

# Detoxing Chocolate: Removing All Sweeteners

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Kennedys London Chocolate Forum  
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[www.kukaxoco.com/ChocForum2016.pdf](http://www.kukaxoco.com/ChocForum2016.pdf)





# How Now?



**ELIMINATING ALL SWEETENERS FROM CHOCOLATE:**

**HOW NOW, and then, WHY NOW**





# Solution!!!!!!



KukaXoco's debittering technology, the Yungas process, that uses (de)cocainized coca leaf extracts to reduce sugar in cacao.



ENACO – decocainized  
coca powder (*think CocaCola*)



2 tablespoons cacao  
1 (*or* 2) tsps coca powder



Result? Sugar-free  
Hot Chocolate



# Solution!!!!!!



**ENACO** – Empresa Nacional de la Coca – Peruvian government agency authorized to export coca leaf extracts around the world. They are ready to ship kilogram quantities for testing purposes, and ton or more quantities for manufacturing.

See: [www.enaco.com.pe](http://www.enaco.com.pe)

Current prices are approximately \$45/kg.

Decocainized coca leaves (used by CocaCola) and coca leaf extracts are Generally Recognized As Safe for human consumption in the United States under U.S. statute 21 CFR 182.20. Same statute also makes cacao to be GRAS.

See: [www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=182.20](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=182.20)

Dutch supplier from Schipol: <http://www.bruma-superfood.nl/webshop/Mate-de-Coca-theepoeder>





# Sugar Solution: KukaXoco Sugar-Free Chocolate Bar



Current formulation is:

Chocolate Mass      100 grams

Coca Extract              4 grams

Effectively a 96% cacao chocolate.

Our chocolate has a dark chocolate taste, more so using Peruvian varieties of cacao, with bare taste of coca flavors. Has standard texture/snap/melting of dark chocolates.

Challenge: coca extract removes bitterness, but cacao and coca are a bit acidic together, a simpler problem. A bit of salt balances, further bringing out chocolate taste.



# Sugar Solution: KukaXoco Sugar-Free Chocolate Bar



## EXTREME DARK CHOCOLATE COMPARISON



### **KUKAXOCO 96% COCOA**

50 grams fat, **0** grams sugar

### **VIVANI 92% COCOA**

59 grams fat, **7.0** grams sugar

### **LINDT 90% COCOA**

55 grams fat, **7.5** grams sugar, alkali

### **CHOCOLOVE 88% COCOA**

53 grams fat, **13** grams sugar

### **TESCO 85% COCOA**

47 grams fat, **15** grams sugar

*(100 gram sample size)*





# GRAS Safety of Coca Extracts



Decocainized coca leaf extracts are safer than most food additives.

Additive	LD50 (mg/kg)		Additive	LD50 (mg/kg)
Inulin	> 5000		Sodium Benzoate	1600
Cinnamon	< 4500		Sodium Citrate	1580
<b><u>COCA extracts</u></b>	3450		Theobromine	1000
Table Salt	3000		Phenethylamine	< 1000
Citric Acid	3000		Codeine	800
Vanilla	< 3000		Alum. Sulphate	400-800
Menthol	2900		Oxalic Acid	275
BHT	< 2900		Caffeine	192
PGPR	> 2600		Sodium Nitrate	180
DisodiumEDTA	~2500		Potas. Bromate	157
Aspirin	1750		Brom. Veget. Oil	???
Benzoic Acid	1700		Nicotine	1

Chocolate	
Mountain Dew	

See: "Comparative Lethality of Coca And Cocaine", Pharm. Biochem. Behav., v17 (1982), 1087-1088



# KukaXoco No-Sugar Chocolate Solutions!!!!!!



KukaXoco is working with ENACO to determine the best variety of coca leaf, and optimal ratios for mixing with unsweetened cacao. Initial products (each \$1+ billion markets) in final formulation are:

- no sugar hot chocolate powder mix - ✓
- no added-sugar chocolate milk - ✓
- 38% fat/sugar chocolate spread/cream (v. 90%) - ✓
- 50% fat dark, no-sugar chocolate bar (v. 75%) - ✓

6th month goal is 45%. 12 month goal is 40%. 24 month goal is 35%.

KukaXoco is licensing the technology and formulations, ready for scalable mass production and distribution. Current task is working with food engineers to optimize taste.





# Sugar Solution: KukaXoco Hot Chocolate Powder



Prototype is simple – two tablespoons of unsweetened cacao powder, up to two teaspoons of decocainized coca powder, bit of salt. Un-optimized chocolate taste creates similar experience to a cup of black coffee, while being healthier. Working now with food engineers in Peru to finalize a more “hot-chocolate” taste, and begin volume production.

Chocolate milk: final formulation can be added to whole/low-fat milk with no added sugar.



