ארץ זבת חלב, דבש ונוגדי-חמצון

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מקורות רעננים לצמחים אנטי-אוקסידנטים בגידול אורגני

פרץ גן

Breaking News:

Researcher claims to have found antioxidant 'fountain of youth'

גידול בביקוש

לאנטיאוקסידנטים:

+69% ב-5 שנים

גורמים להצלחות בייצור AO בישראל

אגרוטכניקה

שילוב של זנים עתירי AO

טכנולוגית המיצוי

(2010) Nutrition Journal

The total antioxidant content of more than 3100 foods, beverages, spices, herbs and supplements used worldwide

Monica H Carlsen, Bente L Halvorsen, [...], and Rune Blomhoff

Herbal/traditional plant medicine

"This is the most antioxidant rich category in the present study …. Half of the products have antioxidant values above the 90th percentile of the complete Antioxidant Food Table and the mean and median values are 91.7 and 14.2 mmol/100 g, respectively. "

20 Common Foods With the Most Antioxidants

Rank	Food item	Serving size	Total antioxidant capacity per serving
1	Small Red Bean (dried)	Half cup	13,727
2	Wild blueberry	1 cup	13,427
3	Red kidney bean (dried)	Half cup	13,259
4	Pinto bean	Half cup	11,864
5	Blueberry (cultivated)	1 cup	9,019
6	Cranberry	1 cup (whole)	8,983
7	Artichoke (cooked)	1 cup (hearts)	7,904
8	Blackberry	1 cup	7,701
9	Prune	Half cup	7,291
10	Raspberry	1 cup	6,058

11	Strawberry	1 cup	5,938
12	Red Delicious apple	1 whole	5,900
13	Granny Smith apple	1 whole	5,381
14	Pecan	1 ounce	5,095
15	Sweet cherry	1 cup	4,873
16	Black plum	1 whole	4,844
17	Russet potato (cooked)	1 whole	4,649
18	Black bean (dried)	Half cup	4,181
19	Plum	1 whole	4,118
20	Gala apple	1 whole	3,903

USDA DATA, The Journal of Agricultural and Food Chemistry, June 2004.

Antioxidant content mmol/100 g[a)]

Allspice, dried ground	100.4
Basil, dried	19.9
Bay leaves, dried	27.8
Cinnamon sticks and whole bark	26.5
Cinnamon, dried ground	77.0
Clove, dried, whole and ground	277.3
Dill, dried ground	20.2
Estragon, dried ground	43.8
Ginger, dried	20.3
Mint leaves, dried	116.4
Nutmeg, dried ground	26.4
Oregano, dried ground	63.2
Rosemary, dried ground	44.8
Saffron, dried ground	44.5
Saffron, dried whole stigma	17.5
Sage, dried ground	44.3
Thyme, dried ground	56.3

[a)] mean value when n > 1

Carlsen *et al. Nutrition Journal* 2010 **9**:3 doi:10.1186/1475-2891-9-3

שיטות להערכת ריכוז AO

the 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid (Trolox)

the equivalent antioxidant capacity (TEAC)

the ferric-reducing ability of plasma (FRAP)

the oxygen radical absorbance capacity (ORAC)

התכולה הכללית של AO בצמח
(או במזון מסוים)
אינה מבטאת בהכרח את התועלת
המופקת ממנו

VACCINIUM species

פטל אדום

Rubus idaeus

דף חדשות

פטל שגדל בחורף בישראל נמכר באירופה ב-17 יורו לקילו.

