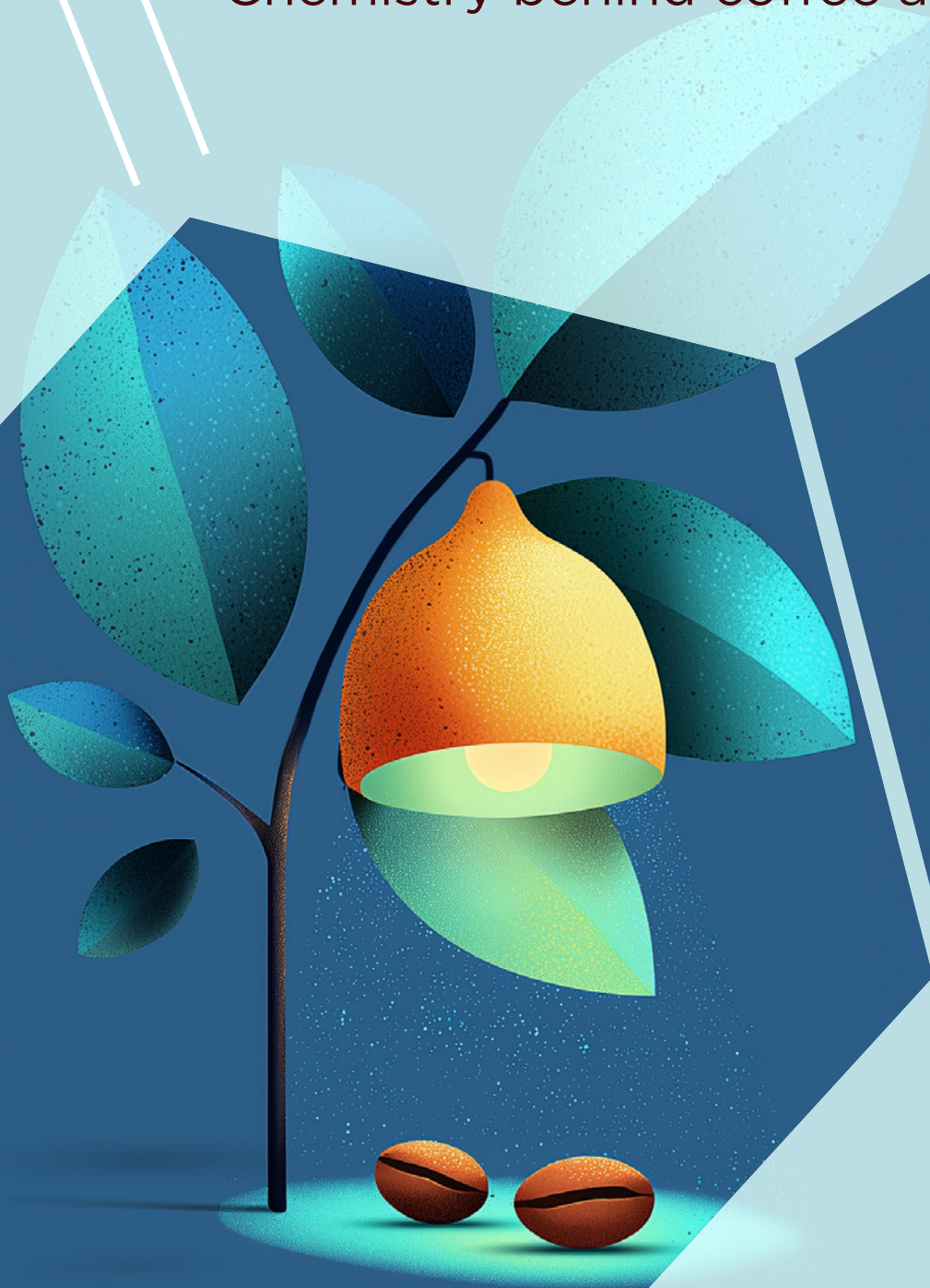


Beyond the cup

Organic Acids in Coffee

Chemistry behind coffee acidity.



RESEARCH &
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ABSTRACT

Coffee acidity is one of the most distinctive yet often misunderstood attributes of coffee flavor. It results from the interaction of organic acids, chlorogenic acids and other compounds that evolve from green beans through roasting and brewing. Their balance is influenced by origin, processing, roasting and extraction conditions. Rather than being linked to a single molecule, acidity perception emerges from the complex chemical matrix of coffee, helping explain the remarkable diversity of acidity profiles across coffees and brewing methods.

