAC	umol TE/100 g	932	17	115.88	344	2509	B	2, 6, 13
		L-ORAC	umol TE/100 g	24	1				B	13
		Total-ORAC	umol TE/100 g	933	17	117.10	344	2533	B	2, 6, 13
		TP	mg GAE/100 g	63	17	12.15	29	252	B	2, 6, 13
09088	Elderberries, raw	H-ORAC	umol TE/100 g	14500	1				C	12
		L-ORAC	umol TE/100 g	197	1				C	12
		Total-ORAC	umol TE/100 g	14697	1				C	12
		TP	mg GAE/100 g	1950	1				C	12
11957	Fennel, bulb, raw	H-ORAC	umol TE/100 g	307	8	11.01	252	361	C	6
		Total-ORAC	umol TE/100 g	307	8	11.01	252	361	C	6
		TP	mg GAE/100 g	26	8	1.00	21	31	C	6
09089	Figs, raw	H-ORAC	umol TE/100 g	3200	7	206.67	2167	3667	A	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	183	7	14.96	114	213	A	13
		Total-ORAC	umol TE/100 g	3383	7	201.44	2380	3868	A	13
		TP	mg GAE/100 g	960	7	45.13	781	1104	A	13
11215	Garlic, raw	H-ORAC	umol TE/100 g	5346	4	0.00	5346	5346	C	6
		Total-ORAC	umol TE/100 g	5346	4	0.00	5346	5346	C	6
		TP	mg GAE/100 g	92	4	0.00	92	92	C	6
11216	Ginger root, raw	H-ORAC	umol TE/100 g	14840	4	0.00	14840	14840	C	6
		Total-ORAC	umol TE/100 g	14840	4	0.00	14840	14840	C	6
		TP	mg GAE/100 g	227	4	0.00	227	227	C	6
09107	Gooseberries, raw	H-ORAC	umol TE/100 g	3583	11	193.48	2040	4130	B	12
		L-ORAC	umol TE/100 g	23	11	3.40	15	45	B	12
		Total-ORAC	umol TE/100 g	3277	11	166.40	2080	4140	B	12
		TP	mg GAE/100 g	518	11	23.53	340	630	B	12
99050	Grape juice, white	H-ORAC	umol TE/100 g	793	78	7.80	318	1161	B	8, 11
		Total-ORAC	umol TE/100 g	793	78	7.80	318	1161	B	8, 11
09128	Grapefruit juice, white, raw	H-ORAC	umol TE/100 g	1238	1				B	13
		Total-ORAC	umol TE/100 g	1238	1				B	13
		TP	mg GAE/100 g	336	1				B	13
09112	Grapefruit, raw, pink and red, all areas	H-ORAC	umol TE/100 g	1512	8	127.05	1121	2030	A	13
		L-ORAC	umol TE/100 g	35	8	3.87	19	53	A	13
		Total-ORAC	umol TE/100 g	1548	8	125.17	1164	2066	A	13
		TP	mg GAE/100 g	214	8	12.53	167	268	A	13
97074	Grapes, red, raw	H-ORAC	umol TE/100 g	1260	4	183.27	985	1646	A	13
		Total-ORAC	umol TE/100 g	1260	4	183.27	985	1646	A	13
		TP	mg GAE/100 g	177	4	7.15	169	195	A	13
99047	Grapes, white or green, raw	H-ORAC	umol TE/100 g	1118	4	95.97	905	1303	A	13
		Total-ORAC	umol TE/100 g	1118	4	95.97	905	1303	A	13
		TP	mg GAE/100 g	145	4	6.08	131	156	A	13
99428	Guava, red-fleshed	Total-ORAC	umol TE/100 g	1990	3	105.59	1820	2100	C	10
		TP	mg GAE/100 g	247	3	48.43	170	301	C	10
99429	Guava, white-fleshed	Total-ORAC	umol TE/100 g	2550	1				C	10
		TP	mg GAE/100 g	345	1				C	10
99430	Juice, Blueberry	H-ORAC	umol TE/100 g	2906	7	70.35	2515	3063	B	8, 11
		Total-ORAC	umol TE/100 g	2906	7	70.35	2515	3063	B	8, 11
99431	Juice, Concord grape	H-ORAC	umol TE/100 g	2377	27	19.89	1873	2492	B	8, 11
		Total-ORAC	umol TE/100 g	2377	27	19.89	1873	2492	B	8, 11
99432	Juice, cranberry, 100% -	H-ORAC	umol TE/100 g	865	5	0.00	865	865	B	11

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
	cranberry blend, red	Total-ORAC	umol TE/100 g	865	5	0.00	865	865	B	11
99433	Juice, cranberry, white	H-ORAC	umol TE/100 g	232	4	0.00	232	232	C	11
		Total-ORAC	umol TE/100 g	232	4	0.00	232	232	C	11
99434	Juice, Cranberry/Concord grape	H-ORAC	umol TE/100 g	1480	5	0.00	1480	1480	B	8
		Total-ORAC	umol TE/100 g	1480	5	0.00	1480	1480	B	8
99435	Juice, Pomegranate, 100%	H-ORAC	umol TE/100 g	2341	7	0.00	2341	2341	B	11
		Total-ORAC	umol TE/100 g	2341	7	0.00	2341	2341	B	11
99436	Juice, red grape	H-ORAC	umol TE/100 g	1788	5	0.00	1788	1788	B	8
		Total-ORAC	umol TE/100 g	1788	5	0.00	1788	1788	B	8
99437	Juice, strawberry	H-ORAC	umol TE/100 g	1002	5	0.00	1002	1002	B	8
		Total-ORAC	umol TE/100 g	1002	5	0.00	1002	1002	B	8
09148	Kiwi fruit, (chinese gooseberries), fresh, raw	H-ORAC	umol TE/100 g	858	8	71.87	695	1263	A	13
		L-ORAC	umol TE/100 g	24	8	4.42	10	40	A	13
		Total-ORAC	umol TE/100 g	882	8	73.06	711	1303	A	13
		TP	mg GAE/100 g	267	8	8.71	227	291	A	13
97079	Kiwi, gold, raw	H-ORAC	umol TE/100 g	1159	1				B	13
		L-ORAC	umol TE/100 g	51	1				B	13
		Total-ORAC	umol TE/100 g	1210	1				B	13
		TP	mg GAE/100 g	366	1				B	13
11246	Leeks, (bulb and lower leaf-portion), raw	H-ORAC	umol TE/100 g	490	4	0.00	490	490	C	6
		Total-ORAC	umol TE/100 g	490	4	0.00	490	490	C	6