# Sugar Solution: KukaXoco Coca-Chocolate Spread



KukaXoco's chocolate cream versus Nutella (*for 350 grams*):

<b><u>Nutella:</u></b>	sugar	200 grams
	fat	<u>115 grams</u>
( <i>with 28 grams protein</i> )		$315 / 350 = 90\%$ sugar/fat

<b><u>KukaXoco:</u></b>	cacao powder (Hershey)	214 grams
	(with 24 grams fat)	
	cacao butter	35 grams
	milk whey protein	61 grams
	(with 3 grams fat, 3 grams sugar)	
	( <i>with 48 grams protein</i> )	
	6 tablespoons coca powder	
	sugar	<u>40 grams</u>
	$24+3+3+40+35$	$105 / 350 = 30\%$ sugar/fat

80% less sugar, while almost double the protein, and seven times more cacao. High concentration levels of phytonutrients. No alkalization needed. Room temperature mixing process, with 1-2 cups of water. Salt and vanilla for flavor.





# Possible Chocolate Industry De-Sugaring Goals



## **In 1 Year, and With \$10,000,000 Industry Collaboration:**

Remove all sugar from all hot chocolates

Remove all added-sugar from all chocolate milks

Remove all sugar from all dark chocolates

Reduce creams from 90% fat/sugar to 45% fat/sugar

*Main need: food engineering expertise*

## **In 2 Years, and With \$50,000,000 Industry Collaboration:**

Reduce creams from 90% fat/sugar to 30% fat

Finish by removing sugar from all milk chocolates

# WHY?



# Why Now?



**ELIMINATING ALL SWEETENERS FROM CHOCOLATE:**

**HOW NOW, and then, WHY NOW**



# Sugar's Legal and Financial Threat to the Chocolate Industry

Is sugar '**cocaine**' (nicotine lawsuits)?

Is sugar a **bullseye** (class action lawsuits)?

Is sugar '**asbestos**' (diabetes/cancer lawsuits)?

Is sugar use **dinosaurish** (ripe for an Uber)?

Is sugar susceptible to **FDA/DEA controls**?

# YES

Don't believe me? Let's check the headlines.



# Sugar Threats to Chocolate Industry



*MSN Money:*

Three Reasons Mondelez Could End Up in Control  
of Hershey (Oct 2016)

#1 “CONSUMERS ARE REALIZING  
THAT **SUGAR IS A POISON**”

*Threat to chocolate?*

50% OF WORLD’S  
**CHOCOLATE IS SUGAR**  
... **IS POISON**

<http://www.msn.com/en-us/money/companies/opinion-a-chocolate-war-is-about-to-heat-up-in-the-us/ar-BBwqHLS>





# Sugar Threats to Chocolate Industry



## Superintendent of Los Angeles Schools **Bans Chocolate Milk** (June 2011)

*“Eliminating chocolate milk ..... is good for all youngsters, and is especially beneficial during an era of rampant childhood obesity.”*

See: [http://notebook.lausd.net/pls/ptl/docs/PAGE/CA\\_LAUSD/FLDR\\_LAUSD\\_NEWS/FLDR\\_ANNOUNCEMENTS/MILKANDVEGGIESTW.PDF](http://notebook.lausd.net/pls/ptl/docs/PAGE/CA_LAUSD/FLDR_LAUSD_NEWS/FLDR_ANNOUNCEMENTS/MILKANDVEGGIESTW.PDF)

For a \$2.5 billion/year market for chocolate milk, do you want to read:

## Six Shocking Reasons **Never to Give** **Your Child Chocolate Milk** (Sept 2015)

<http://livingtraditionally.com/6-shocking-reasons-to-never-give-your-child-chocolate-milk/>



# Sugar Threats to Chocolate Industry



The Rapidly Rising Price of Chocolate  
May Have A Silver Lining –  
It Might Tackle Obesity (April 2015)

<http://www.independent.co.uk/voices/comment/the-rapidly-rising-price-of-chocolate-may-have-a-silver-lining-it-might-tackle-obesity-10158353.html>

Oreos and The Obesity Epidemic:  
**Chocolate Cookies as Addictive as Cocaine?**

<http://www.hngn.com/articles/15033/20131016/oreos-obesity-epidemic-chocolate-cookies-addictive-cocaine.htm>

**Whether true or false – chocolate doesn't need these headlines. Why?**



# Sugar Threats to Chocolate Industry



## Obesity is Linked to at Least 13 Types of Cancer

*“Only smoking comes close” as a cancer risk, according WHO working group that reviewed more than 1000 studies, with these 13 cancers together accounting for 42% of all new cancer diagnoses.*

See: <http://well.blogs.nytimes.com/2016/08/24/obesity-linked-to-at-least-13-types-of-cancer/> (August 2016)

**And if chocolate is linked to obesity, do you want to read these?**

## Children's blood pressure rises with obesity

<http://www.nytimes.com/2016/09/13/well/family/high-blood-pressure-in-children.html> (Sept. 2016)

