

Results: Antioxidative Power (AP)

Be it in foods, supplements or as ingredients in skin- and hair-care products; antioxidants often are the big promise of a healthy body and life. In fact, antioxidants can help reducing the harming effects of oxidative stress in body cells, caused by unhealthy nutrition, sun irradiation or pollution, among others. Companies and research allies do right in trying to utilize the power of antioxidants in novel products to counter an adverse amount of free radicals, as they often occur as a result of various factors of a modern environment and lifestyle. Many substances such as herbs, spices, fruits and vegetables contain impressive amounts of antioxidants, which makes them promising ingredients for those products in question. However, tremendous differences between vendors, packaging, storage and procession state can be found in regard of the raw material's Antioxidative Power and therefore in the final product.

GematRIA Test Lab GmbH acquired a database of over 1500 raw materials, substances, cosmetics, foods and beverages to elaborate those differences. With our expertise and advice we are your perfect partner to optimize your product.

Here Gematria Test Lab GmbH offers a reference database of selected substances measured with regard to their Antioxidative Power (AP) and reaction time t_r (the AP method is a patented method (ID: DE102005026133B4) and is described in detail in the methods section on our website and in relevant literature.

Table 1: selection of tested extracts and vitamins.

Substance	AP (AU)	t_r (min)
Vit. C	1.000.000	0,24
Vit. E	404.000	0,33
Vit. E - acetate	0	-
Caffeic acid	2.032.910	0,16
Aspalathin	1.531.000	0,22
Ellagic acid	1.352.000	0,60
Dihydroquercitin	1.030.000	0,23
Rosmarinic Acid	971.200	0,51
Grape seed Extract 1	930.000	0,81
Grape Seed extract 2	357.000	0,95
Morin hydrate	768.146	0,19
Gallnut Extract	739.340	0,61
Rooibos 1	715.000	0,33
Rooibos 2	90.000	0,79
Tea Extract	375.946	0,71
Luteolin	268.878	0,59

Rosemary extract	243.500	0,79
Honeybush extract	102.900	0,97
Hop Extract	109.660	1,01
Ginger Extract	98.700	0,73
Silymarin	25.146	0,87
Curcumin	9.293	0,77
Thymol	5.014	3,14
L-Glutathione red.	2.938	4,80
Amaranth seed oil	730	0,31
Rose hip seed oil	457	0,79
Borage oil	295	1,08
L-Carnosine	224	3,82
Wheat bran extract	120	2,87
Almond oil	100	0,33
Apricot seed oil	79	0,58

Table 2: selection of fruits and herbs.

Substance	AP (AU)	t _r (min)
Tea and Herbs		
Green tea	95.229	0,35
Mint tea	21.238	0,54
Black tea	14.500	0,75
Dandelion tea	11.483	0,54
Herbal tea	9.955	0,88
Chamomile	2.923	0,63
Rose hip	1.746	2,25
Fresh fruits		
Kiwi	10.017	0,08
Lemon	2.357	0,10
Blackberry	2.299	0,73
Black currant	430	1,05
Cherry	218	0,79
Tomato	58	0,80
Apple	41	2,85
Grapefruit (Discounter)	374	0,26
Grapefruit (Organic grocery store)	449	0,33
Blood orange (Discounter)	531	0,24
Blood orange (Organic grocery store)	875	0,24
Orange (Discounter)	236	0,24
Orange (Organic grocery store)	656	0,24

Mandarine (Discounter)	736	0,24
Mandarine (Organic grocery store)	636	0,24
Spices, Fresh plants		
Cinnamon (Cassia) stick 1	82.497	0,62
2	20.754	0,98
Cinnamon (Cassia), grounded 1	42.166	0,99
2	33.301	0,91
3	17.047	1,34
4	15.267	1,57
Clove	29.587	1,29
Clove, grounded	22.241	1,52
Cocoa beans, raw	10.272	0,49
Cocoa beans, roasted	10.130	0,87
Amaranth	2.357	0,10
Chard	2.299	0,73
Cardamom capsules	1.826	1,09
Sage	1.210	0,58
Nasturtium	608	1,10
Oreganum	430	1,05
Anise seeds	338	2,28
Cardamom, grounded	279	1,28
Peppermint	218	0,79
Lettuce	58	0,80
Laurel	41	2,85

Table 3: packaging effects on red grape juice (NFC = not from concentrate).

	N#	Label	Caloric value (kJ/100ml)	Carbo-hydrates (g/100ml)	Packaging	Price	AP	t _r
						€/100ml		
Red Grape Juice	1	NFC, Bio	339	19,0	Green glass	0,280	506	1,21
	2	100%, NFC, Bio	315	18,0	Green glass	0,300	198	0,89
	3	100%, NFC, Bio	339	19,0	Transparent glass	0,300	187	0,83
	4	NFC, Bio	282	16,6	Green glass	0,198	153	1,05
	5	100% NFC, Bio	279	16,0	Tetra Pack	0,210	69	1,12
	6	NFC, Bio	293	17,2	Tetra Pack	0,195	55	1,79
	7	100% fruit juice	282	16,0	Tetra Pack	0,080	55	1,48
	8	100% fruit juice	283	16,0	Tetra Pack	0,080	42	1,74