		TP	mg GAE/100 g	47	4	0.00	47	47	C	6
99112	Lemon balm, leaves, raw	H-ORAC	umol TE/100 g	5997	4	0.00	5997	5997	C	6
		Total-ORAC	umol TE/100 g	5997	4	0.00	5997	5997	C	6
		TP	mg GAE/100 g	490	4	0.00	490	490	C	6
09152	Lemon juice, raw	H-ORAC	umol TE/100 g	1225	1				B	13
		Total-ORAC	umol TE/100 g	1225	1				B	13
		TP	mg GAE/100 g	175	1				B	13
16069	Lentils, raw	H-ORAC	umol TE/100 g	7282	33	94.14	5357	8613	B	14
		Total-ORAC	umol TE/100 g	7282	33	94.14	5357	8613	B	14
		TP	mg GAE/100 g	628	33	12.13	431	869	B	14
11250	Lettuce, butterhead (includes boston and bibb types), raw	H-ORAC	umol TE/100 g	1321	8	406.82	332	3633	A	13
		L-ORAC	umol TE/100 g	103	8	19.75	46	211	A	13
		Total-ORAC	umol TE/100 g	1423	8	425.81	382	3845	A	13
		TP	mg GAE/100 g	100	8	21.64	24	203	A	13
11251	Lettuce, cos or romaine, raw	H-ORAC	umol TE/100 g	855	12	71.16	382	1244	A	13
		L-ORAC	umol TE/100 g	162	8	22.03	87	282	A	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		Total-ORAC	umol TE/100 g	963	12	70.81	570	1428	A	13
		TP	mg GAE/100 g	73	12	7.30	48	123	A	13
11253	Lettuce, green leaf, raw	H-ORAC	umol TE/100 g	1391	20	74.50	802	2127	A	6, 13
		L-ORAC	umol TE/100 g	141	8	9.77	111	183	A	13
		Total-ORAC	umol TE/100 g	1447	20	78.32	914	2170	A	6, 13
		TP	mg GAE/100 g	90	20	8.59	50	190	A	6, 13
11252	Lettuce, iceberg (includes crisphead types), raw	H-ORAC	umol TE/100 g	406	7	119.97	87	758	A	13
		L-ORAC	umol TE/100 g	33	7	4.15	20	50	A	13
		Total-ORAC	umol TE/100 g	438	7	117.97	137	784	A	13
		TP	mg GAE/100 g	50	7	11.30	21	97	A	13
11257	Lettuce, red leaf, raw	H-ORAC	umol TE/100 g	2287	12	228.90	1019	3323	A	13
		L-ORAC	umol TE/100 g	138	8	8.33	98	168	A	13
		Total-ORAC	umol TE/100 g	2380	12	218.79	1161	3323	A	13
		TP	mg GAE/100 g	111	12	7.55	74	175	A	13
09160	Lime juice, raw	H-ORAC	umol TE/100 g	823	4	0.00	823	823	B	13
		Total-ORAC	umol TE/100 g	823	4	0.00	823	823	B	13
		TP	mg GAE/100 g	117	4	0.00	117	117	B	13
09159	Limes, raw	H-ORAC	umol TE/100 g	82	4	1.54	80	86	A	13
		Total-ORAC	umol TE/100 g	82	4	1.54	80	86	A	13
		TP	mg GAE/100 g	12	4	1.11	10	15	A	13
09176	Mangos, raw	H-ORAC	umol TE/100 g	988	1				B	13
		L-ORAC	umol TE/100 g	14	1				B	13
		Total-ORAC	umol TE/100 g	1002	1				B	13
		TP	mg GAE/100 g	266	1				B	13
99438	Marjoram, fresh	H-ORAC	umol TE/100 g	27297	4	0.00	27297	27297	C	6
		Total-ORAC	umol TE/100 g	27297	4	0.00	27297	27297	C	6
		TP	mg GAE/100 g	964	4	0.00	964	964	C	6
09181	Melons, cantaloupe, raw	H-ORAC	umol TE/100 g	302	7	27.33	228	392	A	13
		L-ORAC	umol TE/100 g	13	7	2.90	5	23	A	13
		Total-ORAC	umol TE/100 g	315	7	24.99	250	398	A	13
		TP	mg GAE/100 g	125	7	7.70	90	144	A	13
09184	Melons, honeydew, raw	H-ORAC	umol TE/100 g	230	8	34.97	111	370	A	13
		L-ORAC	umol TE/100 g	11	8	1.85	5	20	A	13
		Total-ORAC	umol TE/100 g	241	8	35.05	119	381	A	13
		TP	mg GAE/100 g	72	8	13.04	37	130	A	13
01103	Milk, chocolate, fluid, commercial, reduced fat	H-ORAC	umol TE/100 g	1263	2	68.66	1214	1311	B	13
		Total-ORAC	umol TE/100 g	1263	2	68.66	1214	1311	B	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		TP	mg GAE/100 g	58	2	12.45	50	67	B	13
35130	Mush, blue corn with ash (Navajo)	H-ORAC	umol TE/100 g	684	1				B	13
		Total-ORAC	umol TE/100 g	684	1				B	13
		TP	mg GAE/100 g	77	1				B	13
09191	Nectarines, raw	H-ORAC	umol TE/100 g	720	8	98.89	406	1157	A	13
		L-ORAC	umol TE/100 g	29	8	8.03	9	59	A	13
		Total-ORAC	umol TE/100 g	750	8	100.48	460	1216	A	13
		TP	mg GAE/100 g	107	8	9.99	85	163	A	13
12061	Nuts, almonds	H-ORAC	umol TE/100 g	4282	8	329.29	2800	5362	A	13
		L-ORAC	umol TE/100 g	172	8	18.90	80	227	A	13
		Total-ORAC	umol TE/100 g	4454	8	326.01	3005	5546	A	13
		TP	mg GAE/100 g	418	8	31.91	306	521	A	13
12078	Nuts, brazilnuts, dried, unblanched	H-ORAC	umol TE/100 g	862	6	92.14	480	1052	A	13
		L-ORAC	umol TE/100 g	557	6	97.05	231	773	A	13
		Total-ORAC	umol TE/100 g	1419	6	172.39	711	1742	A	13
		TP	mg GAE/100 g	310	6	42.96	239	436	A	13
12087	Nuts, cashew nuts, raw	H-ORAC	umol TE/100 g	1505	8	73.86	1297	1847	A	13
		L-ORAC	umol TE/100 g	443	8	58.62	225	620	A	13
		Total-ORAC	umol TE/100 g	1948	8	109.39	1606	2434	A	13
		TP	mg GAE/100 g	269	8	14.81	234	331	A	13
