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Evaluation of Some Heavy Metals Concentrations in Chocolate, Candies, and Tomato Puree

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Abstract

The paper deals with the evaluation of heavy metals like lead and cadmium concentration in chocolate, candy and tomato puree which leads to fatal disease. In this paper the emphasis will be given to the process how the adding process is done, how chocolate industry took shape in the global market and how deadly it can be if the chocolate bars are being taken again and again.

Keywords- Heavy Metals, Process Evaluation, Global Market, And Harmful Metals

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1. INTRODUCTION

The brands of chocolate that are very popular these days are found to contain worrisome levels of heavy metals like lead and cadmium. Our children and even we love to grab chocolate and so on products for instant energy, but having mixed metals in these food supplements can be lethal. Dark chocolate and milk bars contain Ca, Cd, Ni, Cr, Cu, Pb, Mn, Zn, and Fe.

2. Objective

- To find out the reason for the trend of chocolate in daily life
- To evaluate the impact of spreading awareness about the negatives of the chocolate industry
- To get a clear view about the concentrations
- To analysis the effect of using heavy metals like lead in Chocó bars

3. Methodology

HEAVY METALS IN CHOCOLATE

Heavy metals in the chocolate bars (that have been used)	Impacts and allowable dosages (if any)
Lead	Diseases like cardiovascular and allowable dosages in California are 0.5 mcg.
Cadmium	Fragile bones, damage the kidney and nerve. Dosages that is allowed is 4.1 mcg.

The chocolate is actually made from the cocoa seeds, which are good for the body. But the heavy metals are using and deducting the goodness of the cocoa seeds. Metals that are heavily injurious to our health, when used in food supplements, are like Chocó bars, frequently consumed by the youth. Nowadays, in parties, social gatherings and festivals, chocolate and chocolate bars are used as gifts; one should be aware of the concentration and its impact on our health. Dark chocolates are also associated with good brain function, good blood pressure, and improved heart condition.

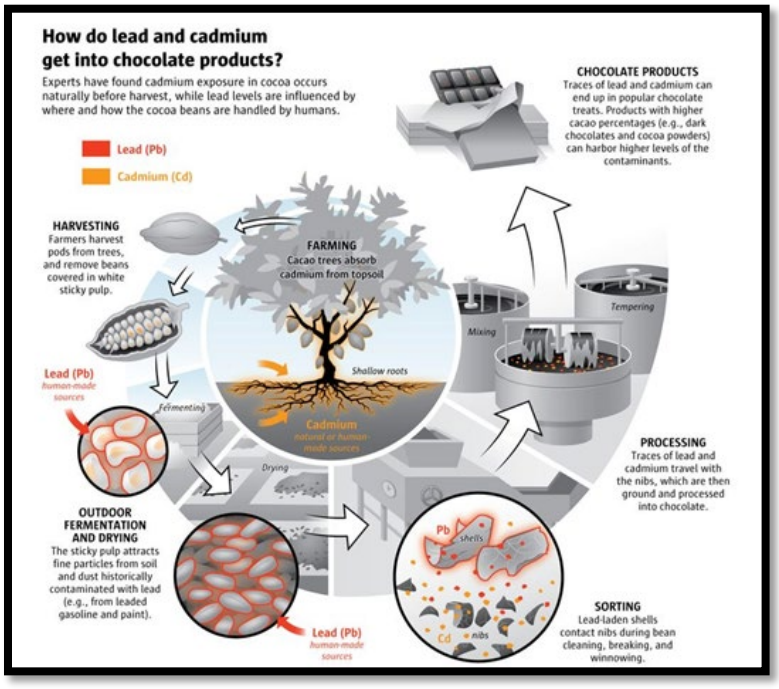

Figure 1: Chocolate products harming nature

The heavy metal like cadmium is a good reason for kidney damage, bone loss and heart problems in children and adults. Most importantly, cadmium is considered a cancer agent in our bodies. Consuming large amounts of metal can damage the kidneys, nerves, brain, and bones. Harming and causing health issues in response to this, the NCA (THE NATIONAL CONFECTIONER ASSOCIATION) gave the statement that dark chocolates and cocoa are completely safe to consume as they act as anti-depressants. However, in the current scenario, dark chocolate cannot be considered a safe option, as it contains more than 0.2% heavy metals, which can lead to severe health issues. The state of California affirmed that having more than 0.5 micrograms of lead and 4.1 micrograms of cadmium is not good.

TRENDS OF CHOCOLATES IN THE CURRENT SCENARIO

Current trends	Impact
Consumer behavior	Massive addiction can easily found and attraction towards its alluring package .An abnormal eating habit grows through in the consumer.

