Why Do Chilies Burn? A Rainy Day Tale of First Spice

It was raining in Bangalore, and I went to a hotel to drink coffee and enjoy the rainy moment.

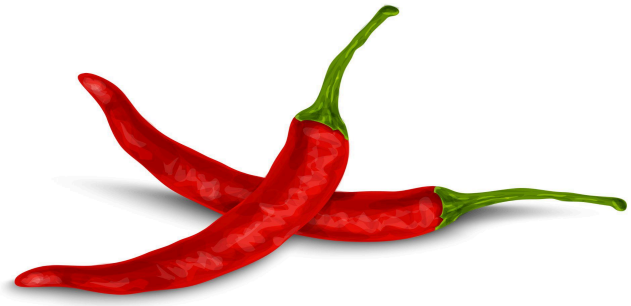
I sat on the window-side seat, enjoying my coffee, when suddenly I heard a voice say, "Ah." A kid was enjoying her soup.

A small hotel table, a bowl full of steaming hot soup, and a little kid about to discover what "spicy" truly means for the very first time.

She took her first sip... and suddenly, her face turned red, her eyes welled up with tears, and she cried out, "Mom, why is my mouth on fire?"

And just like that, a little story that uncovers the science behind why chilies feel so hot and what exactly causes that fiery sensation on our tongue.

Do you enjoy dishes that make your eyes water and your nose run? If so, it's due to **Capsaicin**, the compound that gives them their spicy flavor.



What does “spicy” actually mean? From a culinary and sensory perspective, tastes — including bitter, salty, sour, sweet, and savory — are sensations transmitted to the brain by the glossopharyngeal, facial, and vagus nerves.

The sensation of “spiciness” is detected by the trigeminal nerve rather than the taste buds. Spicy foods can cause pain, a burning feeling, or even numbness, depending on their Scoville Heat Units (SHU). This is because they contain Capsaicin, the bio-active compound that binds to pain receptors and causes an intense burning sensation, which irritates and stimulates the nociceptors in the mouth.

These factors contribute to a phenomenon known as chemesthesis, which refers to the chemical sensitivity of the skin and mucous membranes. In simpler terms, while spicy food induces a painful sensation, many of us seem to willingly endure this discomfort for the enjoyment it brings.

Spicy dishes are not only important for their flavor and cultural significance in various regions of the world, but they also offer nutritional benefits. For example, green chili peppers contain a higher concentration of vitamin C than lemons and other citrus fruits, while red chili peppers have more vitamin A than carrots. It is rich in minerals and antioxidants, which can aid in the nutritional enhancement of marginalized individuals.

However, Higher consumption of spicy foods may induce stomach fullness and worsen symptoms of ulcerative colitis (UC), which was found to be especially true in young women. That's why many doctors suggest that patients with UC decline from spicy food.

Conclusion

Spice isn't just a taste; it's a sensation caused by capsaicin activating the pain receptors in our mouths. Although it can feel like it burns, we often crave it for the flavor, excitement, and health benefits it offers. However, while enjoying spicy foods can be thrilling, it's important to consume them in moderation, as excessive spice can irritate sensitive stomachs or worsen certain health conditions.

Reference

1. The Neuroscience of Spicy Food Article · March 2019
2. Chili Chapter · January 2020