

-

16

16

/ 320-145

1.9 29.2%.

Detection of caffeine percentages in energy beverages that are available in locally markets

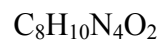
Arif Mohsin Lafta Alfatlawi Nibras M. Abdul Alrasool Abas
Rasha Samari Atea Jinan M. Mahdi Shukur
Center for Market Research and Consumer Protection, Uni. of Baghdad

ABSTRACT

Energy drinks are now regarded as ferocious demand from young people as a cause of what they attend from advertising programs that include attractive cans of different volumes and shining colors they inspired by horse and lion powers, so that they regarded as a gusto and ginger giver. For this reason this research was aimed to stressing on names and other features of these products and to investigate upon caffeine present in energy drinks and evaluate the excess use from international legitimize point of view. This research is dealing with sixteen samples of nonalcoholic energy beverages products available in local market from different provenance which subjected to spectrophotometric method. The implemented standards for concentrations of caffeine present in energy drinks are endorsed a range level 145-320 mg/L. From sixteen samples of nonalcoholic energy beverages products it was found that three of them were failed to comply and overstepping the limits by 1.9% to 29.2%.

methyxanthine

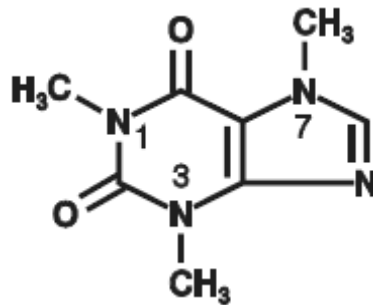
caffeine



(1,3,5 trimethylxanthine)

5 2 1 { }

.194.19



(14)

(12)

.(8 4 2 1) / 320 / 145
U.S (Red Bull)

1997

(14)

/ 150

.(7)

Food and Drug FDA

Administration

(12)

(11 10 9)

(6)

(15 14)

:
16

(1) 2011

:
:(1)

E.D. 1	HORSE POWER	1
E.D. 2	Red Bull	2
E.D. 3	BISON	3
E.D. 4	Mazaj for men	4
E.D. 5	LIQUID DYNAMITE TNT	5
E.D. 6	FIKKS	6
E.D. 7	Rip it	7
E.D. 8	Rip it sugar free	8
E.D. 9	bom bom	9
E.D. 10	Abu Abed Peach	10
E.D. 11	PINK for women	11
E.D. 12	BLUE for men	12
E.D. 13	WILD TIGER	13
E.D. 14	Energising O2	14
E.D. 15	Abu Abed Mango	15
E.D. 16	LION POWER	16

:
16 (2)
:

:(2)

			()			
9008442000 120	7/6/2010	2/6/2011	330		HORSE POWER	E.D. 1
201662602	25/4/2011	25/4/2010	250		Red Bull	E.D. 2
62810600 30122	22/3/2012	23/3/2010	250		BISON	E.D. 3
6291101733063	30/7/2009	31/7/2008	250		Mazaj for men	E.D. 4
82426400027	5/2011	5/2010	355		LIQUID TNT DYNAMITE	E.D. 5
5318231540	10/2011		250		FIKKS	E.D. 6
425872	14/5/2011		237		Rip it	E.D. 7
425922	14/5/2011		237		Rip it sugar free	E.D. 8
281103690105	14/2/2012	15/2/2010	250		bom bom	E.D. 9
3289401288	23/8/2011	24/8/2010	266		Abu Abed Peach	E.D. 10
291100890095	25/12/2011	26/12/2010	250		for women PINK	E.D. 11
291100890088	25/12/2011	26/12/2010	250		BLUE for men	E.D. 12
253503460022	4/8/2011	5/8/2010	250		WILD TIGER	E.D. 13
254000157606	1/6/2012	2/1/2011	250		Energising O2	E.D. 14
328901287	23/8/2011	24/8/2010	266		Abu Mango Abed	E.D. 15
015042104407	16/2/2011	16/2/2010	250		LION POWER	E.D. 16

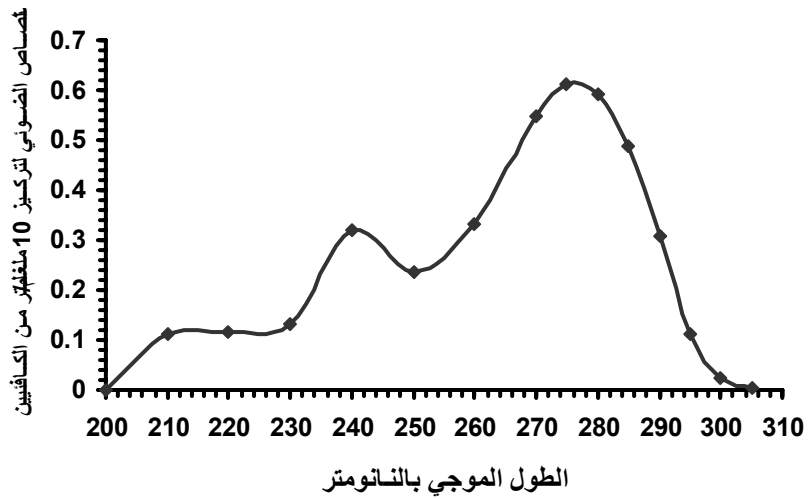
(2)