12120	Nuts, hazelnuts or filberts	H-ORAC	umol TE/100 g	9275	8	672.00	5401	11561	A	13
		L-ORAC	umol TE/100 g	370	8	100.37	187	961	A	13
		Total-ORAC	umol TE/100 g	9645	8	594.30	6363	11778	A	13
		TP	mg GAE/100 g	835	8	81.76	430	1169	A	13
12132	Nuts, macadamia nuts, dry roasted, without salt added	H-ORAC	umol TE/100 g	1443	8	87.20	1165	1924	A	13
		L-ORAC	umol TE/100 g	252	8	21.74	171	331	A	13
		Total-ORAC	umol TE/100 g	1695	8	98.64	1362	2216	A	13
		TP	mg GAE/100 g	156	8	10.91	116	208	A	13
12142	Nuts, pecans	H-ORAC	umol TE/100 g	17524	8	391.75	16555	19631	A	13
		L-ORAC	umol TE/100 g	416	8	37.05	283	606	A	13
		Total-ORAC	umol TE/100 g	17940	8	398.35	16838	19991	A	13
		TP	mg GAE/100 g	2016	8	38.87	1887	2181	A	13
12147	Nuts, pine nuts, dried	H-ORAC	umol TE/100 g	443	8	41.94	238	595	A	13
		L-ORAC	umol TE/100 g	277	5	29.82	174	321	A	13
		Total-ORAC	umol TE/100 g	616	8	77.13	400	908	A	13
		TP	mg GAE/100 g	68	8	9.39	44	114	A	13
12151	Nuts, pistachio nuts, raw	H-ORAC	umol TE/100 g	7557	7	428.47	5911	8971	A	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	425	7	59.56	260	678	A	13
		Total-ORAC	umol TE/100 g	7983	7	454.43	6399	9649	A	13
		TP	mg GAE/100 g	1657	7	49.51	1474	1783	A	13
12155	Nuts, walnuts, english	H-ORAC	umol TE/100 g	13057	8	1330.39	8223	17743	A	13
		L-ORAC	umol TE/100 g	484	8	47.31	357	678	A	13
		Total-ORAC	umol TE/100 g	13541	8	1320.87	8872	18282	A	13
		TP	mg GAE/100 g	1556	8	153.53	1023	2269	A	13
04042	Oil, peanut, salad or cooking	H-ORAC	umol TE/100 g	106	4	0.00	106	106	C	6
		Total-ORAC	umol TE/100 g	106	4	0.00	106	106	C	6
		TP	mg GAE/100 g	0	4	0.00	0	0	C	6
99423	Olive oil, extra-virgin	H-ORAC	umol TE/100 g	1150	4	0.00	1150	1150	C	6
		Total-ORAC	umol TE/100 g	1150	4	0.00	1150	1150	C	6
		TP	mg GAE/100 g	19	4	0.00	19	19	C	6
99424	Olive oil, extra-virgin, w/basil, home prepared	H-ORAC	umol TE/100 g	684	4	0.00	684	684	C	6
		Total-ORAC	umol TE/100 g	684	4	0.00	684	684	C	6
		TP	mg GAE/100 g	8	4	0.00	8	8	C	6
99426	Olive oil, extra-virgin, w/garlic and red hot peppers, home prepared	H-ORAC	umol TE/100 g	219	4	0.00	219	219	C	6
		Total-ORAC	umol TE/100 g	219	4	0.00	219	219	C	6
		TP	mg GAE/100 g	9	4	0.00	9	9	C	6
99425	Olive oil, extra-virgin, w/garlic, home prepared	H-ORAC	umol TE/100 g	557	4	0.00	557	557	C	6
		Total-ORAC	umol TE/100 g	557	4	0.00	557	557	C	6
		TP	mg GAE/100 g	10	4	0.00	10	10	C	6
99427	Olive oil, extra-virgin, w/parsley, home prepared	H-ORAC	umol TE/100 g	766	4	0.00	766	766	C	6
		Total-ORAC	umol TE/100 g	766	4	0.00	766	766	C	6
		TP	mg GAE/100 g	9	4	0.00	9	9	C	6
11282	Onions, raw	H-ORAC	umol TE/100 g	1021	4	167.06	813	1442	A	13
		L-ORAC	umol TE/100 g	12	4	1.62	9	16	A	13
		Total-ORAC	umol TE/100 g	1034	4	168.53	822	1457	A	13
		TP	mg GAE/100 g	23	4	2.78	17	27	A	13
99055	Onions, red, raw	H-ORAC	umol TE/100 g	1521	4	0.00	1521	1521	C	6
		Total-ORAC	umol TE/100 g	1521	4	0.00	1521	1521	C	6
		TP	mg GAE/100 g	48	4	0.00	48	48	C	6
11294	Onions, sweet, raw	H-ORAC	umol TE/100 g	594	8	28.05	491	695	A	13
		L-ORAC	umol TE/100 g	21	8	3.33	5	33	A	13
		Total-ORAC	umol TE/100 g	614	8	30.08	509	727	A	13
		TP	mg GAE/100 g	74	8	7.40	52	99	A	13
99056	Onions, white, raw	H-ORAC	umol TE/100 g	863	37	14.57	342	926	B	6, 7

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		Total-ORAC	umol TE/100 g	863	37	14.57	342	926	B	6, 7
		TP	mg GAE/100 g	27	4	0.00	27	27	C	6
11286	Onions, yellow, sauteed	H-ORAC	umol TE/100 g	1220	4	98.97	996	1394	A	13
		Total-ORAC	umol TE/100 g	1220	4	98.97	996	1394	A	13
		TP	mg GAE/100 g	150	4	27.19	98	211	A	13
09206	Orange juice, raw	H-ORAC	umol TE/100 g	726	53	5.81	695	1027	B	11, 8
		Total-ORAC	umol TE/100 g	726	53	5.81	695	1027	B	11, 8
09202	Oranges, raw, navels	H-ORAC	umol TE/100 g	1785	8	143.07	1285	2393	A	13
		L-ORAC	umol TE/100 g	34	8	6.15	17	61	A	13
		Total-ORAC	umol TE/100 g	1819	8	143.94	1346	2445	A	13
		TP	mg GAE/100 g	337	8	14.58	258	380	A	13
99115	Oregano, fresh	H-ORAC	umol TE/100 g	13970	4	0.00	13970	13970	C	6
		Total-ORAC	umol TE/100 g	13970	4	0.00	13970	13970	C	6
		TP	mg GAE/100 g	491	4	0.00	491	491	C	6
11297	Parsley, raw	H-ORAC	umol TE/100 g	1301	4	0.00	1301	1301	C	6
		Total-ORAC	umol TE/100 g	1301	4	0.00	1301	1301	C	6