## High blood pressure may impair children's thinking

<http://www.nytimes.com/2016/09/29/health/high-blood-pressure-may-limit-childrens-cognitive-skills-study-suggests.html> (Sept. 2016)





# Sugar Threats to Chocolate Industry



Swapping one sugary drink per day for  
water has big health benefits (Aug 2016)

*“Reducing the calories from added sugar ... can help prevent obesity, cardiovascular disease and other adverse health conditions”. (Virginia Tech. Univ.)*

See: [http://www.upi.com/Health\\_News/2016/08/15/Swapping-one-sugary-drink-per-day-for-water-has-big-health-benefit-study-says/8661471268957/](http://www.upi.com/Health_News/2016/08/15/Swapping-one-sugary-drink-per-day-for-water-has-big-health-benefit-study-says/8661471268957/)

Given added-sugar equivalences between soda and 50%-sugar chocolate, we ominously have:

Swapping one chocolate bar per day  
has big health benefits!!!



# Sugar Threats to Chocolate Industry



A serving a day of **added sugar** can  
**increase your risk of heart disease** (Feb. 2014)

See: <http://www.nbcnews.com/health/diet-fitness/serving-day-added-sugar-can-do-you-n21321>

So too can a serving a day of chocolate. One nefarious sugar industry response?

**Sugar industry manipulated heart studies,**  
underplaying role of added sugar  
**in heart disease** (*a cigarette biz tactic*) (Sep. 2016)

<http://www.nbcnews.com/health/health-news/sugar-industry-manipulated-heart-studies-review-finds-n646836>



# Wages of Sins *of Added Sugar* ...?



**Lipitor May Increase Risk Of Diabetes In Women.**

The law offices of  
**Pulaski & Middleman**  
LLC, Attorneys  
Principal office in Houston, TX

**Were You Taking Lipitor and  
Diagnosed With Diabetes?**

Call Us. We will help you.

Toll Free **1-800-BAD-DRUG**  
1800BADDRUG.COM

... are *legal* death.

Were You Eating Chocolate

Diagnosed with

Obesity and/or

Cancer:





# Sugar Threats to Chocolate Industry



## WSJ: Switch to Water Hurting Soda Makers (Sep 2016)

*“The portion of [chocolate?] **consumers who say they are trying to avoid sugar** is up 7 percentage points to 61%”.*

And remember, the average chocolate is 50% sugar.

Artificials? Nope. *“Over 40% of survey respondents said they were trying to avoid aspartame.”*

See: <http://www.wsj.com/articles/overheard-switch-to-water-hurting-soda-makers-1473220848>



# Sugar's Evil? It's Addictive



**"Intense sweetness surpasses cocaine reward"**, M. Lenoir, et al., *PLoS ONE*, August 2007

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0000698>

**"Food addictions to fat and sugar [chocolate averages 80%] similar to cocaine and heroin in brain response"**, National Monitor, Beth Balen, 12 December 2014 (refers to *Am. Journal of Clinical Nutrition*)

<http://natmonitor.com/2014/12/12/food-addictions-to-fat-and-sugar-similar-to-cocaine-and-heroin-in-brain-response/>

**"Differences in bingeing behavior and cocaine reward following intermittent access to sucrose, glucose or fructose solutions"**, JM Rorabaugh et al., *Neuroscience*, June 2015, 213-220

<http://www.ncbi.nlm.nih.gov/pubmed/26079112>

**Evidence for sugar addiction: behavioral and neurochemical effects of intermittent, excessive sugar intake"**, N. Avena et al., *Neurosci Biobehav Review*, 2008 v1, 20-39

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2235907/>

**"Animal models of sugar and fat bingeing: relationship to food addiction and increased body weight"**, N. Avena et al., *Methods Mol Biol*, v 829, 2012, 351-65

<http://www.ncbi.nlm.nih.gov/pubmed/?term=22231826>

**Sugary drinks linked to 180,000 deaths a year"**, Gitanjali Singh et al., *Circulation*, June 2015

<http://circ.ahajournals.org/content/early/2015/06/25/CIRCULATIONAHA.114.010636>



# Chocolate Industry's Reliance on Addictive Sugar



**Average form of chocolate is 50% ..... SUGAR**

with:

**average cream chocolate is 90% to 95% sugar and stored sugar (*fat*)**

**average milk chocolate is 80% to 90% sugar and stored sugar (*fat*)**

**average dark chocolate is 70% to 80% sugar and stored sugar (*fat*)**

Though this is a problem that affects many processed food categories.  
But chocolate doesn't have to be in the **bad food** category.