Market size	USD 116.11 billion worldwide, just like the consumer refers to Chocó bars and Milky Bars over and over again.
Growth rate	As a result of a large number of consumers and the coronavirus pandemic, the chocolate industry is experiencing a gigantic growth. 3.7% of annual growth in the global market with a huge success.
Online chocolate shopping	With the trends of online (garments, beauty products, groceries, etc.), chocolate bars have been sold online and counted as one of the most ordered items online lately.

Countries with a developing industry and a large number of youth, with this type of population, are key consumers of chocolate and milky bars . As research has proven, dark chocolate helps to calm a restless mind with the release of serotonin, and has gained a good reputation as an anti-depression. So, it has its own goodness of consuming and recuperates the exhausted mind. The global chocolate market, with impressive growth rate, size was estimated at USD 113.16 billion in 2021.

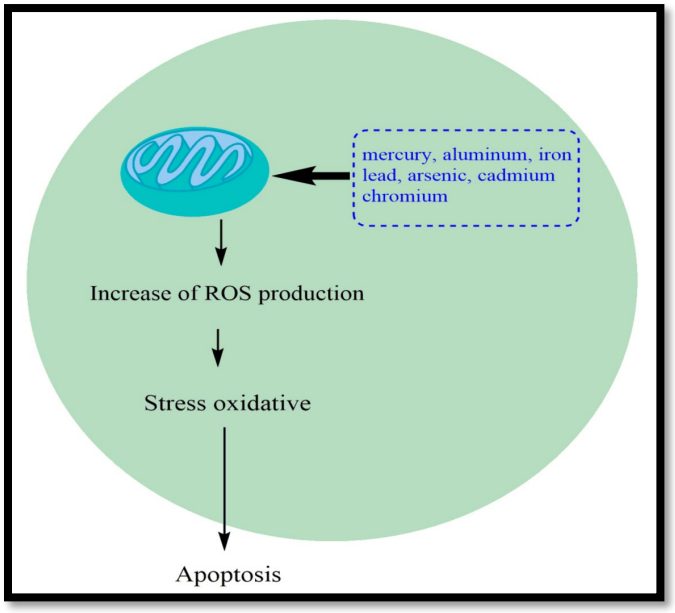

Figure 2: Harmful elements make the chocolates absorption more harmful

The harmful elements make the absorption of the chocolates more harmful and require proper awareness related to it. With so many good reasons and with the fact that it helps to improve our health, consumption meets global success. Moreover, it's the COVID-19 pandemic; during that time period, people grew more interested in dark chocolate products.

