



Supertaster

Do we all experience exactly the same flavours?

Stock items	Consumables
Bin bags	PTC strips

Presenting ideas

- Do you know what a supertaster is?
- Do you know why supertasters are important in the food industry?
- Do you think you might be a supertaster and if so, why?
- What are the 5 different types of taste?
- Do you think an apple tastes the same to me as it does to you and why?

If your *edible explorer* wants to find out if they're supertaster, ask them to take one PTC strip out of the container and place it on their tongue and close their mouth. Tell them not to swallow it and they're free to take it out of their mouth at any point. If they instantly taste something bitter, they're a supertaster. If it takes a few seconds and they can taste a small amount of bitterness, they're a medium taster. If they can taste nothing at all, other than the paper, they're a non-taster.

What's the chemistry?

Not everyone experiences taste in the same way and some people are notoriously fussy! So why don't we all like the same foods? It's because we all perceive taste in different ways.

Foods react with taste receptors mainly found on our tongue. These receptors, found on taste buds, help to identify whether you're detecting sweetness, sourness, saltiness, bitterness or umami. Umami is Japanese for 'savoury' and people taste this through receptors that respond to glutamate. Glutamate is present in foods such as meat, cheese and soy sauce and it can be added to foods in the form of its salt called monosodium glutamate or MSG.

Supertasters typically have a higher density of fungiform papillae, mushroom-shaped protrusions on the tongue, that contain taste buds. Supertasters can have up to twice as many taste buds as the rest of us and they're far more sensitive to bitterness in particular. It's not that non-tasters don't have a very good sense of taste, rather that supertasters are far more sensitive and have highly-tuned palates. It's no wonder that a relatively high proportion of top chefs are supertasters.



The
University
Of
Sheffield.

Researchers have divided people into three groups;

Non-tasters = 25 % of the population

Medium tasters = 50 % of the population

Supertasters = 25 % of the population

These proportions are only a rough guide. Women are more likely than men, and children are more likely than adults to be supertasters. Non-smokers and those who don't regularly drink tea and coffee are more likely to be supertasters too.

The strips contain a chemical called phenylthiocarbamide (or PTC) and supertasters find it horribly bitter. Medium tasters sense a small amount of bitterness and non-tasters can't taste a thing. That's because supertasters possess a gene (TAS2R38), a bitter taste receptor, which allows them to detect PTC.

It's a dominant genetic trait and in fact, the correlation is so strong this taste test was used as an early paternity test.

Scientists believe the supertaster gene is from our evolutionary past, warning us against eating unsafe foods and recent research has uncovered some surprising health consequences of being a supertaster. People who are supertasters have a slightly elevated risk of developing colon cancer. Scientists believe this is because they tend to eat less vegetables and tend to veer towards salty tastes, which masks bitterness. However, it's been found that supertasters generally have a lower body mass index (BMI), possibly because they don't like the taste of fat.

Taste helps us to interpret the chemical world around us, but we're all different. If you find green vegetables and coffee too bitter or ice-cream too rich, then you might be a supertaster. Take the test and find out!

Jo's Top Tips

You can buy PTC strips online in packs of 100. I tend to buy them in bulk, as it works out much cheaper.

PTC is toxic, but it's been calculated that each test strip contains just 0.007 mg of PTC, far below the toxicity level (even for children, they'd need to eat tens of thousands of strips to approach the LD50). However, I only allow participants to do this test once. And tell them not to swallow the paper.

This works really well with large groups of people, as you can get them to take the test simultaneously. To make sure no one's unconsciously bias, get them to close their eyes and raise their hand when they taste something. Do your findings fit the ratios the researchers have discovered?

When you have a head cold, food tastes different. That's because you're not detecting as many of the volatile molecules that whizz up your nose, as your sense of smell is impaired. The overall flavour profile of foods is connected to the interactions between our senses of taste and smell. Try tasting foods whilst holding your nose. Apples and raw potatoes have similar textures and taste exactly the same with your nose plugged. Or cut a pear in half and hold it under your nose whilst eating an apple. What can you 'taste'?



The
University
Of
Sheffield.