במכון וולקני מציינים כי גידול הפטל יחזיר את ההשקעה תוך שלוש שנים וישיג תשואה של 47% להשקעה

17.11.2009 15:50

Based on phenolic compounds concentration the investigated berry species may be ranked as follows:

Aronia melanocarpa
Sambucus nigra L.
Ribes nigrum L.
Rubus occidentalis L.
Rubus idaeus L.
Hippophae rhamnoides

Chemical Composition and Antioxidant Activity of Small Fruits
Pranas Viskelis, et al., Institute of Horticulture, Lithuanian Research Centre for Agriculture and Forestry , Lithuania

סמבוק שחור Sambucus nigra

Lycium chinensis
אטד סיני

Levels of lutein and its accompanying molecule zeaxanthin naturally occurring in various fruits and vegetables.†

Food	Mg / serving
Kale (raw)	26.5 / 1 cup
Kale (cooked)	23.7 / 1 cup
Spinach (cooked)	20.4 / 1 cup
Collards (cooked)	14.6 / 1 cup
Turnip greens (cooked)	12.2 / 1 cup
Green peas (cooked)	4.1 / 1 cup
Spinach (raw)	3.7 / 1 cup
Corn (cooked)	1.5 / 1 cup
Broccoli (raw)	1.3 / 1 cup
Romaine lettuce (raw)	1.1 / 1 cup
Green beans (cooked)	0.9 / 1 cup
Broccoli (cooked)	0.8 / 1/2 cup
Papaya (raw)	0.3 / 1 large
Egg	0.2 / 1 large
Orange (raw)	0.2 / 1 large

† U.S. Department of Agriculture, Agricultural

Foods highest in Lutein + Zeaxanthin

16	Chicory greens, raw	89,569
35	Dandelion greens, raw	60,488
42	Chrysanthemum	34,666
45	Parsley, raw	30,900
47	Lettuce, cos or romaine, raw	27,201
63	Bitter gourd, leafy tips, cooke	16,484

SOURCE: http://nutritiondata.self.com/foods-01113800000000000000-1.html?#ixzz2nTlb2Wit

Curcuma longa כורכום

Padma S. Vankar: Effectiveness of Antioxidant Properties of Fresh and Dry Rhizomes of Curcuma longa (Long and Short Varieties) with Dry Turmeric Spice

מסקנות

מיצוי מימי של קנה שורש טרי הראה תכונות נוגדות חמצון חזקות יותר מאשר מיצוי של קנה שורש יבש

בטחינה לאבקה (שורש יבש) יש איבוד משמעותי של תכונות נוגדות חמצון

Vankar: Effectiveness of Antioxidant Properties

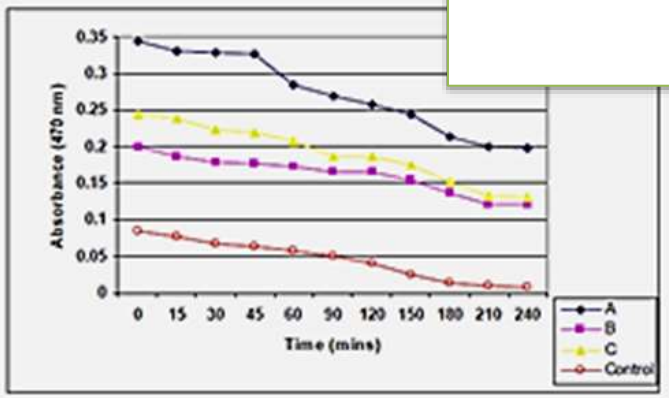


Figure-4 β-Carotene bleaching test for dry and fresh curcuma short, long and dry powder. (A – curcuma short rhizome; B – curcuma long rhizome; C- dry spice, powder)

מחקרים השוואתיים בין קנה שרש כורכומה טרי ליבש

1. Comparative study of chemical composition and antioxidant activity of fresh and dry rhizomes of turmeric (*Curcuma longa* Linn.).

