#FactsMatter

Food that gets you hooked "Hyperpalatable" foods are said to have been engineered to be addictive. But do they even exist? **James Wong** investigates

James Wong is a botanist and science writer, with a particular interest in food crops, conservation and the environment. Trained at the Royal Botanic Gardens, Kew, he shares his tiny London flat with more than 500 houseplants. You can follow him on Twitter and Instagram @botanygeek

James's week

What I'm reading
Oryx. *The journal is a fascinating window onto the complexities of conservation science.*

What I'm watching
David Attenborough smashing it, yet again, on Seven Worlds: One Planet *on the BBC.*

What I'm working on
After attending an inspiring conference on ending hunger, it is back to writing, lecturing and a couple of radio jobs.

This column appears monthly. Up next week: Chanda Prescod-Weinstein

IN THE secret labs of corporate giants, scientists are engineering foods with "hyperpalatable" formulas to hijack our brains' reward mechanisms, turning us into addicts for their products.

This claim has been the subject of books, documentaries and the columns of "investigative journalists", and is continually amplified by social media. According to the narrative, the driving force behind the rise in obesity rates in recent decades is the hyperpalatability of certain modern formulations of food, specifically designed to trigger a psychological "bliss point" where those who consume them lose all self-control. As stories go, it has it all: deception, intrigue and a link to your everyday life. But how much of it is backed by science?

Are there universal formulations of ingredients that can be deployed to trigger this response, causing food to act more like a drug? Perhaps surprisingly, given the frequency with which the term is used, even in academic literature, there has been little attempt to define what exactly constitutes hyperpalatability. Nebulous descriptions like "loaded with sugar", "fat-filled" or cultural labels like "fast food" or "junk food" have filled the void.

Given that people are referring to incredibly precise ubiquitous formulations of foods, it does seem surprising that there doesn't seem to be any clear record for these in the scientific literature.

To tackle this issue, a team at the University of Kansas Medical Center set out to define clear criteria for hyperpalatability for the first time. Trawling through thousands of studies, this month they identified examples of such foods – from biscuits to macaroni cheese – and analysed the make-up of their ingredients using nutrition software. Perhaps unsurprisingly, their results didn't report a single "magic bullet" recipe, but three clusters of loose formulations that matched the nebulous descriptions.

First up were foods in which more than 20 per cent of the calories came from both fat and sugar, such as cakes, cookies and pancakes. No surprise there.

Then there were foods in which more than 25 per cent of their calories came from fat and which contained more than 0.3 per cent sodium (from salt) by weight. This tended to include mainly meat,

"Brownies fit the idea of a 'hyperpalatable' food, but so does a large baked sweet potato and a quarter of an avocado"

dairy or egg products such as bacon, omelettes and cheesy dips. Finally came foods with more than 40 per cent of calories coming from carbs and containing 0.2 per cent or more sodium by weight, like pasta and breads.

Looking at these results, it may be surprising how many diverse foods match the criteria for what is often described as an incredibly precise, modern formulation. Indeed, given that salt is used universally in savoury foods and carbohydrates and fats are the two key energy sources for our species, the two clusters based on fat and salt or carbs and salt cover a lot of everyday meals.

A plain grilled steak, for example, would meet the criteria, as would a bowl of brown rice, as long as both were seasoned enough. This doesn't exactly fit the narrative of hyperpalatability as a modern spectre concocted in the labs of big processed food manufacturers.

Indeed, when the researchers compared these clusters to a database of everyday foods eaten in the US, they found that 62 per cent of all entries matched these criteria. This even included vegetable dishes such as carrots served with butter. After all, vegetables are so low in calories that you don't have to add much fat to make this more than 25 per cent of the dish's energy, turning them instantly into allegedly drug-like hyperpalatable foods.

Even the category of foods that derive at least 20 per cent of their calories from sugar and fat is a pretty open one. Brownies fit it perfectly, but so could a large baked sweet potato and a quarter of an avocado. In fact, this "clean eating" meal could match all three clusters depending on seasoning, making it an archetypical example of a hyperpalatable food too.

What this reveals is that, despite being pitched as a modern corporate evil, food combinations such as salt and fat, or sugar and fat, are also home-cooking techniques that predate the modern rise in obesity, and aren't necessarily unhealthy either.

So is there really much more to the term hyperpalatable than just being tasty?

It is important to point out that this field of research is new, with a 550 per cent increase in published papers in the past 20 years. Indeed, even the claim that food can be addictive in the same way as drugs like cocaine are is still raging in academia. As we have only just figured out a definition of hyperpalatability (or should that be definitions?), it is strange how bold the media claims have often been. I, for one, can't wait to find out what further research uncovers. ∎