The changing chocolate marketplace is raising the bar for quality and opening up opportunities for experimentation. Image Source: Pexels user **Kaboompics**

Late last month, chocolate lovers received welcome news: a new study published in *Heart* revealed that chocolate reduces the risk of developing atrial fibrillation, a common form of heart arrhythmia.[1] By examining data from the Danish Diet, Cancer and Healthy study, researchers found that people who consumed 1-3 servings of chocolate once a month had a 10% lower rate of new atrial fibrillation diagnosis than those who ate less than one serving a month. What's more, the rate of diagnosis reduced "17% for one weekly serving, 20% for two to six weekly servings, and 14% for one or additional daily servings."["Chocolate May Reduce Risk of Developing Common Heart Arrhythmia", May 24, 2017, https://www.forbes.com/sites/robertglatter/2017/05/24/chocolate-may-help-reduce-risk-of-developing-common-heart-arrhythmia/#6fbea37e3faa]

These findings add to a growing body of research suggesting that chocolate has the potential to protect cardiovascular health. Although most research thus far has focused on dark chocolate, the new study included both dark and milk chocolate. This follows data published in 2015 indicating that any type of chocolate reduces the risk of heart disease.[2] And while doctors aren't entirely sure why chocolate appears to benefit heart health, but they do have guesses. As Dr. Howard LeWine, chief medical editor of Harvard Health Publications, says, "It may be related to flavonoids, a type of antioxidant produced by plants. Flavonoids have been shown to help lower blood pressure, improve blood flow to the brain and heart, and fight cell damage."[3]

This new recognition of the health benefits of chocolate also has clear benefits for the chocolate industry, allowing for new product and marketing opportunities and changing the way the public perceives sweet treats. Dark chocolate is already outpacing milk in terms of growth, attributed

largely to growing awareness of its impact on cardiovascular health. But Katrina Markoff of artisan chocolatier Vosges Chocolate believes there's more to the story. "Dark chocolate has health benefits and that is a source of appeal, but I also believe people's palettes are really becoming more sophisticated," she says. "There is more awareness and curiosity about milk and dark and even different specific varietals."[4] Indeed, the high-end chocolate market has exploded in recent years, spurring major players like Nestle to develop premium offerings while also opening up the door for a niche bean-to-bar industry.

In this changing environment, there is more pressure on both industry old-timers and newcomers to produce chocolates of the highest quality. At the same time, public acceptance of new and novel products means there is also plenty of room for experimentation. And whether you are refining traditional treats or inventing new concoctions, measuring the color of chocolate is now more important than ever before.

The color of chocolate gives consumers important clues about taste and quality. Image Source: Pexels user **Pixabay**

The Importance of Chocolate Color

The color of chocolate is essential to its appeal. After all, chocolate is so strongly associated with a color but the word itself suggests a hue. But, of course, chocolate comes in a broad range of shades, from creamy whites to the darkest browns. The exact shade of each batch is determined both by its raw ingredients and its processing and each chocolatier has different standards for what they want their chocolates to look like. Because consumer expectations of taste and quality are strongly shaped by chocolate color, monitoring this variable is essential to producing the most appealing products.

While high-quality chocolate may come in a variety of shades, there is one color phenomenon that must be avoided: fat bloom. The development of this white layer is “not only visually unappealing but also impacts the flavor and textural qualities, which are important determinants of consumer preference.”[5] Fat bloom may be the result of processing errors, recipe design, temperature fluctuations, or poor important to understand when and why it is occurring to hone in on the problem and implement corrective action.” Continuous color monitoring is vital to identifying the presence of fat bloom as early as possible as well as determining its cause.

Spectrophotometrically measuring the color of chocolate provides the greatest level of insight into product color and appearance. Image Source: Pexels user **Markus Spiske**

Measuring the Color of Chocolate Spectrophotometrically

So how do you measure the color of chocolate? Using the sophisticated technology of spectrophotometers. These remarkable instruments allow you to collect precise data about chocolate color behavior throughout the production process. The color of raw ingredients and finished products may be analyzed with the highest degree of accuracy regardless of material form; the color of liquids, powders, and solids can be easily captured and recorded.

Using the data provided by spectrophotometric measurements, you can create the standard to which you want products to conform and set your personal tolerance parameters. Subsequent batches will then be compared to this data, automatically alerting you to any color variations that fall outside your chosen tolerance. This instant feedback gives you the opportunity for early intervention when undesirable coloration is detected. Not only does this allow you to contain the

defective product, but it can also provide invaluable clues regarding recipe faults, processing errors, and potential contamination. This is particularly true when spectrophotometers are integrated throughout the production process, monitoring color at each stage of manufacturing, as well as analyzing the color behavior of finished and stored chocolates. At a time when cocoa supply is tightening and prices are predicted to surge, being able to quickly take corrective action and minimize waste is an important step toward stabilizing costs.[6]

HunterLab Quality

In today's changing chocolate marketplace, quality is more important than ever. Seeking out the most advanced color measurement technologies is vital to ensuring that your products are of the highest caliber to optimize consumer appeal. At HunterLab, we understand that color can make or break food products, which is why we offer a comprehensive range of spectrophotometers designed with the unique needs of the food industry in mind. Our user-friendly portable, benchtop, and in-line instruments allow you to easily integrate sophisticated color measurement tools throughout your production process in a way that makes sense for you. Contact us to learn more about our renowned spectrophotometers, customizable software packages, and world-class customer service and let us help you choose the right instruments for your needs.

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