Lengthy table of chocolate industry sugar/fat statistics at:

<http://www.kukaxoco.org/sugar-poisons-chocolate.html>





# Chocolate Industry's Reliance on Addictive Sugar



## CHOCOLATE PRODUCTS

	Size (grams)	Serving (grams)	Fat (grams)	Sugar Sugar/Fat	Percent
Dove Silky Smooth Dark	42	14	19	<b>78%</b>	
Equal Exchange 71% Dark	37	16	10	<b>70%</b>	
Ferrero's Nutella	37	12	<u>21</u>	<b>89%</b>	(\$2 billion/year)
Ghiradelli Double Hot Chocolate	35	1.5	<u>27</u>	<b>81%</b>	
Ghiradelli Dark Melting Wafers	41	15	<u>24</u>	<b>95%</b>	<b>(the worst)</b>
Godiva White Chocolate	43	17	<u>24</u>	<b>95%</b>	
Hershey's Heath Toffee Bar	39	13	<u>24</u>	<b>95%</b>	
Wesenia Haselness Crème	50	17.5	<u>29.8</u>	<b>95%</b>	
Original Chocolate – Tesco	50	17.5	<u>29.5</u>	<b>94%</b>	
Hershey's Special Dark	41	12	21	<b>80%</b>	
Mondelez Toblerone	66	40	20	<b>91%</b>	
Mondelez Milka Milk Chocolate	40	12	<u>24</u>	<b>90%</b>	
Lindt 70% Dark	40	19	12	<b>78%</b>	
Mars' 3 Musketeers Bar	47	4	<u>35</u>	<b>83%</b>	
Nestle Sublime	50	16	<u>26</u>	<b>85%</b>	
Theo Chocolate 70% Organic Dark	42	16	12	<b>66%</b>	<b>AVG= 75%</b>

**AMERICAN HEART ASSOC: DAILY ADDED-SUGAR MAXIMUM: 37 - men**

**25 - women**



# Chocolate Industry's Reliance on Addictive Sugar



## Chocolate Market Statistics:

- \$100+ billion annual sales
- 7+ millions tons of chocolate

Liability: **3.5+ million tons of**  
**sugar-use liabilities**

And thus, increasing exposure to  
lawsuits against chocolate companies  
for putting consumer health and stockholders at risk.



# Traditional Alternatives to Reliance on Sugar



Artificial Sweeteners? Taste bad, and just as unhealthy:

Artificial sweeteners ‘make people eat more’

<http://www.foodmanufacture.co.uk/Ingredients/Sweeteners-claimed-to-make-people-eat-more>

Artificial sweeteners: can they cause Type 2 diabetes?

<http://www.natureworldnews.com/articles/24883/20160707/artificial-sweeteners-cause-type-2-diabetes.htm>

Artificial sweeteners harm gut bacteria

<http://bigthink.com/ideafeed/artificial-sweeteners-change-gut-bacteria-for-the-worse>

Art. sweeteners during pregnancy linked to childhood obesity

<http://www.houstonchronicle.com/news/nation-world/nation/article/Study-links-artificial-sweeteners-in-pregnancy-to-7423814.php>

Researchers show artificial sweeteners wreak havoc on the  
body

<https://news.fastcompany.com/researchers-show-artificial-sweetener-wreaks-havoc-on-the-body-4013607>

Maltitol: a sweetener and a **laxative** in one!





# Traditional Alternatives to Reliance on Sugar



Diversify to reverse failing sales of chocolate? In Jan. 2015, Hershey spent \$200+ million to acquire .... a beef jerky company.

Troubling Result?



# Traditional Alternatives to Reliance on Sugar



Hershey's stock (HSY) dropped from \$110 to as low as \$83 (-25% - loss of over \$3.51 billion) after the announcement – stock price was flat for following 18 months while net income dropped 39%, prompting a (failed) Mondelez takeover attempt, when stock popped and dropped.





# Traditional Alternatives to Reliance on Sugar



In September 2015, Mondelez, after Hershey rejected its buyout offer (which saw Mondelez' stock gain \$2 billion), launches an Oreo-branded chocolate candy bar, using Milka's 81% sugar/fat milk chocolate:

See: [www.chicagotribune.com/business/ct-oreo-chocolate-bars-0908-biz-20160907-story.html](http://www.chicagotribune.com/business/ct-oreo-chocolate-bars-0908-biz-20160907-story.html)

Standard counterattack - brand war, but Mondelez can have much more fun:

## KUKAXOCO SUGGESTION TO MONDELEZ

- Mondelez offered \$115/share to Hershey
- Hershey will consider over \$125/share
- But, Mondelez can get Hershey for under \$105/share  
*if it invests \$50 million in certain ways*





# Threats to Chocolate Industry Due to Sugar Use



- Taxes on added-sugar that reduce sales
- Losses of sales outlets (such as pharmacies)
- Class-action consumer health lawsuits
- Hedge fund attacks coupled with stockholder lawsuits
- DEA decertifying added-fructose as GRAS
- Disruption from pharmaceuticals/Silicon Valley



# Threats to Chocolate Industry Due to Sugar Use



## Special Taxes That Crush Sales

How will chocolate milk drinks be affected by the UK sugar tax of 25 pence per liter ( £500 million/year)?