		TP	mg GAE/100 g	77	4	0.00	77	77	C	6
09370	Peaches, canned, heavy syrup, drained	H-ORAC	umol TE/100 g	436	2	56.04	397	476	B	13
		Total-ORAC	umol TE/100 g	436	2	56.04	397	476	B	13
		TP	mg GAE/100 g	73	2	3.46	70	75	B	13
99418	Peaches, dried to 40% moisture (purchased in Italy)	H-ORAC	umol TE/100 g	4222	4	0.00	4222	4222	C	2
		Total-ORAC	umol TE/100 g	4222	4	0.00	4222	4222	C	2
		TP	mg GAE/100 g	283	4	0.00	283	283	C	2
09236	Peaches, raw	H-ORAC	umol TE/100 g	1781	12	114.54	1139	2417	A	2, 13
		L-ORAC	umol TE/100 g	50	8	2.59	43	60	A	13
		Total-ORAC	umol TE/100 g	1814	12	116.31	1183	2472	A	2, 13
		TP	mg GAE/100 g	148	12	8.50	116	209	A	2, 13
16098	Peanut butter, smooth style, with salt	H-ORAC	umol TE/100 g	3127	3	0.00	3127	3127	B	13
		L-ORAC	umol TE/100 g	305	3	0.00	305	305	B	13
		Total-ORAC	umol TE/100 g	3432	3	0.00	3432	3432	B	13
		TP	mg GAE/100 g	536	3	0.00	536	536	B	13
16087	Peanuts, all types, raw	H-ORAC	umol TE/100 g	2893	4	136.42	2684	3177	A	13
		L-ORAC	umol TE/100 g	273	4	60.31	196	420	A	13
		Total-ORAC	umol TE/100 g	3166	4	134.50	2886	3453	A	13
		TP	mg GAE/100 g	396	4	31.06	324	450	A	13
97016	Pear juice, all varieties	H-ORAC	umol TE/100 g	704	1				C	11
		Total-ORAC	umol TE/100 g	704	1				C	11



## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
99421	Pears, dried to 40% moisture (purchased in Italy)	H-ORAC	umol TE/100 g	9496	4	0.00	9496	9496	C	2
		Total-ORAC	umol TE/100 g	9496	4	0.00	9496	9496	C	2
		TP	mg GAE/100 g	679	4	0.00	679	679	C	2
97075	Pears, green cultivars, with peel, raw	H-ORAC	umol TE/100 g	1856	7	103.36	1590	2282	A	13
		L-ORAC	umol TE/100 g	56	7	6.20	37	77	A	13
		Total-ORAC	umol TE/100 g	1911	7	99.57	1643	2319	A	13
		TP	mg GAE/100 g	220	7	7.27	192	244	A	13
09252	Pears, raw	H-ORAC	umol TE/100 g	2941	4	0.00	2941	2941	C	2
		Total-ORAC	umol TE/100 g	2941	4	0.00	2941	2941	C	2
		TP	mg GAE/100 g	168	4	0.00	168	168	C	2
97076	Pears, red anjou, raw	H-ORAC	umol TE/100 g	1711	4	195.88	1454	2208	A	13
		L-ORAC	umol TE/100 g	35	4	1.88	31	38	A	13
		Total-ORAC	umol TE/100 g	1746	4	195.49	1489	2243	A	13
		TP	mg GAE/100 g	214	4	18.61	172	250	A	13
11312	Peas, green, frozen, unprepared	H-ORAC	umol TE/100 g	505	1				B	13
		L-ORAC	umol TE/100 g	95	1				B	13
		Total-ORAC	umol TE/100 g	600	1				B	13
		TP	mg GAE/100 g	187	1				B	13
16085	Peas, split, mature seeds, raw	H-ORAC	umol TE/100 g	524	33	23.55	153	877	B	14
		Total-ORAC	umol TE/100 g	524	33	23.55	153	877	B	14
		TP	mg GAE/100 g	74	33	1.14	57	90	B	14
99457	Peas, yellow, mature seeds, raw	H-ORAC	umol TE/100 g	741	30	34.08	283	1144	B	14
		Total-ORAC	umol TE/100 g	741	30	34.08	283	1144	B	14
		TP	mg GAE/100 g	83	30	0.74	75	99	B	14
02064	Peppermint, fresh	H-ORAC	umol TE/100 g	13978	4	0.00	13978	13978	C	6
		Total-ORAC	umol TE/100 g	13978	4	0.00	13978	13978	C	6
		TP	mg GAE/100 g	690	4	0.00	690	690	C	6
11333	Peppers, sweet, green, raw	H-ORAC	umol TE/100 g	922	58	13.97	384	1059	A	6, 7, 13
		L-ORAC	umol TE/100 g	14	4	1.53	11	17	A	13
		Total-ORAC	umol TE/100 g	923	58	13.52	401	1059	A	6, 7, 13
		TP	mg GAE/100 g	160	8	36.29	50	312	A	6, 13
11339	Peppers, sweet, green, sauteed	H-ORAC	umol TE/100 g	615	4	94.65	419	755	A	13
		Total-ORAC	umol TE/100 g	615	4	94.65	419	755	A	13
		TP	mg GAE/100 g	437	4	62.57	328	570	A	13
99451	Peppers, sweet, orange, raw	H-ORAC	umol TE/100 g	908	1				B	13
		L-ORAC	umol TE/100 g	76	1				B	13
		Total-ORAC	umol TE/100 g	984	1				B	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		TP	mg GAE/100 g	543	1				B	13
11821	Peppers, sweet, red, raw	H-ORAC	umol TE/100 g	788	26	12.89	748	1094	A	6, 7, 13
		L-ORAC	umol TE/100 g	24	4	6.27	12	35	A	13
		Total-ORAC	umol TE/100 g	791	26	14.29	756	1129	A	6, 7, 13
		TP	mg GAE/100 g	255	8	57.15	86	532	A	6, 13
11921	Peppers, sweet, red, sauteed	H-ORAC	umol TE/100 g	847	4	103.42	700	1106	A	13
		Total-ORAC	umol TE/100 g	847	4	103.42	700	1106	A	13
		TP	mg GAE/100 g	564	4	20.61	533	599	A	13
99440	Peppers, sweet, yellow, grilled	H-ORAC	umol TE/100 g	694	4	0.00	694	694	C	2
		Total-ORAC	umol TE/100 g	694	4	0.00	694	694	C	2
		TP	mg GAE/100 g	164	4	0.00	164	164	C	2