PART 1

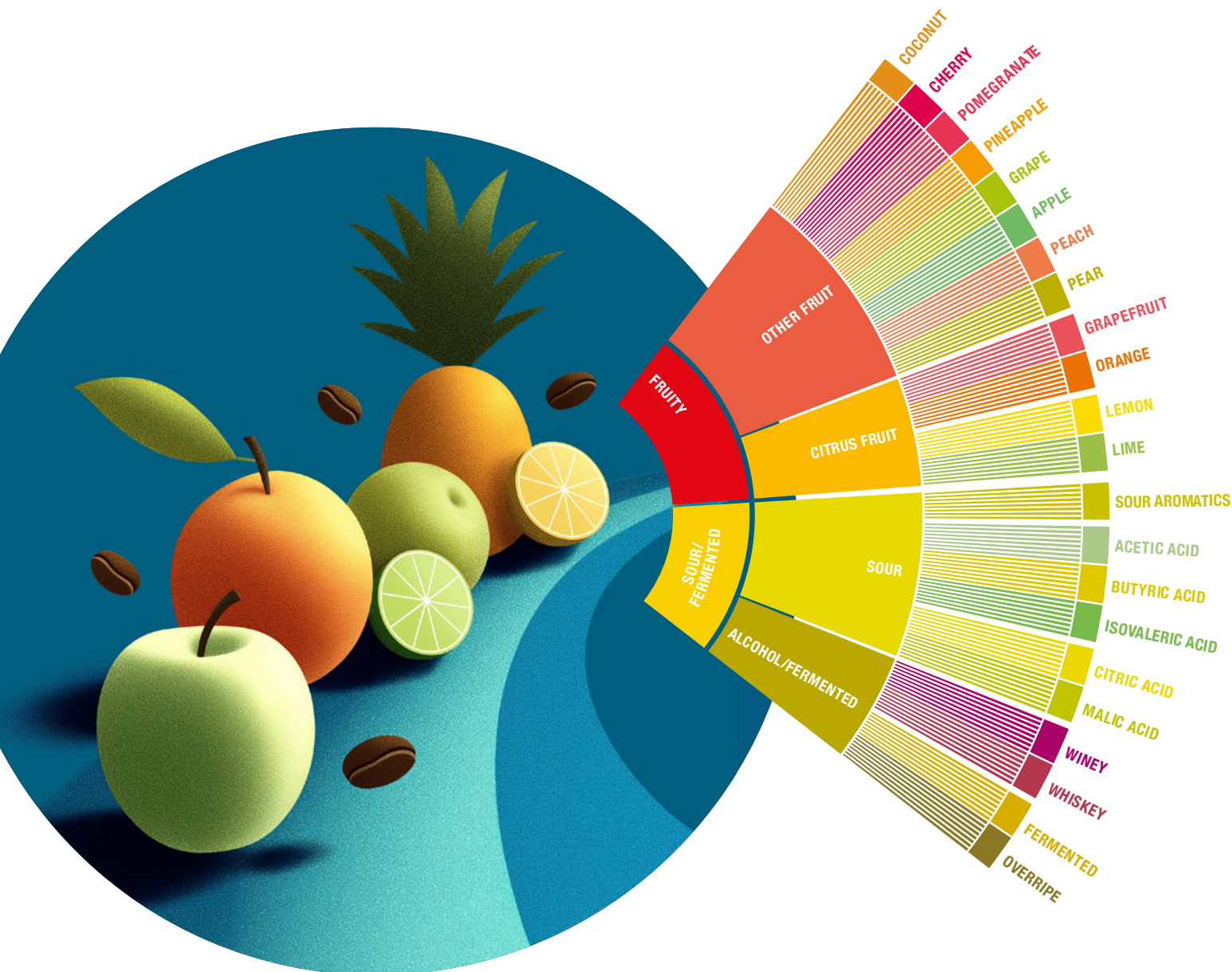
The bright paradox: understanding acidity in coffee



From sour to sparkling: why acidity divides us but defines great coffee.

Most people love a squeeze of lemon in their tea. But in coffee? Sourness is far more controversial.

I remember a washed Ethiopian brewed on a V60 during a cupping. The first sip was electrifying - clean, sharp and citrus - bright. I loved it. The woman next to me winced: "too sour", she said. Two tasters, same cup, opposite reactions. And that's the paradox of acidity in coffee.



What are we talking about?

In coffee, “acidity” doesn’t always mean what it sounds like. Chemically, it refers to the presence of acids in solution. Sensorially, it refers to the perception of sourness on the tongue. But in coffee language, acidity is often used as a positive descriptor - “bright”, “crisp”, “lively” - even though most people associate “sour” with unpleasantness.

Coffee professionals love acidity. It gives clarity and complexity. Without it, coffee can taste flat, bitter, hollow.

But consumers often recoil from the term “sour”. We crave balance, but we disagree on where that balance lies.