*BeverageDaily, 19 August 2016*

Philadelphia (100 miles east of Hershey) approves 1.5-cent-per-ounce tax

*Phily.com, 18 June 2016*

Sales of sugary drinks dropped 20% in Berkeley, CA, after imposition of penny-per-ounce tax

*Wall Street Journal, 24 August 2016*

Sugar tax in Mexico cuts sales of sugary drinks by 12 per cent

*The Telegraph, 06 January 2016*

Sweet poison: why our brains need a sugar tax

*Open Democracy, 26 August 2016*



# Threats to Chocolate Industry Due to Sugar Use



## Loss of Sales Outlets

### Shareholders push Walgreens to drop cigarettes

Investopedia, 29 August 2016

<http://www.investopedia.com/stock-analysis/082916/shareholders-push-walgreens-drop-cigarettes-wba-cvs.aspx>

- shareholders file shareholder resolution for January annual meeting
- social justice coalition pushing Walgreens to follow CVS Health's decision in 2014 to drop cigarette/tobacco sales
- follows letter from 28 U.S. state attorney generals to Wal-Mart, Kroger, Kroger, Safeway and Walgreens – asking to stop selling tobacco
- critics note FOR NOW that CVS continues to sell unhealthy products such as **sugary candy**, ice cream and sodas



# Threats to Chocolate Industry Due to Sugar Use



## Loss of Sales Outlets

How Restricting Food Stamp Choices Can Fight Obesity, New York Times, Sept. 2016

<http://www.nytimes.com/2016/09/23/upshot/restrictions-on-food-stamp-purchases-can-improve-diets.html>

*“... the second [test group] was prohibited from buying sweetened beverages, candy or sweet baked goods ...”*





# Threats to Chocolate Industry Due to Sugar Use



**If sugar is addictive ... what does it mean for the law?**

*Journal of Law, Medicine & Ethics, Spring 2013*

"LEGAL TOOLS: Regulatory tools and approaches are diverse and include labeling (disclosure and warning), advertising restrictions, **taxes (special excise duties, value-added taxes and sales taxes)**, product bans or restrictions, **litigation (especially class action litigation)**, self-regulation, a reduction of farm subsidies and sugar programs, and the development of education programs."

[https://www.aslme.org/media/downloadable/files/links/j/1/jlme-41\\_1-gearhardt-suppl.pdf](https://www.aslme.org/media/downloadable/files/links/j/1/jlme-41_1-gearhardt-suppl.pdf)



# Threats to Chocolate Industry Due to Sugar Use



**UK Health Secretary, Jeremy Hunt, backs anti-obesity push to force pubs and takeaways to cut sugar by 20%** (Sept. 2016)

“Manufacturers of cereals, puddings, cakes, jams and ice-cream are already being asked to reformulate products that contribute the most sugar to children’s diets by 2020.”

All of these products have chocolate versions, especially ice-cream.

<https://www.thesun.co.uk/news/1883162/takeaways-ordered-to-cut-sugar-by-20-per-cent-in-major-anti-obesity-push-backed-by-health-secretary-jeremy-hunt/>



# Threats to Chocolate Industry Due to Sugar Use



## Medical Monitoring Claims

“... West Virginia had become one of the first states to recognize what is called, in tort law, a medical monitoring claim. **A plaintiff needs to prove only that he or she has been exposed to a toxin.** If the plaintiff wins, the defendant is required to fund regular medical tests. In these cases, should a plaintiff later become ill, he or she can sue retroactively for damages.”

Do chocolate companies want the risk of having to fund regular medical tests for its multitude of customers exposed to the sugar toxin that comprises half of all of the chocolate in the world? What will be effect on sales and stock prices if just one such lawsuit prevails against chocolate companies, if investors fear tens of thousands of copycat lawsuits?



# Threats to Chocolate Industry Due to Sugar Use



## J&J to pay \$127 million for just two talcum powder cases

“J&J has lost two trials in St. Louis. A jury ordered the company to pay \$72 million in damages to a woman in February [2016], and in May, another jury awarded \$55 million in damages to a South Dakota woman who blamed the powder for her [ovarian] cancer. ... J&J faces more than 1,000 talc cases around the country.”

Mining giant Rio Tinto is now being sued as well for selling talc to Johnson & Johnson. Yet, as the New York Times reported in May 2016, scientists are not certain that talcum powder causes the reported cases of ovarian cancer.

But the added sugar in chocolate? As causal, if not more so, in contributing to diabetes, obesity and cancer. Tort mapping? J&J → Hershey, Rio Tinto → Cargill, \$55/\$72 million → \$55/\$72 million.