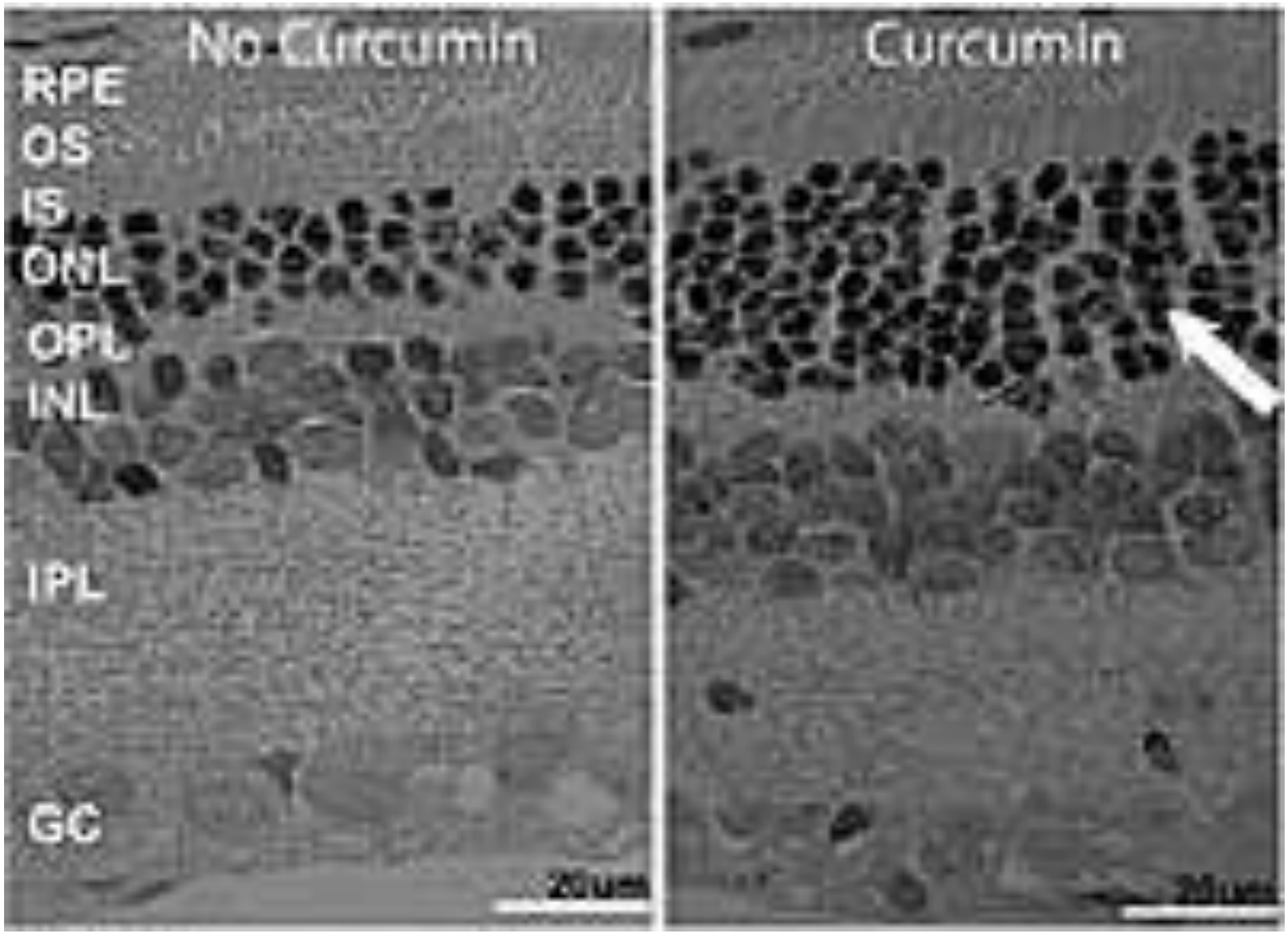
   G. Singh , I.P.S. Kapoor ,Pratibha Singh Carola S. de Heluani ,Marina P. de Lampasona and Cesar A.N. Catalan. September 2009