11951	Peppers, sweet, yellow, raw	H-ORAC	umol TE/100 g	951	5	1.24	950	956	B	6, 13
		L-ORAC	umol TE/100 g	69	1				B	13
		Total-ORAC	umol TE/100 g	965	5	15.26	950	1024	B	6, 13
		TP	mg GAE/100 g	216	5	90.23	128	566	B	6, 13
09273	Pineapple juice, canned, unsweetened, without added ascorbic acid	H-ORAC	umol TE/100 g	568	1				C	11
		Total-ORAC	umol TE/100 g	568	1				C	11
09266	Pineapple, raw, all varieties	H-ORAC	umol TE/100 g	373	1				B	13
		L-ORAC	umol TE/100 g	12	1				B	13
		Total-ORAC	umol TE/100 g	385	1				B	13
		TP	mg GAE/100 g	81	1				B	13
09430	Pineapple, raw, extra sweet variety	H-ORAC	umol TE/100 g	857	7	66.39	564	1022	A	13
		L-ORAC	umol TE/100 g	27	7	6.14	7	56	A	13
		Total-ORAC	umol TE/100 g	884	7	70.74	571	1053	A	13
		TP	mg GAE/100 g	202	7	12.31	157	252	A	13
09429	Pineapple, raw, traditional varieties	H-ORAC	umol TE/100 g	520	2	140.30	421	619	B	13
		L-ORAC	umol TE/100 g	42	2	12.82	32	51	B	13
		Total-ORAC	umol TE/100 g	562	2	127.49	472	652	B	13
		TP	mg GAE/100 g	122	2	0.85	122	123	B	13
97077	Plums, black diamond, with peel, raw	H-ORAC	umol TE/100 g	7546	3	598.99	6568	8035	B	13
		L-ORAC	umol TE/100 g	35	3	6.52	30	46	B	13
		Total-ORAC	umol TE/100 g	7581	3	592.47	6614	8065	B	13
		TP	mg GAE/100 g	478	3	0.48	477	479	B	13
09291	Plums, dried (prunes), uncooked	H-ORAC	umol TE/100 g	6463	16	547.42	2212	10432	A	2, 13
		L-ORAC	umol TE/100 g	179	8	21.03	114	258	A	13
		Total-ORAC	umol TE/100 g	6552	16	561.65	2212	10563	A	2, 13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
09279	Plums, raw	TP	mg GAE/100 g	745	16	99.57	165	1392	A	2, 13
		H-ORAC	umol TE/100 g	6241	8	744.78	3472	9233	A	13
		L-ORAC	umol TE/100 g	17	8	3.60	7	31	A	13
		Total-ORAC	umol TE/100 g	6259	8	745.25	3486	9240	A	13
11358	Potatoes, red, flesh and skin, baked	TP	mg GAE/100 g	367	8	40.72	232	573	A	13
		H-ORAC	umol TE/100 g	1304	8	67.58	1160	1666	A	13
		L-ORAC	umol TE/100 g	22	8	2.86	12	35	A	13
		Total-ORAC	umol TE/100 g	1326	8	69.71	1182	1701	A	13
11355	Potatoes, red, flesh and skin, raw	TP	mg GAE/100 g	179	8	21.65	110	260	A	13
		H-ORAC	umol TE/100 g	1060	4	77.59	948	1255	A	13
		L-ORAC	umol TE/100 g	38	4	0.73	37	40	A	13
		Total-ORAC	umol TE/100 g	1098	4	76.99	987	1292	A	13
11356	Potatoes, Russet, flesh and skin, baked	TP	mg GAE/100 g	138	4	16.85	118	181	A	13
		H-ORAC	umol TE/100 g	1652	8	126.11	1280	2417	A	13
		L-ORAC	umol TE/100 g	28	8	3.56	16	42	A	13
		Total-ORAC	umol TE/100 g	1680	8	126.77	1317	2453	A	13
11353	Potatoes, russet, flesh and skin, raw	TP	mg GAE/100 g	176	8	5.94	159	208	A	13
		H-ORAC	umol TE/100 g	1272	4	131.56	1015	1541	A	13
		L-ORAC	umol TE/100 g	51	4	8.09	31	62	A	13
		Total-ORAC	umol TE/100 g	1322	4	138.00	1046	1603	A	13
11357	Potatoes, white, flesh and skin, baked	TP	mg GAE/100 g	122	4	13.32	91	146	A	13
		H-ORAC	umol TE/100 g	1098	7	110.83	789	1552	A	2, 13
		L-ORAC	umol TE/100 g	40	7	11.24	12	77	A	13
		Total-ORAC	umol TE/100 g	1138	7	104.22	866	1576	A	2, 13
11354	Potatoes, white, flesh and skin, raw	TP	mg GAE/100 g	136	7	24.32	41	223	A	2, 13
		H-ORAC	umol TE/100 g	1010	3	149.72	779	1195	A	13
		L-ORAC	umol TE/100 g	49	3	8.77	35	60	A	13
		Total-ORAC	umol TE/100 g	1058	3	158.48	814	1255	A	13
09294	Prune juice, canned	TP	mg GAE/100 g	163	3	11.95	145	178	A	13
		H-ORAC	umol TE/100 g	2036	6	93.76	1944	2496	B	11, 8
		Total-ORAC	umol TE/100 g	2036	6	93.76	1944	2496	B	11, 8
11422	Pumpkin, raw	TP	mg GAE/100 g	157	1				B	13
		H-ORAC	umol TE/100 g	414	1				B	13
		L-ORAC	umol TE/100 g	69	1				B	13
		Total-ORAC	umol TE/100 g	483	1				B	13
11676	Radish seeds, sprouted, raw	TP	mg GAE/100 g	157	1				B	13
		H-ORAC	umol TE/100 g	2184	4	0.00	2184	2184	C	2
		Total-ORAC	umol TE/100 g	2184	4	0.00	2184	2184	C	2

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
11429	Radishes, raw	TP	mg GAE/100 g	100	4	0.00	100	100	C	2
		H-ORAC	umol TE/100 g	1724	15	205.79	706	3602	A	6, 13
		L-ORAC	umol TE/100 g	26	7	4.85	11	45	A	13
		Total-ORAC	umol TE/100 g	1736	15	203.43	742	3602	A	6, 13
09298	Raisins, seedless	TP	mg GAE/100 g	79	15	8.32	34	162	A	6, 13
		H-ORAC	umol TE/100 g	3002	8	197.77	2310	4038	A	13
		L-ORAC	umol TE/100 g	35	8	5.00	16	52	A	13
		Total-ORAC	umol TE/100 g	3037	8	195.32	2362	4064	A	13