# Threats to Chocolate Industry Due to Sugar Use



**A spoonful of sugar will land you six feet underground:  
should Food and Drug Administration revoke  
added sugar's GRAS status?**

*Food and Drug Law Journal, 2015*

FDA should issue a Federal Register notice finding that **added sugar is not GRAS**, because the probable consumption of added sugar is 3-5 times higher than experts recommend; research has found that **added sugar is a chronic toxin** having a cumulative effect on one's health; and experts **no longer generally recognize sugar as safe** due to its immediate and long-term adverse health effects.

Impact?

... will require (chocolate) manufacturers to obtain premarket approval when using added sugar as a food additive.



# Threats to Chocolate Industry Due to Sugar Use



## FDA Bans Sale of Many Antibacterial Soaps, Saying Risks Outweigh Benefits

(New York Times, Sept. 2016)

*“... industry failed to prove they were safe to use over the long term ...”*

*“... which came after years of mounting concerns that antibacterial chemicals that go into everyday products are doing more harm than good ...”*

*“... Studies in animals have shown that triclosan and triclocarban can disrupt the normal development of the reproductive system and metabolism, ...”*

See: <http://www.nytimes.com/2016/09/03/science/fda-bans-sale-of-many-antibacterial-soaps-saying-risks-outweigh-benefits.html>

Is sugar use in chocolate safe over the long term? Is sugar use in chocolate doing more harm than good? Is sugar use in chocolate disrupting metabolism? Will FDA ban sales of chocolate using sugar as alternatives to sugar become more available?



# Threats to Chocolate Industry Due to Sugar Use



When you read:

[“Sugary drinks linked to 180,000 deaths a year”](#)

Washington Post, 29 June 2015

and

[“High sugar diet can impair learning and memory”](#)

Huffington Post, 24 June 2015

THINK!

Tobacco tort lawyers ... Asbestos tort lawyers ...

**“ADDED SUGAR” MASS TORTS – “PUBLIC  
NUISANCE”**

The lawyers are hungry – for your chocolate profits!!!

See: “Lawyers pitching state attorney generals ... to make food industry pay for soaring obesity-related health care costs”, *Politico*, Feb. 2014

<http://www.politico.com/story/2014/02/food-industry-obesity-health-care-costs-103390.html>



# Threats to Chocolate Industry Due to Sugar Use



Want to invite a consumer health lawsuit  
against your chocolate product?

Use the phrase:

**“Responsible Portion Control”**

Spain and Portugal decriminalized all drugs by establishing  
responsible portions.





# Threats to Chocolate Industry Due to Sugar Use



That's consumer health lawsuits. How about stockholder lawsuits?

## Here's how the Hershey Trust shafts shareholders

*RealMoney – The Street, 30 August 2016*

*“... an entity that may have forgotten it's a publicly traded company”*

*“... as being an even more shareholder-unfriendly entity”*

*“... corporate governance isn't evolving”*

And back to sugar:

“... renewed scrutiny on fundamentals could weigh on Hershey even as more consumers **CONTINUE TO CUT OUT SUGAR** from their diets.”



# Threats to Chocolate Industry Due to Sugar Use



## Risk Factor from Coca-Cola's 2015 10-K Annual Report:

Consumers and public health and government officials are highly concerned about the public health consequences of **obesity**, particularly among young people. In addition, some researchers, health advocates, and dietary guidelines are suggesting that consumption of **sugar-sweetened** beverages is a primary cause of **increased obesity rates** and are encouraging consumers to reduce or eliminate consumption of such **[sugar-sweetened]** products. Increasing public concern about obesity and additional governmental regulations concerning the marketing, labeling, packaging, or sale of **sugar-sweetened** beverages may reduce demand for or increase the cost of our **sugar-sweetened** beverages. .... **Limitations on our ability to provide any of these types of products or otherwise satisfy changing consumer preferences relating to nonalcoholic beverages could adversely affect our financial results.**

12 ounce Coca-Cola (39 grams sugar)

Hershey Chocolate Bar (27 grams sugar)

**Do 10-K Annual Reports for Hershey, Mondelez and Nestlé now need same language? Breaking the law if they don't? But if they do, does that open door to consumer health lawsuits?**



# Threats to Chocolate Industry Due to Sugar Use



Precedent for consumer/investor lawsuits against chocolate industry?

## **These Lawyers Want Slave Labor Warnings On Your Cat Food [/Chocolate Candy]** (Dec 2015)

“[Law firms] have sued name-brand companies doing business in California, like Hershey, Mars, Nestle and Costco Wholesale, hoping to use the state’s novel consumer protection laws to **put the suffering of millions of [cacao workers] squarely in front of shoppers.**”

“[Congresswoman] Maloney ... Her legislation would require companies to regularly tell the SEC what they are doing to eradicate forced labor [*or sugar?*], creating a new avenue for investor scrutiny ... and litigation.”