2. Review on some plants of Indian traditional medicine with antioxidant activity.

   Paolo Scartezzini and Ester Speroni. August 1999

3. Antioxidant capacity of fresh and dried rhizomes from four clones of turmeric) *Curcuma longa* L.) grown in vitro.

   M. Cousins, J. Adelberg, F. Chen and J. Rieck. April 2006.



Vasireddy et al. "Rescue of Photoreceptor Degeneration by Curcumin in Transgenic Rats with P23H Rhodopsin Mutation." PLoS ONE, June 2011, vol. 6(6), pp. e21193

Cynara cardunculus **ארטישוק**

Biological Characterization of Cynara cardunculus L. Methanolic Extracts: Antioxidant, Anti-proliferative, Anti-migratory and Anti-angiogenic Activities. Zélia Velez at al., 2012

Table 1. Total phenolic contents (mg/g Cc DM)

Leaves	Dry	Cultivated	7.31
		Wild	5.22
	Green	Cultivated	9.25
		Wild	5.56
Stalks	Dry	Cultivated	2.86
		Wild	2.88
	Green	Cultivated	0.66
		Wild	0.67
Inflorescences			
	Dry	Cultivated	4.06
		Wild	3.58
	Green	Cultivated	2.62
		Wild	1.20

גוטו קולה
Centella asiatica

Mucuna pruriense **מוקונה**

Brazilian Journal of Pharmaceutical Sciences
Braz. J. Pharm. Sci. vol.47 no.3 São Paulo July/Sept. 2011

In vitro evaluation of Mucuna pruriens (L.) DC. antioxidant activity

Joy Ganem LonghiI; Elisa PerezII; Jair José de LimaIII; Lys Mary Bileski CândidoI, IV, *

IPharmacy Department (PPGCF), Federal University of Paraná
IIChemistry Department , Federal University of Paraná, 3Nutrition Department, Federal University of Paraná, 4Food Coordination, Technological Federal University of Paraná

TABLE I - EC_{50} values and anti-radical power (ARP) of selected antioxidant substances, *M. pruriens* black seeds acid extract and levodopa standard

Antioxidant Substance	EC_{50} (mg/mL)	ARP
BHA	0.47	2.11
Vitamin C	0.27	3.70
Alpha-tocopherol	0.26	3.85
Quercetin	0.09	10.95
Gallic acid	0.08	12.72
Acid extract of *Mucuna pruriens*	0.035	28.62
Levodopa standard	0.030	33.09

Moringa oleifera

leaves contain

crypto-chlorogenic acid

and

isoquercetin

as major active antioxidant constituents.

► Ethanol 70% was the efficient solvent for extracting the leaves of M. oleifera

Marula
Sclerocarya birrea

Agric Food Chem. 2008 Nov 12;56(21):9884-91. **Phenolic antioxidants and antiatherogenic effects of Marula (Sclerocarrya birrea Subsp. caffra) fruit juice in healthy humans.** Borochov-Neori H, Judeinstein S, Greenberg A, Fuhrman B, Attias J, Volkova N, Hayek T, Aviram M.

Phyllanthus emblica
(syn. Emblica officinalis)