The science of sour

Coffee is a naturally acidic beverage, with a pH around 4.8 to 5.2 - less acidic than orange juice or soda, but more acidic than milk. However, pH alone doesn't tell the whole story.

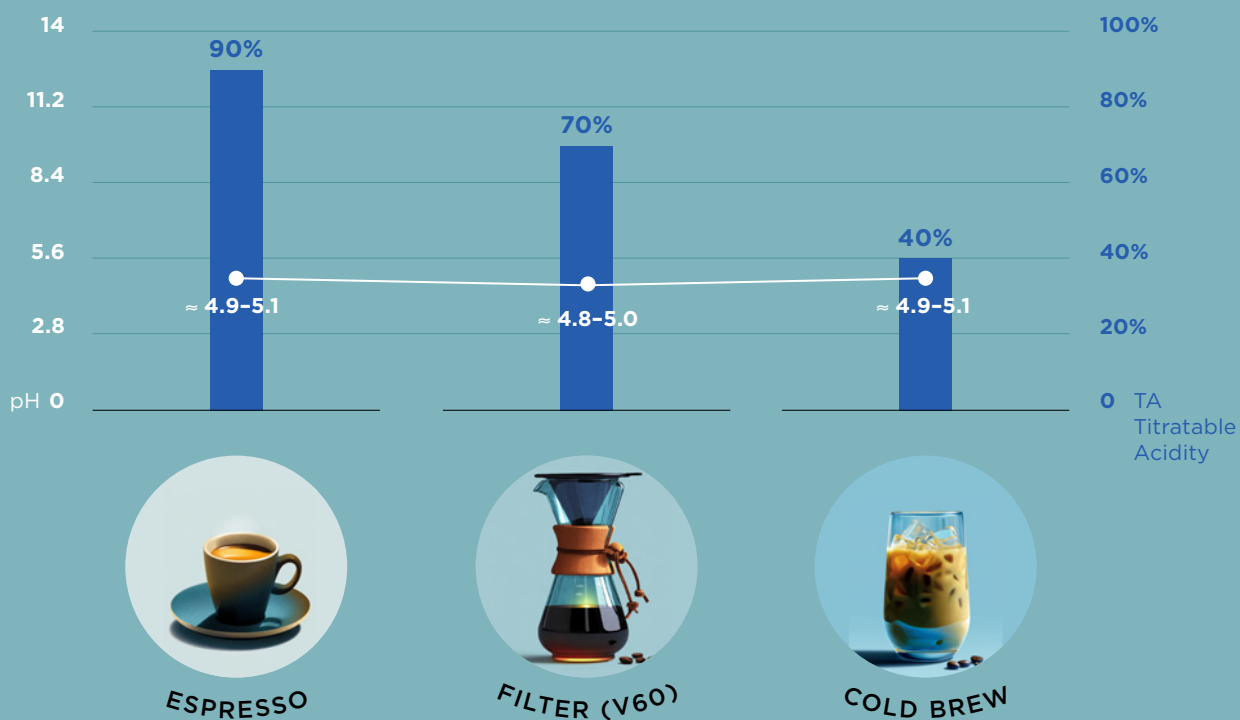
A better predictor of how “bright” or “sour” a coffee tastes is **titratable acidity (TA)**: a measure of how many acid molecules are present and how strongly they react.

TA correlates better than pH with perceived sourness, especially in filtered brews.