11

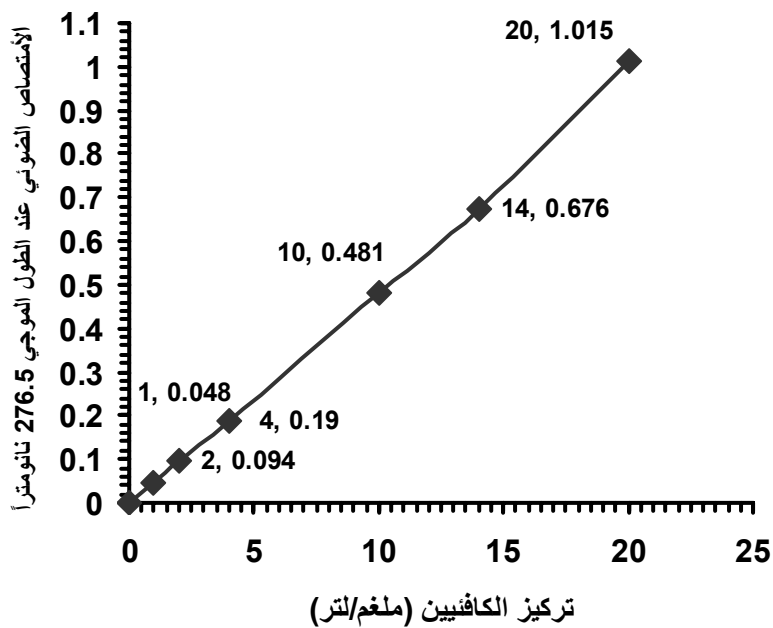
10

(3)

: (λ_{max})
/ 10
305 200
max)
(1) (13 4 3 1) (λ) 276



/ 10 UV : (1)
305 200



(2): / 20 0.0

276.5

:

10 (13 12)
 %1.5 5 250
 5 5 KMnO₄
 %5 5 Na₂SO₃ %5
 1 KSCN
 %35 1 %15
 90
 100 ()

	(ppm)	(mg/L) /
(3)	10000	
		.(mg/L) /
16	13	(3)
/ 298.8 -148.9		
-%1.9		
(8 5 4 2)		%29.2
/ 145-320		

:(3)

%	/		
-	304.8	E.D. 1	1
-	286.1	E.D. 2	2
-	220.4	E.D. 3	3
-	150.3	E.D. 4	4
-	162.4	E.D. 5	5
1.9	326.2	E.D. 6	6
29.2	413.3	E.D. 7	7
16.3	372.1	E.D. 8	8
-	298.8	E.D. 9	9
-	199.6	E.D. 10	10
-	230.8	E.D. 11	11
-	207.7	E.D. 12	12
-	233.9	E.D. 13	13
-	246.4	E.D. 14	14
-	252.0	E.D. 15	15
-	245.8	E.D. 16	16

1. (2010), (IQS-1246)
Methods of analysis of non alcoholic -
/ " carbonated beverages/Energy drinks
.12-1. -
2. (2010), (IQS-4075)
" Non alcoholic drinks-Energy drinks
- /
.5-1.
3. Amad, H. A.; Ali, F. A. and Abdulrahman, A. A. (2005).
Determination of content levels of some food additives in
beverages consumed in Riyadh city. J. King Saud Univ. 18(2): 99-
109.
4. Australia New Zealand Food Authority-Standards Council. (2001).
Standard 2.6.4 Formulated Caffeinated Beverages. 02/02: 1-5.
5. Australia New Zealand Food Authority. (2001). Inquiry Report
Application A394 Formulated Caffeinated Beverages. 02/02: 12.
6. Clauson, K. A.; Shield, K. M.; McQueen, C. E. and Persad, N.
(2008). Safety issues associated with commercially available
energy drinks. Journal of the American Pharmacists Association
48: 55-63. 7. Dennis, L. T.; Ryan, J. O.; Miranda, T.; Matthew, E.
7. R.; Robert, M. W.; Michele, L. and Bruce, A. G. (2009). Event-
Level Analyses Of Energy Drink Consumption and Alcohol
Intoxication in Bar Patron. Addictive Behaviors doi:
10.1016/J.addbeh.2009.11.004.
8. Food Standards Code in Australia-Food Standards Snapshots.
(2005). Formulated Caffeinated Beverages-Energy Dinks.
Environment Of South Australia-Department Of Health:1-2.
9. Malinauskas, B. M.; Aeby, V. G.; Overton, R. F; Carpenter-Aeby,
T. and Barber-Heidal, K. (2007). A survey of energy drink
consumption patterns among college students. Nutrition Journal 6:
35-41.
10. Miller, K. E. (2008). Wired: energy drinks, jock identity,
masculine norms, and risk taking. Journal of American College
Health. 56: 481- 489.

11. Miller, K. E. (2008). Energy drinks, race and problem behavior among college students. *Journal of American College Health*. 43: 490- 497.
12. Nour, V.; Trandafir, I. and Ionica, M. E. (2008). Quantitative determination of caffeine in carbonated beverages by an HPLC. *Journal of Agroalimentary Processes and Technologies* 14: 123-127.
13. Official Methods Of Analysis Of AOAC International (2000) "AOAC official method 967.11 Caffeine In Nonalcoholic Beverages: Spectrophotometric Method. 17th ed., Ch, 29. 3.
14. Reissg, C. J, Strain, E. C. and Griffiths, R. R. (2009). Caffeinated energy drink-A growing problem. *Drug and Alcohol Dependence*. 99: 1-10.
15. Simon, R. J. and Charles, F. (2009). Caffeine, stress, and proneness to psychosis-like experiences: A preliminary investigation. *Personality and Individual Differences*. 46: 562-564.