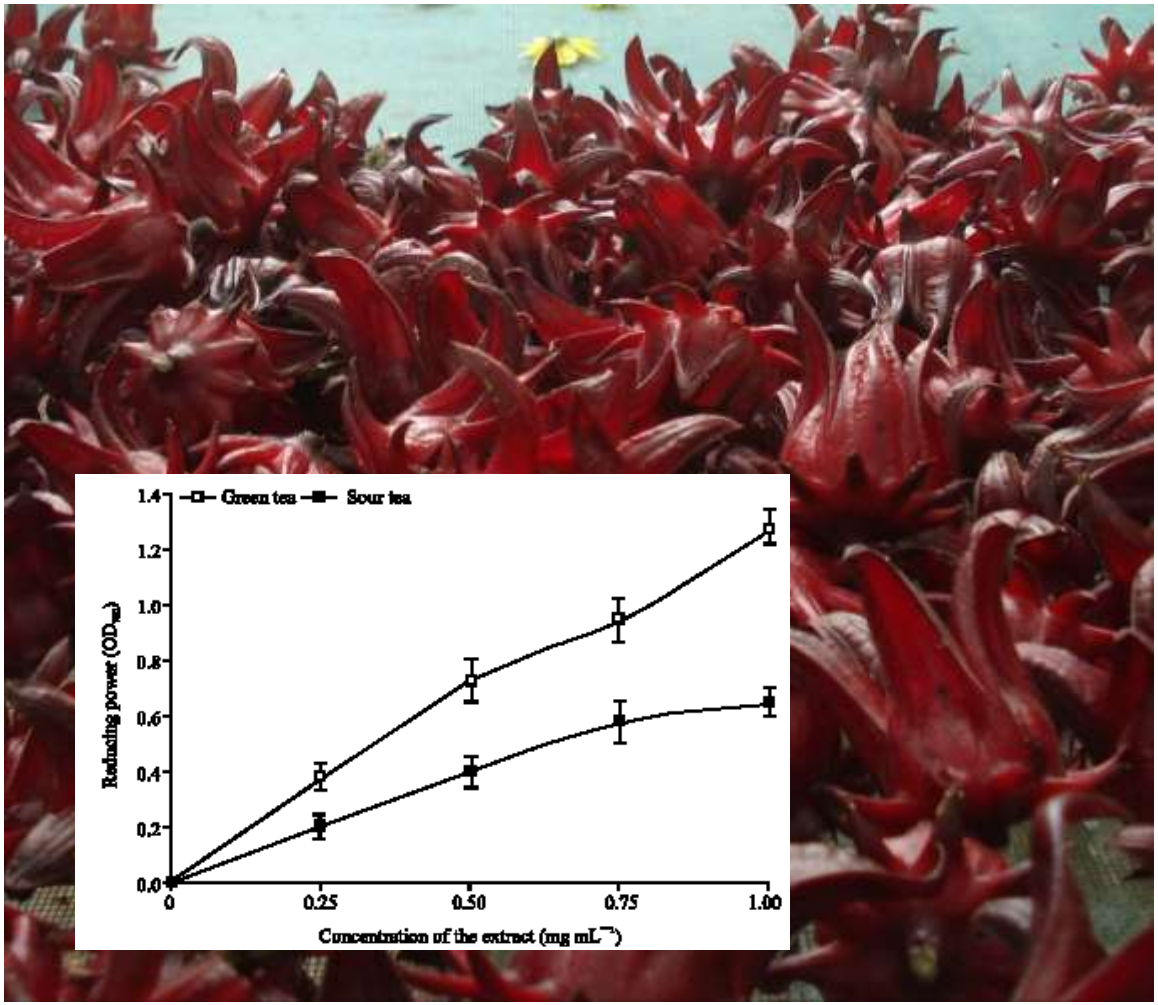
	Antioxidant content mmol/100 g[a)]
Amla (Indian gooseberry), dried	**261.5**
Apples, dried	3.8

פרחים אכילים

Edible Flowers—A New Promising Source of Mineral Elements in Human Nutrition. Otakar et al., 2012

Total phenolic content (TPC) (g of gallic acid/kg of FM), total antioxidant capacity (TAC) (g of ascorbic acid equivalents/kg of FM) and total flavonoid content (TFC) (g of rutin/kg of FM) in 12 species of edible flowers.