99419	Raisins, white, dried to 40% moisture (purchased in Italy)	TP	mg GAE/100 g	1065	8	60.21	844	1312	A	13
		H-ORAC	umol TE/100 g	4188	4	0.00	4188	4188	C	2
		Total-ORAC	umol TE/100 g	4188	4	0.00	4188	4188	C	2
99420	Raisins, white, fresh (purchased in Italy)	TP	mg GAE/100 g	372	4	0.00	372	372	C	2
		H-ORAC	umol TE/100 g	830	4	0.00	830	830	C	2
		Total-ORAC	umol TE/100 g	830	4	0.00	830	830	C	2
09302	Raspberries, raw	TP	mg GAE/100 g	164	4	0.00	164	164	C	2
		H-ORAC	umol TE/100 g	4745	6	313.51	3748	5792	A	13
		L-ORAC	umol TE/100 g	138	6	28.93	51	207	A	13
		Total-ORAC	umol TE/100 g	4882	6	306.26	3955	5879	A	13
20060	Rice bran, crude	TP	mg GAE/100 g	502	6	37.28	387	617	A	13
		H-ORAC	umol TE/100 g	8817	1				B	13
		L-ORAC	umol TE/100 g	15470	1				B	13
		Total-ORAC	umol TE/100 g	24287	1				B	13
99414	Rocket, raw	TP	mg GAE/100 g	667	1				B	13
		H-ORAC	umol TE/100 g	1904	12	99.37	1012	2373	C	2, 6
		Total-ORAC	umol TE/100 g	1904	12	99.37	1012	2373	C	2, 6
99116	Sage, fresh	TP	mg GAE/100 g	125	12	6.30	69	154	C	2, 6
		H-ORAC	umol TE/100 g	32004	4	0.00	32004	32004	C	6
		Total-ORAC	umol TE/100 g	32004	4	0.00	32004	32004	C	6
06164	Sauce, ready-to-serve, salsa	TP	mg GAE/100 g	901	4	0.00	901	901	C	6
		H-ORAC	umol TE/100 g	966	1				B	13
		L-ORAC	umol TE/100 g	35	1				B	13
		Total-ORAC	umol TE/100 g	1001	1				B	13
99456	Savory, fresh	TP	mg GAE/100 g	245	1				B	13
		H-ORAC	umol TE/100 g	9465	4	0.00	9465	9465	C	6
		Total-ORAC	umol TE/100 g	9465	4	0.00	9465	9465	C	6
19034	Snacks, popcorn, air-popped	TP	mg GAE/100 g	227	4	0.00	227	227	C	6
		H-ORAC	umol TE/100 g	1535	1				B	13
		Total-ORAC	umol TE/100 g	1535	1				B	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	208	1				B	13
		Total-ORAC	umol TE/100 g	1743	1				B	13
		TP	mg GAE/100 g	117	1				B	13
99465	Sorghum, bran, black	H-ORAC	umol TE/100 g	97000	2	0.00	97000	97000	C	1
		L-ORAC	umol TE/100 g	3800	2	0.00	3800	3800	C	1
		Total-ORAC	umol TE/100 g	100800	2	0.00	100800	100800	C	1
		TP	mg GAE/100 g	2600	2	0.00	2600	2600	C	1
99467	Sorghum, bran, hi-tannin	Total-ORAC	umol TE/100 g	240000	2	0.00	240000	240000	C	1
99464	Sorghum, bran, red	H-ORAC	umol TE/100 g	70400	2	0.00	70400	70400	C	1
		L-ORAC	umol TE/100 g	700	2	0.00	700	700	C	1
		Total-ORAC	umol TE/100 g	71000	2	0.00	71000	71000	C	1
		TP	mg GAE/100 g	2000	2	0.00	2000	2000	C	1
99466	Sorghum, bran, white	Total-ORAC	umol TE/100 g	6400	2	0.00	6400	6400	C	1
99462	Sorghum, grain, black	H-ORAC	umol TE/100 g	20500	2	0.00	20500	20500	C	1
		L-ORAC	umol TE/100 g	1400	2	0.00	1400	1400	C	1
		Total-ORAC	umol TE/100 g	21900	2	0.00	21900	21900	C	1
		TP	mg GAE/100 g	600	2	0.00	600	600	C	1
99463	Sorghum, grain, hi-tannin	H-ORAC	umol TE/100 g	44000	2	0.00	44000	44000	C	1
		L-ORAC	umol TE/100 g	1400	2	0.00	1400	1400	C	1
		Total-ORAC	umol TE/100 g	45400	2	0.00	45400	45400	C	1
		TP	mg GAE/100 g	1300	2	0.00	1300	1300	C	1
99461	Sorghum, grain, red	H-ORAC	umol TE/100 g	13600	2	0.00	13600	13600	C	1
		L-ORAC	umol TE/100 g	400	2	0.00	400	400	C	1
		Total-ORAC	umol TE/100 g	14000	2	0.00	14000	14000	C	1
		TP	mg GAE/100 g	500	2	0.00	500	500	C	1
99460	Sorghum, grain, white	H-ORAC	umol TE/100 g	2100	2	0.00	2100	2100	C	1
		L-ORAC	umol TE/100 g	100	2	0.00	100	100	C	1
		Total-ORAC	umol TE/100 g	2200	2	0.00	2200	2200	C	1
		TP	mg GAE/100 g	100	2	0.00	100	100	C	1
16108	Soybeans, mature seeds, raw	H-ORAC	umol TE/100 g	5764	12	693.80	3241	12351	B	14
		Total-ORAC	umol TE/100 g	5764	12	693.80	3241	12351	B	14
		TP	mg GAE/100 g	249	12	28.87	145	524	B	14
11452	Soybeans, mature seeds, sprouted, raw	H-ORAC	umol TE/100 g	962	4	0.00	962	962	C	2
		Total-ORAC	umol TE/100 g	962	4	0.00	962	962	C	2
		TP	mg GAE/100 g	47	4	0.00	47	47	C	2
02003	Spices, basil, dried	H-ORAC	umol TE/100 g	64439	1				B	13
		L-ORAC	umol TE/100 g	3114	1				B	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		Total-ORAC	umol TE/100 g	67553	1				B	13
		TP	mg GAE/100 g	4489	1				B	13
02006	Spices, cardamom	H-ORAC	umol TE/100 g	2764	4	0.00	2764	2764	C	6
		Total-ORAC	umol TE/100 g	2764	4	0.00	2764	2764	C	6
		TP	mg GAE/100 g	167	4	0.00	167	167	C	6
02009	Spices, chili powder	H-ORAC	umol TE/100 g	21827	1				B	13