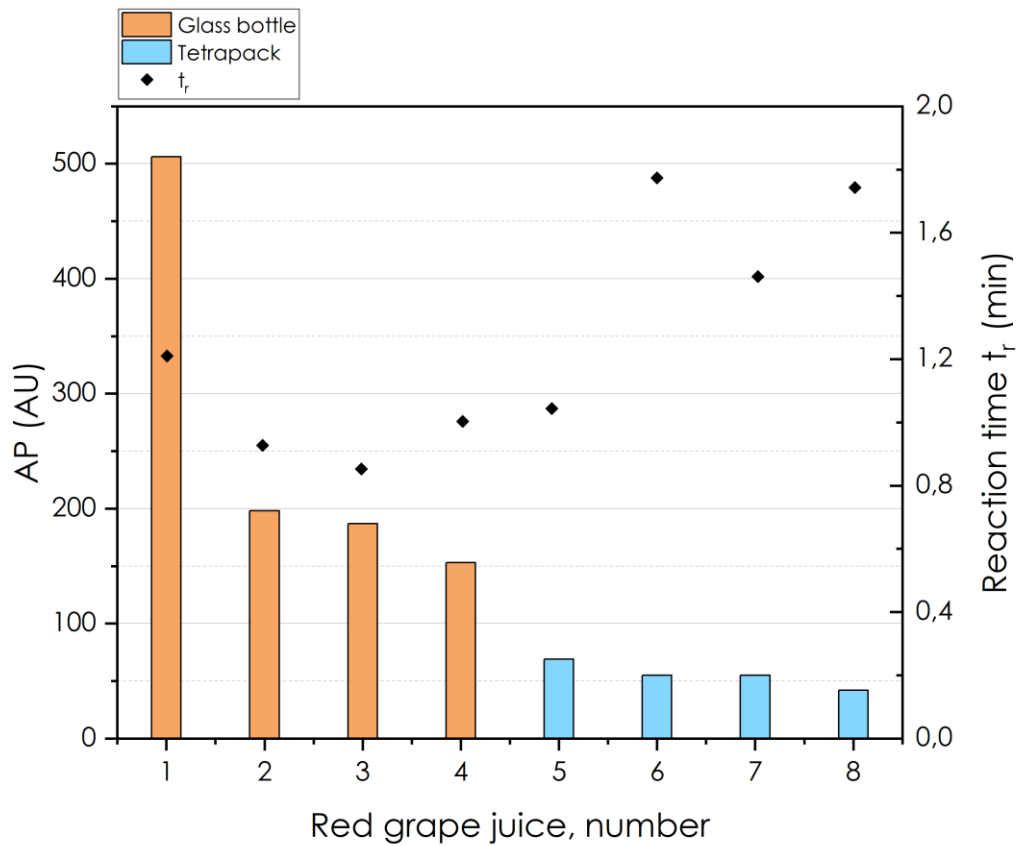


Figure 1: Packaging effects on red grape juice: glass bottles versus Tetrapack

Table 4: selected CO₂ extracts*.

Product	Botanical name	AP (AU)	t_r (min)
Sage	<i>Salvia officinalis</i>	131.781	0,25
Rosemary Antioxidant Powder	<i>Rosmarinus officinalis</i>	124.126	0,24
Ginger Hot Flavor	<i>Zingiber officinalis</i>	61.161	1,06
Rosemary Antioxidant	<i>Rosmarinus officinalis</i>	40.326	0,68
Thyme	<i>Thymus vulgaris</i>	26.916	0,42
Ginger	<i>Zingiber officinalis</i>	20.055	1,89
Oregano leaf	<i>Origanum vulgare</i>	5.983	1,34
Rhatany Root	<i>Krameria Lappacea</i>	4.108	0,98
Curcuma	<i>Curcuma xanthorrhiza</i>	681	2,07
Juniper Berries	<i>Juniperus communis</i>	23	5,40

Table 5: Coffee beans from different countries, raw and roasted.

Origin*	Coffee Beans Raw		Coffee Beans Roasted	
	AP (AU)	tr (min)	AP (AU)	tr (min)
India	62.312	0,15	15.880	0,57
Ethiopia	60.885	0,15	38.923	0,35
Costa Rica	45.580	0,15	20.461	0,37
Kenya	37.353	0,17	15.810	0,57
Indonesia	28.688	0,17	25.447	0,39
Ecuador	25.363	0,21	27.142	0,34
Pure Substance	AP		tr	
Caffeine	0		-	
Theobromine	0		-	
Caffeic Acid	2.032.910		0,16	
Chlorogenic Acid	460.336		0,30	

Table 6: Cosmetic creams of different prize categories (H = high = > 15€/50ml, L = low = < 15€/50ml).

Product	Price category	AP (AU)	tr (min)
1	H	54.615	0,24
2	H	46.644	0,24
3	H	22.327	0,33
4	H	19.160	0,24
5	H	402	0,31
6	H	256	0,28
7	L	217	0,30
8	L	66	0,27
9	H	56	3,00
10	L	51	0,90
11	L	43	0,24
12	H	24	1,36
13	H	20	1,92
14	H	18	2,15
15	H	16	1,23
16	H	13	1,41
17	L	11	0,49
18	H	9	2,65
19	H	9	6,70
20	H	0	-
21	H	0	-
22	L	0	-
23	L	0	-