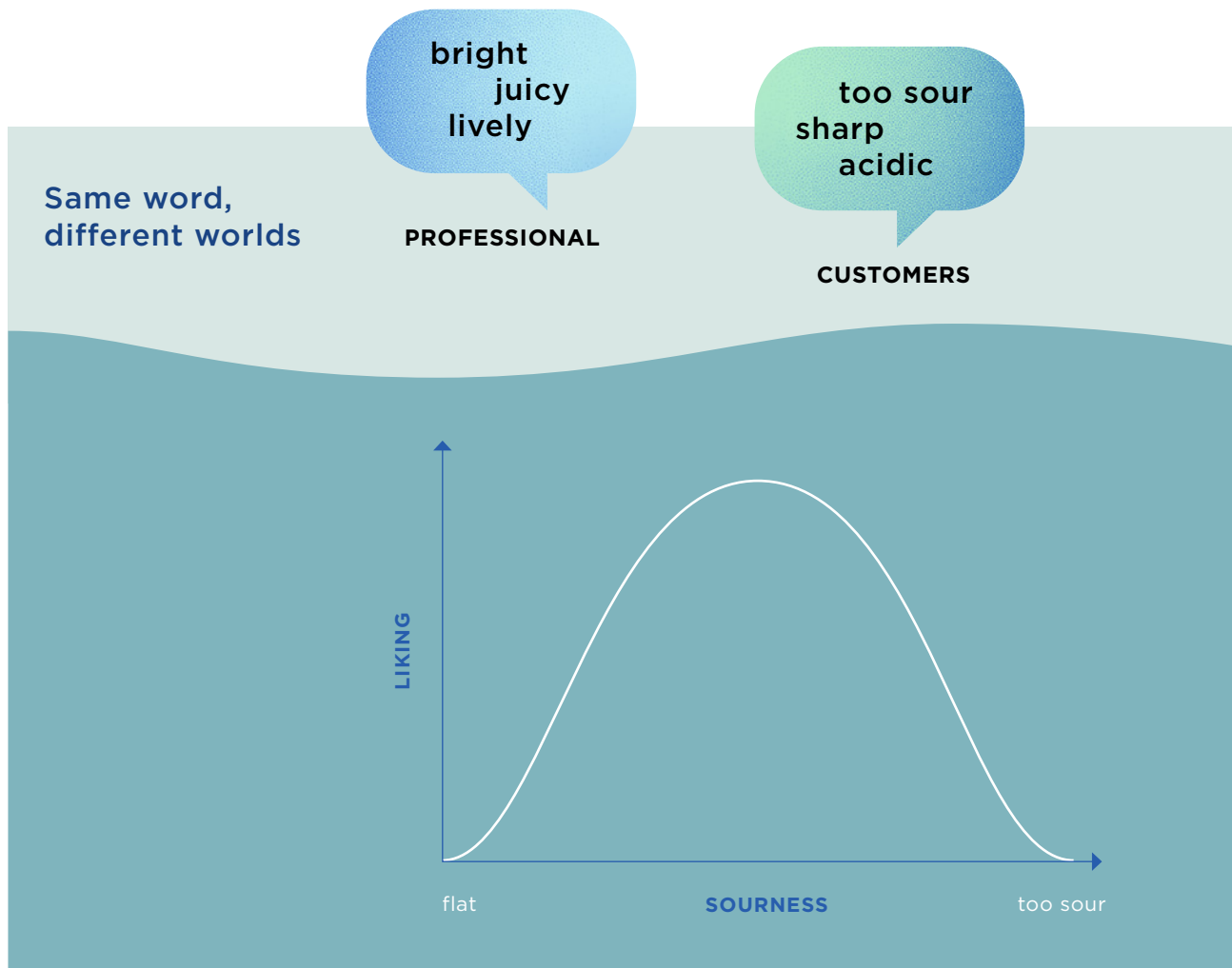
But even TA can't account for everything. Aroma compounds, sweetness and even texture influence how we experience acidity.

Fruity volatiles can *enhance* sourness perception, while body and sweetness can *suppress* it.

pH vs Titratable Acidity: What influences flavor perception?



Values are relative and represent schematic trends reported in the scientific literature.
Actual values may vary depending on coffee origin, roasting degree, brewing method and analytical conditions.



The U-shaped curve of enjoyment

Sensory scientists talk about the **“inverse U-shaped hedonic curve”**: we like a bit of sourness more than none, but too much is off putting.

A touch of acidity balances sweetness and bitterness. But when acidity dominates, the experience becomes sharp, aggressive, even metallic.

This is why some of the most beloved high acid coffees (like Kenyan or Colombian washed Arabicas) are best appreciated when brewed well, with controlled extraction and temperature.

The same beans, poorly roasted or under-extracted, can cross the line into unpleasant territory.

Cultural taste, roasting choices and naming games

In specialty coffee, we often mask the term “sour” with euphemisms: **“juicy”, “tangy”, “vibrant”**.

The goal is to describe acidity without triggering negative associations. This is especially relevant when marketing to broader audiences.

Roasters also control acidity by roast degree. Light roasts preserve organic acids and highlight acidity. Medium roasts balance brightness and sweetness. Dark roasts mute acidity but increase bitterness and body.

This is why many dark-roast lovers prefer Brazilian or Indonesian coffees: lower in acidity, richer in body.

Why does it matter

Understanding acidity helps us appreciate coffee more deeply. It tells us about the coffee's origin, process, roast profile and brew. It also helps us describe flavor more precisely, whether we're cupping, training a team, or just savoring a morning pour-over.

The next time someone says a coffee is "too sour", try reframing it. Is it *unbalanced*, or just unexpected? Is there sweetness to round it out? Acidity is not the enemy. It's the spark that brings coffee to life.

Key Takeaway:

The perception of acidity in coffee depends not only on pH, but more strongly on titratable acidity (TA) and complex interactions with sweetness, bitterness and aroma. A moderate, balanced acidity enhances flavor clarity, while excess acidity can overwhelm. This is why high acid coffees shine when roasted and brewed with care.