		L-ORAC	umol TE/100 g	1808	1				B	13
		Total-ORAC	umol TE/100 g	23636	1				B	13
		TP	mg GAE/100 g	1713	1				B	13
02010	Spices, cinnamon, ground	H-ORAC	umol TE/100 g	264083	1				B	13
		L-ORAC	umol TE/100 g	3453	1				B	13
		Total-ORAC	umol TE/100 g	267536	1				B	13
		TP	mg GAE/100 g	15718	1				B	13
02011	Spices, cloves, ground	H-ORAC	umol TE/100 g	153309	1				B	13
		L-ORAC	umol TE/100 g	161137	1				B	13
		Total-ORAC	umol TE/100 g	314446	1				B	13
		TP	mg GAE/100 g	11319	1				B	13
02014	Spices, cumin seed	H-ORAC	umol TE/100 g	76800	4	0.00	76800	76800	C	6
		Total-ORAC	umol TE/100 g	76800	4	0.00	76800	76800	C	6
		TP	mg GAE/100 g	846	4	0.00	846	846	C	6
02015	Spices, curry powder	H-ORAC	umol TE/100 g	24981	1				B	13
		L-ORAC	umol TE/100 g	23523	1				B	13
		Total-ORAC	umol TE/100 g	48504	1				B	13
		TP	mg GAE/100 g	1075	1				B	13
02020	Spices, garlic powder	H-ORAC	umol TE/100 g	6523	1				B	13
		L-ORAC	umol TE/100 g	143	1				B	13
		Total-ORAC	umol TE/100 g	6665	1				B	13
		TP	mg GAE/100 g	42	1				B	13
02021	Spices, ginger, ground	H-ORAC	umol TE/100 g	6944	1				B	13
		L-ORAC	umol TE/100 g	21867	1				B	13
		Total-ORAC	umol TE/100 g	28811	1				B	13
		TP	mg GAE/100 g	317	1				B	13
02024	Spices, mustard seed, yellow	H-ORAC	umol TE/100 g	28759	1				B	13
		L-ORAC	umol TE/100 g	498	1				B	13
		Total-ORAC	umol TE/100 g	29257	1				B	13
		TP	mg GAE/100 g	1844	1				B	13
02026	Spices, onion powder	H-ORAC	umol TE/100 g	5651	1				B	13

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		L-ORAC	umol TE/100 g	84	1				B	13
		Total-ORAC	umol TE/100 g	5735	1				B	13
		TP	mg GAE/100 g	861	1				B	13
02027	Spices, oregano, dried	H-ORAC	umol TE/100 g	183141	1				B	13
		L-ORAC	umol TE/100 g	16988	1				B	13
		Total-ORAC	umol TE/100 g	200129	1				B	13
		TP	mg GAE/100 g	7282	1				B	13
02028	Spices, paprika	H-ORAC	umol TE/100 g	16096	1				B	13
		L-ORAC	umol TE/100 g	1823	1				B	13
		Total-ORAC	umol TE/100 g	17919	1				B	13
		TP	mg GAE/100 g	1866	1				B	13
02029	Spices, parsley, dried	H-ORAC	umol TE/100 g	74085	1				B	13
		L-ORAC	umol TE/100 g	264	1				B	13
		Total-ORAC	umol TE/100 g	74349	1				B	13
		TP	mg GAE/100 g	2244	1				B	13
02030	Spices, pepper, black	H-ORAC	umol TE/100 g	14263	2	2854.24	12245	16282	B	13
		L-ORAC	umol TE/100 g	13354	2	6422.16	8813	17896	B	13
		Total-ORAC	umol TE/100 g	27618	2	3567.92	25095	30141	B	13
		TP	mg GAE/100 g	548	2	232.36	383	712	B	13
02033	Spices, poppy seed	H-ORAC	umol TE/100 g	406	1				B	13
		L-ORAC	umol TE/100 g	75	1				B	13
		Total-ORAC	umol TE/100 g	481	1				B	13
		TP	mg GAE/100 g	20	1				B	13
02043	Spices, turmeric, ground	H-ORAC	umol TE/100 g	39931	1				B	13
		L-ORAC	umol TE/100 g	119346	1				B	13
		Total-ORAC	umol TE/100 g	159277	1				B	13
		TP	mg GAE/100 g	2117	1				B	13
11463	Spinach, frozen, chopped or leaf, unprepared	H-ORAC	umol TE/100 g	1687	4	0.00	1687	1687	C	2
		Total-ORAC	umol TE/100 g	1687	4	0.00	1687	1687	C	2
		TP	mg GAE/100 g	91	4	0.00	91	91	C	2
11457	Spinach, raw	H-ORAC	umol TE/100 g	1512	141	12.09	1307	2732	B	6, 7, 9, 13
		L-ORAC	umol TE/100 g	420	1				B	13
		Total-ORAC	umol TE/100 g	1515	141	13.59	1307	2732	B	6, 7, 9, 13
		TP	mg GAE/100 g	205	53	2.28	101	256	B	6, 9, 13
11477	Squash, summer, zucchini, includes skin, raw	H-ORAC	umol TE/100 g	180	4	0.00	180	180	C	6
		Total-ORAC	umol TE/100 g	180	4	0.00	180	180	C	6
		TP	mg GAE/100 g	26	4	0.00	26	26	C	6

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
11485	Squash, winter, butternut, raw	H-ORAC	umol TE/100 g	396	4	0.00	396	396	C	6
		Total-ORAC	umol TE/100 g	396	4	0.00	396	396	C	6
		TP	mg GAE/100 g	26	4	0.00	26	26	C	6
09316	Strawberries, raw	H-ORAC	umol TE/100 g	3541	8	160.10	2946	4197	A	13
		L-ORAC	umol TE/100 g	36	8	9.29	8	69	A	13
		Total-ORAC	umol TE/100 g	3577	8	158.95	2984	4210	A	13
		TP	mg GAE/100 g	368	8	30.07	272	476	A	13
99459	Sumac, bran, raw	H-ORAC	umol TE/100 g	309900	2	0.00	309900	309900	C	1
		L-ORAC	umol TE/100 g	2500	2	0.00	2500	2500	C	1
		Total-ORAC	umol TE/100 g	312400	2	0.00	312400	312400	C	1
		TP	mg GAE/100 g	6600	2	0.00	6600	6600	C	1
99458	Sumac, grain, raw	H-ORAC	umol TE/100 g	85300	2	0.00	85300	85300	C	1