Species	TPC	TAC	TFC
Antirrhinum majus	3.49 ± 0.21 a	5.06 ± 0.24 a	1.78 ± 0.18 a
Begonia boliviensis	4.92 ± 0.16 b	6.80 ± 0.29 b	1.84 ± 0.20 a
Centaurea cyanus	4.76 ± 0.27 b	6.81 ± 0.26 b	1.81 ± 0.21 a
Chrysanthemum frutescens	2.53 ± 0.25 c	4.24 ± 0.30 c	1.23 ± 0.17 b
Chrysanthemum parthenium	2.72 ± 0.27 c	4.21 ± 0.31 c	1.29 ± 0.20 b
Dianthus caryophyllus	**5.28 ± 0.41 b**	**6.96 ± 0.39 b**	**2.27 ± 0.20 c**
Fuchsia x hybrida	3.45 ± 0.30 a	5.20 ± 0.21 a	1.66 ± 0.21 ab
Impatiens walleriana	4.85 ± 0.28 b	6.89 ± 0.36 b	1.93 ± 0.18 ab
Rosa odorata	5.02 ± 0.34 b	6.85 ± 0.38 b	2.04 ± 0.19 ac
Tagetes patula	**4.58 ± 0.40 b**	**6.70 ± 0.37 b**	**1.90 ± 0.22 ac**
Tropaeolum majus	3.31 ± 0.29 a	5.12 ± 0.20 a	1.35 ± 0.17 b
Viola x wittrockiana	5.11 ± 0.37 b	6.65 ± 0.37 b	1.99 ± 0.23 ac

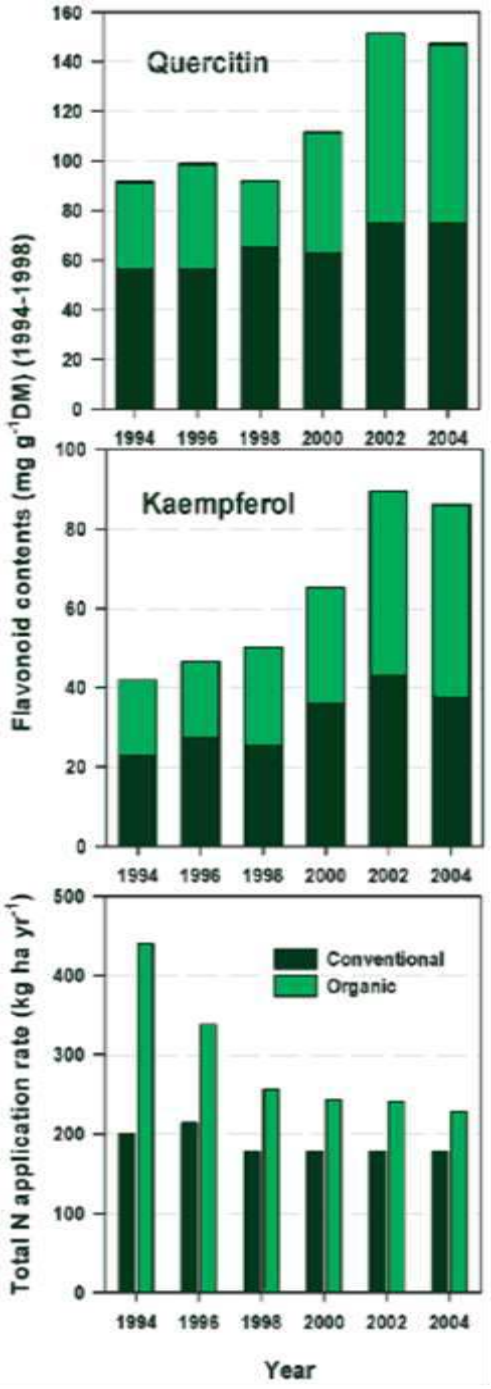


Ganiyu Oboh , 2009. The Neuroprotective Potentials of Sour (Hibiscus sabdariffa,Calyx) and Green (Camellia sinensis) Teas on Some Pro-Oxidants Induced Oxidative Stress in Brain. Asian Journal of Clinical Nutrition, 1: 40-49.

האם יש חשיבות לגידול האורגני,
מבחינת תכולת אנטי-אוקסידנטים בצמח?

Organic Tomatoes Have More Flavonoid Compounds

Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes
ALYSON E. MITCHELL et al.



על עלים
מרכז לצמחי מרפא