<http://www.bloomberg.com/news/articles/2015-12-10/these-lawyers-want-you-to-know-slaves-may-be-feeding-your-cat>



# Threats to Chocolate Industry Due to Sugar Use



In 2003, Kraft Foods was sued for using unsafe and easily replaceable trans fats in Oreos, by consumer lawyer Stephen Joseph in the San Fran Bay Area county court system. Lawsuit was shortly thereafter dropped:

**Lawsuit dropped as Oreo looks to drop the fat**

CNN Law Center, 14 May 2003

<http://www.cnn.com/2003/LAW/05/14/oreo.suit/>

Twelve years later, FDA rules trans fats are not GRAS, and orders their removal from all foods:

**The FDA takes steps to remove artificial trans fats in processed foods**

<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm451237.htm>, 16 June 2015

How will chocolate industry drop sugar when sued for selling an unhealthy product with an addictive ingredient?





# Lawsuit fuel? Chocolate's similar addictiveness ..... to cocaine?



## Partial extinction of a conditioned context enhances preference for elements previously associated with cocaine but not with chocolate

*Physiological Behavior*, August 2013, v120, pg. 1-10

<http://www.ncbi.nlm.nih.gov/pubmed/23831243>

### Abstract:

Drug-associated stimuli are crucial to reinstatement of drug-seeking after periods of abstinence, representing a central problem in treatment of addiction. The present study investigated the influence of partial extinction of the conditioned context on the expression of conditioned place preference (CPP). Mice of the inbred DBA/2J strain were conditioned with cocaine or chocolate in a context identified by multiple elements (A+B) and subsequently CPP expression was evaluated in a context containing only one element (A or B) or both (A+B). Cocaine- and chocolate-conditioned mice showed CPP in presence of the original compound stimulus. However, **cocaine-conditioned mice did not show CPP when tested in A or B context, while chocolate-conditioned mice did show CPP to single element context.**

[i.e., harder to retrain mice using cocaine than using chocolate – or not, but you never want any article with any comparison of cocaine and chocolate.]

As the BBC asks, “**Can people learn to curb their chocolate cravings?**”,

<http://www.bbc.com/news/magazine-33690211>, 29 July 2015



# Nestlé: Both Disruptee and Disruptor?



“Nestlé wants to sell you both sugary snacks and diabetes pills.” — Bloomberg, May 2016

<http://www.bloomberg.com/news/features/2016-05-05/nestl-s-sugar-empire-is-on-a-health-kick>

## Change in Nestlé revenue by unit, 2013-15

Nutrition and health science	+25%
Water	+ 5%
Pet care	+ 2%

but

Powdered and liquid beverages	- 6%
Confectionary	- 14%
Milk products and ice cream	- 16%

## SUGGESTION TO NESTLE – DO BOTH:

WITH KUKAXOCO’S SWEETENER-FREE CHOCOLATES,  
SELL TASTY SNACKS THAT CAN BE ANTI-OBESITY PILLS



# Solution!!!!!!



 **Kuka**  
**Xoco**

The logo features a stylized green leaf and a brown cocoa pod with white seeds. The word "Kuka" is in a bold, green, sans-serif font, and "Xoco" is in a bold, brown, sans-serif font.





# Solution!!!!!!



KukaXoco's debittering technology, the Yungas process, that uses (de)cocainized coca leaf extracts to reduce sugar in cacao.



ENACO – decocainized  
coca powder (*think CocaCola*)



2 tablespoons cacao  
1 (or 2) tsps coca powder



Result? Sugar-free  
Hot Chocolate





# Solution!!!!!!



ENACO – Empresa Nacional de la Coca – Peruvian government agency authorized to export coca leaf extracts around the world. They are ready to ship kilogram quantities for testing purposes, and ton or more quantities for manufacturing.

See: [www.enaco.com.pe](http://www.enaco.com.pe)

Current prices are approximately \$45/kg.

Decocainized coca leaves (used by CocaCola) and coca leaf extracts are Generally Recognized As Safe for human consumption in the United States under U.S. statute 21 CFR 182.20. Same statute also makes cacao GRAS.

See: [www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=182.20](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=182.20)



# Sugar Solution: KukaXoco Sugar-Free Chocolate Bar



Current formulation is:

Chocolate Mass	100 grams
Coca Extract	4 grams

Effectively a 96% cacao chocolate.

Chocolate has a pleasant dark chocolate taste, more so using Peruvian varieties of cacao, with minimal taste of coca leaf. A smidgen of salt improves chocolate taste (acid balancing). Has standard texture/snap/melting of dark chocolates. Further fat reduction is possible, at expense of grainy-texture.



# GRAS Safety of Coca Extracts



Coca leaf extracts are safer than most food ingredients.