		L-ORAC	umol TE/100 g	1500	2	0.00	1500	1500	C	1
		Total-ORAC	umol TE/100 g	86800	2	0.00	86800	86800	C	1
		TP	mg GAE/100 g	2300	2	0.00	2300	2300	C	1
11508	Sweet potato, cooked, baked in skin, without salt	H-ORAC	umol TE/100 g	2085	4	213.11	1535	2322	A	13
		L-ORAC	umol TE/100 g	30	4	4.96	18	37	A	13
		Total-ORAC	umol TE/100 g	2115	4	217.80	1552	2357	A	13
		TP	mg GAE/100 g	233	4	14.55	200	254	A	13
11510	Sweet potato, cooked, boiled, without skin	H-ORAC	umol TE/100 g	729	4	117.64	488	967	A	13
		L-ORAC	umol TE/100 g	37	4	18.09	14	82	A	13
		Total-ORAC	umol TE/100 g	766	4	129.07	524	1049	A	13
		TP	mg GAE/100 g	120	4	16.27	95	156	A	13
11507	Sweet potato, raw, unprepared	H-ORAC	umol TE/100 g	858	4	66.16	756	1020	A	13
		L-ORAC	umol TE/100 g	44	4	6.62	30	57	A	13
		Total-ORAC	umol TE/100 g	902	4	71.82	786	1077	A	13
		TP	mg GAE/100 g	74	4	15.73	45	103	A	13
09218	Tangerines, (mandarin oranges), raw	H-ORAC	umol TE/100 g	1620	4	199.14	1298	2092	A	13
		L-ORAC	umol TE/100 g	7	4	0.66	6	9	A	13
		Total-ORAC	umol TE/100 g	1620	4	199.14	1298	2092	A	13
		TP	mg GAE/100 g	192	4	19.07	143	213	A	13
99117	Tarragon, fresh	H-ORAC	umol TE/100 g	15542	4	0.00	15542	15542	C	6
		Total-ORAC	umol TE/100 g	15542	4	0.00	15542	15542	C	6
		TP	mg GAE/100 g	643	4	0.00	643	643	C	6
14355	Tea, brewed, prepared with tap water	H-ORAC	umol TE/100 g	1128	1				C	11
		Total-ORAC	umol TE/100 g	1128	1				C	11
99070	Tea, green, brewed	H-ORAC	umol TE/100 g	1253	1				C	11



## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		Total-ORAC	umol TE/100 g	1253	1				C	11
02049	Thyme, fresh	H-ORAC	umol TE/100 g	27426	4	0.00	27426	27426	C	6
		Total-ORAC	umol TE/100 g	27426	4	0.00	27426	27426	C	6
		TP	mg GAE/100 g	1734	4	0.00	1734	1734	C	6
11540	Tomato juice, canned, with salt added	H-ORAC	umol TE/100 g	486	2	203.18	343	630	B	13
		Total-ORAC	umol TE/100 g	486	2	203.18	343	630	B	13
		TP	mg GAE/100 g	323	1				B	13
11549	Tomato products, canned, sauce	H-ORAC	umol TE/100 g	652	1				B	13
		L-ORAC	umol TE/100 g	42	1				B	13
		Total-ORAC	umol TE/100 g	694	1				B	13
		TP	mg GAE/100 g	177	1				B	13
99051	Tomatoes, plum, raw	H-ORAC	umol TE/100 g	546	8	30.51	395	697	C	6
		Total-ORAC	umol TE/100 g	546	8	30.51	395	697	C	6
		TP	mg GAE/100 g	36	8	0.11	35	36	C	6
11530	Tomatoes, red, ripe, cooked	H-ORAC	umol TE/100 g	389	8	32.98	262	520	A	13
		L-ORAC	umol TE/100 g	34	4	3.34	27	41	A	13
		Total-ORAC	umol TE/100 g	406	8	37.76	262	547	A	13
		TP	mg GAE/100 g	94	8	5.52	67	110	A	13
11529	Tomatoes, red, ripe, raw, year round average	H-ORAC	umol TE/100 g	366	176	1.26	248	457	A	7, 13
		L-ORAC	umol TE/100 g	23	7	2.68	15	31	A	13
		Total-ORAC	umol TE/100 g	367	176	1.04	279	475	A	7, 13
		TP	mg GAE/100 g	80	7	4.82	70	99	A	13
19444	Tortilla chips, reduced fat, Olestra	H-ORAC	umol TE/100 g	1609	2	175.29	1486	1733	B	13
		L-ORAC	umol TE/100 g	94	2	42.99	64	125	B	13
		Total-ORAC	umol TE/100 g	1704	2	218.28	1549	1858	B	13
		TP	mg GAE/100 g	304	2	35.64	278	329	B	13
11578	Vegetable juice cocktail, canned	H-ORAC	umol TE/100 g	548	1				B	13
		Total-ORAC	umol TE/100 g	548	1				B	13
		TP	mg GAE/100 g	244	1				B	13
99441	Vinegar, Apple	H-ORAC	umol TE/100 g	564	4	0.00	564	564	C	6
		Total-ORAC	umol TE/100 g	564	4	0.00	564	564	C	6
		TP	mg GAE/100 g	23	4	0.00	23	23	C	6
99442	Vinegar, Apple and Honey	H-ORAC	umol TE/100 g	270	4	0.00	270	270	C	6
		Total-ORAC	umol TE/100 g	270	4	0.00	270	270	C	6
		TP	mg GAE/100 g	27	4	0.00	27	27	C	6
99443	Vinegar, Honey	H-ORAC	umol TE/100 g	225	4	0.00	225	225	C	6
		Total-ORAC	umol TE/100 g	225	4	0.00	225	225	C	6

## Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007

NDB No.	Description	Parameter	Unit	Mean	N	SEM	Min	Max	CC	Ref
		TP	mg GAE/100 g	21	4	0.00	21	21	C	6
99444	Vinegar, Red wine	H-ORAC	umol TE/100 g	410	4	0.00	410	410	C	6
		Total-ORAC	umol TE/100 g	410	4	0.00	410	410	C	6
		TP	mg GAE/100 g	26	4	0.00	26	26	C	6
09326	Watermelon, raw	H-ORAC	umol TE/100 g	123	6	7.48	99	145	A	13
		L-ORAC	umol TE/100 g	19	6	1.96	14	25	A	13
		Total-ORAC	umol TE/100 g	142	6	8.90	112	166	A	13
		TP	mg GAE/100 g	59	6	6.17	39	74	A	13

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