

## Sour

Sour, tart tastes are caused by acidic compounds in foods, and as with sweet and salty tastes, we're hardwired from birth to react to them. Similar to how we taste salt, the sensation of sourness is detected via ion channels located on sour taste receptors that interact with an acidic compound's hydrogen ions. Quite literally, your sour taste receptors are primitive chemical acidity detectors. Hydrogen ions trigger sour taste receptors; the more taste buds that are firing, the more sour a food will taste.

Humans are unique in our enjoyment of sour foods. Like bitter tastes, sour tastes are an indicator of potentially dangerous foods; in this case the aversion prevents us from consuming spoiled items. How we came to enjoy sour tastes is a small biological mystery. Somewhere in our past we lost the ability to synthesize vitamin C, likely from regular consumption of fruits high in it; one theory for our learned desire to eat sour foods centers on ensuring that we ingest enough vitamin C to avoid diseases like scurvy.

Regardless of why, we learn to enjoy sour tastes as we mature. Some items—mostly fruits—are naturally sour due to their chemistry. Ascorbic and citric acids in citrus fruits like lemons make them unbearably tart, a reasonable defense against any herbivore that doesn't know how to cook. Malic acid, common in apples, gives them a delicious tartness. Other foods become sour from spoilage: yogurt, vinegar, fermented pickles, kimchi, and sourdough bread all rely on fermentation, which generates deliciously spoiled food along with sour-tasting acids like lactic acid and acetic acid.

Of course, there are exceptions and complications to the "acids taste sour" rule. Acids are compounds that can lend out a hydrogen ion, but other regions of a compound may be able to match other taste receptors. Glutamic acid tastes savory; picric acid is bitter. And how quickly we detect sourness can vary by the type of acid, similar to how some sugars are quickly detected while others take time to register. Sour-tasting items can have different onset times and linger for varying durations, based on the chemistry of the ingredients. Citric acid is very quickly detected, giving a quick burst of sour flavor; malic acid, however, has a slow onset and lingers. Food manufacturers use this to clever effect, combining multiple acids to generate a sour taste profile that has the desired intensity over time.

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- Tips**
- Taste dishes toward the end of cooking and check the balance of both saltiness and sourness, adding an ingredient such as lemon juice or vinegar to "brighten up" the flavors.

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- To make something sourer**
- Add lemon juice, vinegar, or sour-tasting ingredients (see page 63).

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- If a dish is too sour**
- Increase sweetness to mask.
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