Additive	LD50 (mg/kg)		Additive	LD50 (mg/kg)
Inulin	> 5000		Sodium Benzoate	1600
Cinnamon	< 4500		Sodium Citrate	1580
<b><u>COCA extracts</u></b>	3450		Theobromine	1000
Table Salt	3000		Phenethylamine	< 1000
Citric Acid	3000		Codeine	800
Vanilla	< 3000		Alum. Sulphate	400-800
Menthol	2900		Oxalic Acid	275
BHT	< 2900		Caffeine	192
PGPR	> 2600		Sodium Nitrate	180
DisodiumEDTA	~2500		Potas. Bromate	157
Aspirin	1750		Brom. Veget. Oil	???
Benzoic Acid	1700		Nicotine	1

Chocolate	
Mountain Dew	

See: “Comparative Lethality of Coca And Cocaine”, Pharm. Biochem. Behav., v17 (1982), 1087-1088





# KukaXoco Solutions!!!!!!



KukaXoco is working with ENACO to determine the best variety of coca leaf, and optimal ratios for mixing with unsweetened cacao. Initial products (each > \$1 billion markets) under formulation are:

- no sugar hot chocolate powder mix (done)
- no added-sugar chocolate milk (done)
- 40% fat/sugar chocolate spread/cream (v. 90%) (done)
- 50% fat dark, no-sugar chocolate bar (v. 75%) (done)

6th month goal is 45%. 12 month goal is 40%. 24 month goal is 35%.

KukaXoco is licensing the technology and formulations, ready for mass production and distribution.





# Sugar Solution: KukaXoco Hot Chocolate Powder



Prototype is simple – two tablespoons of unsweetened cacao powder, up to two teaspoons of decocainized coca powder. Un-optimized chocolate taste creates similar experience to a cup of black coffee, while being healthier. Working now with chocolate companies in Peru to finalize a more “hot-chocolate” taste, and begin volume production.

Chocolate milk: final formulation can be added to whole/low-fat milk with no added sugar.



# Sugar Solution: KukaXoco Coca-Chocolate Spread



KukaXoco's chocolate cream versus Nutella (*for 350 grams*):

<b><u>Nutella:</u></b>	sugar	200 grams
	fat	<u>115 grams</u>
( <i>with 28 grams protein</i> )		$315 / 350 = 90\%$ sugar/fat

<b><u>KukaXoco:</u></b>	cacao powder (Hershey)	214 grams
	(with 24 grams fat)	
	cacao butter	35 grams
	milk whey protein	61 grams
	(with 3 grams fat, 3 grams sugar)	
	( <i>with 48 grams protein</i> )	
	6 tablespoons coca powder	
	sugar	<u>40 grams</u>
	$24+3+3+40+35$	$105 / 350 = 30\%$ sugar/fat

80% less sugar, while almost double the protein, and seven times more cacao. High concentration levels of phytonutrients. No alkalization needed. Room temperature mixing process, with 1-2 cups of water.



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# anti-Obesity Cacao Clinics



The Affordable Care Act in the U.S. requires insurers to pay for nutrition and obesity screening, and some states require coverage for obesity therapy. The previous formulations, using little-to-no sugar and fat, and:

- |   |                  |
|---|------------------|
| unsweetened cocoa (theobromine)                 | - blood pressure |
| red yeast rice (lovastatin, 2-4 mg)             | - cholesterol    |
| rice bran oil (tocotrienol)                     | - obesity        |
| <i>Protium heptaphyllum</i> resin (triterpenes) | - obesity        |
| purple tea extract                              | - fat absorption |
| coca leaf extract                               | - diabetes       |

will allow anti-obesity programs to be based on cacao, which could prove to be most effective – a diet based on eating lots of chocolate. Chocolate companies can profit from setting up such ACA clinics.





# anti-Obesity Cacao Clinics



## Problem:

At least 70 million Americans (30%) have high blood pressure

## Solution:

Cacao's theobromine

## Problem:

At least 70 million Americans (30%) have diabetes

At least 70 million Americans (30%) are obese

## Solution:

KukaXoco's sugar-free, mostly fat-free chocolate

## Opportunity:

1 KukaXoco bar (\$3) a day to 100 million of these people?

**\$100 billion/year in new chocolate sales**



# Opportunity?



Now: 7 ounce / 200 grams chocolate candy bar. \$2.00  
(which governments discourages for sugar/calories)

remove sugar, some fat (save many pennies)  
add a bit of coca extract (cost a few pennies)

Future: 7 ounce / 200 grams health product \$4.00  
(which government could now subsidize)

\$100 billion/year market =====> **\$200 billion/year market**



# ADVICE



Some advice for the chocolate industry:

- Be honest (about chocolate's use of addictive sugar)
- Be curious (seriously, one year and no invites?)
- Disrupt yourselves (\$100+ billion is a juicy target)
- Protect yourselves (lots of insurance – you will be sued)



# THANK YOU!



Thank You, and if nothing else, please visit South America – Peru, Colombia and Bolivia - and experience for yourself their culture, their hospitality, their many wild varieties of cacao, and their many coca leaf farms whose extracts will free cacao from the evil embrace of sugar!!!





# People, Land and Culture of Coca Leaf