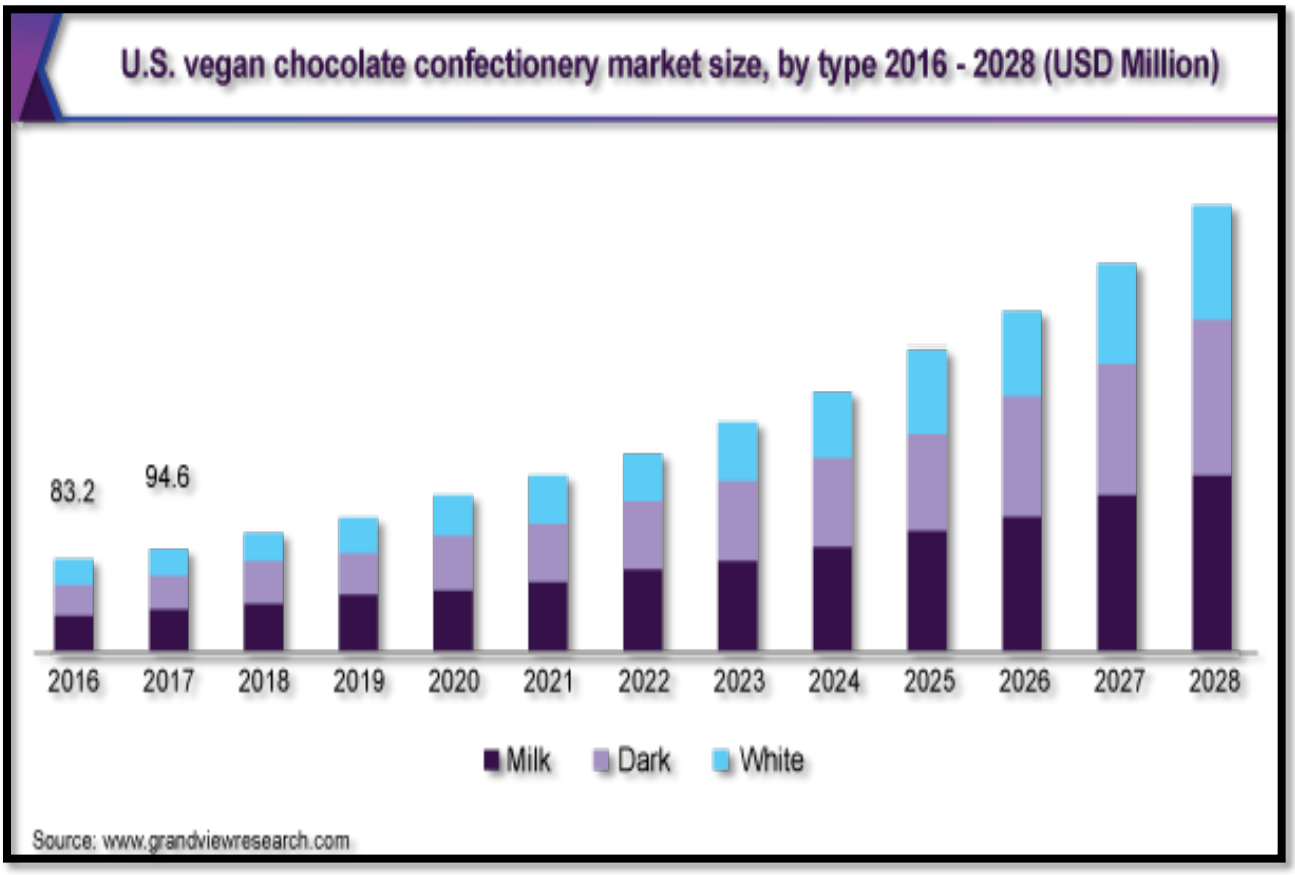

Figure 3: The increase in consumption of chocolates

THE EFFECT OF HEAVY METALS AND REACTION IN OUR BODY

No amount of heavy metals is ever considered safe, most importantly for children. Children with their growing bodies and brains are in grave danger from having these foods with heavy metals like lead and cadmium. Scientists stated that dark chocolate contains a concentration of lead and cadmium, and it increases the chances of damage to kidney and brain functions. Its essential goodness as an anti-depression is no longer there.

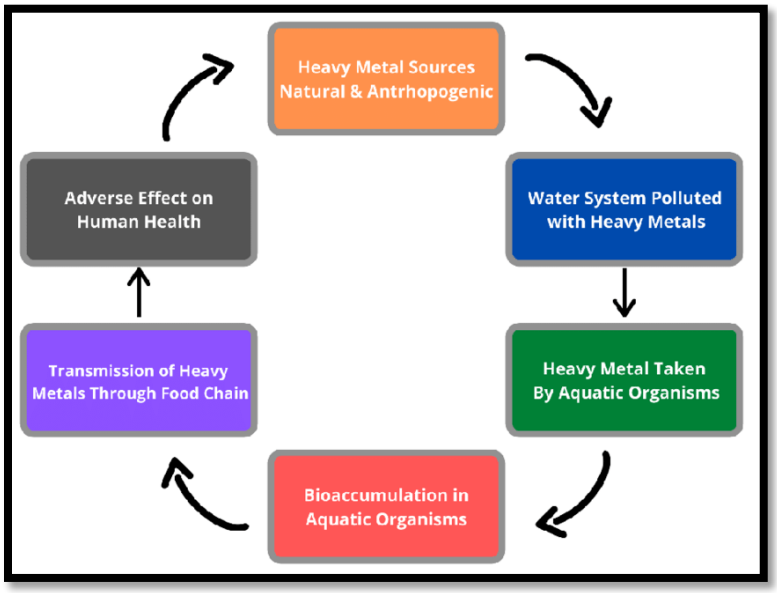

Figure 4: Lead and cadmium exhaling problem

Lead and cadmium can cause severe damage to our health, for instance, vomiting, breathing problems, very fragile bones and in worst cases, even cancer. As a result of these fatal diseases, the government and the authorities have banned the use of these heavy metals for good. To know more, the gasoline authority banned the usage of cadmium in the soil.

4. PROBLEM STATEMENT

One of the problems one might have is the lack of well-informed sources, very problematic to find an authentic resource with accurate information. As the research progresses, many things stick, such as reliability, authenticity; moreover, the right way represents the whole thing at once. However, it is as simple as its seem to be, write with truthfulness and prioritize the public interest first. From beginning to end, the dominant fear made the points clear and understandable to all, using simple language.

5. CONCLUSION

In the conclusion to this paper, the dark chocolate bars, candy and sweets are being consumed by almost all, may not just be guilty as they have been taken as a food product, gaining weight, and a delicious supplement. Moreover, it is food that increases chance of stroke, fragile bone, cholesterol, heart disease and cognitive function etc.

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