Prunus persica in science, literature, and art

Professor Charles Spence, Crossmodal Research Laboratory, University of Oxford

charles.spence@psy.ox.ac.uk

Competing Interests Statement. The author has no competing interests to declare.

Contemporary food scientists may find inspiration, just as, over the centuries, various writers and painters have, in the delicious, multisensory complexity of a ripe peach.

Introduction

French gastronome and polymath Jean Anthelme Brillat-Savarin (1835), English psychologist, Edward Titchener (1909), British novelist Roald Dahl (1961), and Californian farmer David Mas Masumoto (2003), all chose to describe the multisensory pleasures of eating a peach over those associated with any other fruit in their writing. Though I make no claims for the visually-perfect, but frequently flavourless, supermarket peaches of today, nor for juiciness, or otherwise, of NASA's freeze-dried space peaches, one comes away with the sense that peaches (of the past, at least) offer a particularly rich sequence of, often contrasting, sensations to tantalize the tongue with taste, texture, and aroma – inspiring writers and artists, but less so contemporary food scientists.

The peach (*Prunus persica*) is a deciduous tree that was first domesticated and cultivated in Eastern China [1]. According to Harold McGee [2], the fruit reached the Mediterranean from China via Persia by around 300 BCE. By the 18th Century, it had already become very popular, with important public officials apparently serving them from handkerchiefs. Not long afterwards, Brillat-Savarin (1835) wrote that: "Whoever eats a peach, for example, is first of all agreeably struck by the smell emanating from it; he puts it in his mouth and experiences a sensation of freshness and acidity which incites him to continue; but it is not until the moment when he swallows, and the mouthful passes beneath the nasal channel, that the perfume is revealed to him, completing the sensations which every peach should cause. And finally, it is

only after he has swallowed that he passes judgment on the experience, and says to himself “That was delicious!”” [3].

In the opening decade of the twentieth century, Edward Bradford Titchener, Professor of Psychology at Cornell University in The States, and one of the founding fathers of the field of experimental psychology, hinted at the unified multitude of sensations that are to be experienced when enjoying a peach, writing in one of his books that: “Think, for instance, of the flavour of a ripe peach. The ethereal odor may be ruled out by holding the nose. The taste components—sweet, bitter, sour—may be identified by special direction of the attention upon them. The touch components—the softness and stringiness of the pulp, the pucker feel of the sour—may be singled out in the same way. Nevertheless, all these factors blend together so intimately that it is hard to give up one’s belief in a peculiar and unanalyzable peach flavour. Indeed, some psychologists assert that this resultant flavour exists” [4]. It is unclear whether Titchener is referring here to the orthonasal or retronasal odour of the peach, or perhaps to both; One might even question whether the German-trained psychologist was necessarily aware that there might be a difference between the two.

According to the latest research, the ethereal odour of a peach is comprised of a volatile network of some 110 different volatiles [5]. Peaches tend to have an unusually high concentration of creamy-scented volatiles in their aroma profile [6]. Harold McGee notes how the lactones can sometimes give the fruit the distinctive aroma of coconut [2]. Certainly, given the claim that 75-95% of what we think we taste we actually smell [7], the aroma would appear to be a key component in the pleasure associated with the whole fruit. And yet, that being said, it is interesting to note how there is simply far less research directed at using peach aroma to enhance the sweetness of products [8], in the way that, say pomegranate aroma has been [9]. One of the challenges here though is that there are currently more than 700 varieties of peach, with scents that can vary all the way from sweet to sour [10].

The plot of Roald Dahl’s (1961) children’s novel *James and the Giant Peach* centres around the story of a young English orphan boy who enters a gigantic, magical peach, and has a wild and surreal cross-world adventure with seven magically-altered garden bugs he comes across. It turns out that Dahl was originally going to write about a giant cherry, but changed his mind, because he considered a peach "prettier, bigger and squishier than a cherry." [11].

More recently, David Mas Masumoto has written an elegiac book about the multisensory pleasures provided by the peaches grown on his Californian farm which opens with the line: “I remember peaches with aroma like a natural perfume, juices that dripped down my cheeks and a flavour that was slowly savoured.” [12]. Later, Masumoto draws attention to the “Stringy fibers of overripe peaches, dangling between your teeth.” Elsewhere, he writes that: “Yet I know of two types of ripe peach sounds. One is the noise of eating a peach: the breaking of the skin as the teeth sink into the flesh, the sucking of juices out of the meat, the first noisy chews with mouth open as the nectars wash our taste buds, and the smacking of lips and tongue.”

Descriptions of peaches are not only to be found in literature and food science. They often make an appearance in still life painting too: For instance, Paul Cézanne painted a number of still lives with peaches, as did Caravaggio. One of the paintings recovered from ancient Pompeii shows large, green peaches with yellowing flesh and a freestone pit, while in North America, artist Raphaelle Peale (1774-1825) also painted a number of works incorporating the fruit (such as his Still Life with Peaches, c. 1816). While Dutch Golden Age painter Adriaen Coorte (ca. 1665 – after 1707) composed various still life paintings with peaches, other Dutch painters of the period were often more interested in portraying sliced lemons than the fuzzy skin of peaches. This is because it was commonly believed that the mark of their success was if they could make their viewer salivate, and for that, they needed a most acidic fruit.

That said, fruits often appear in painting for their symbolic associations than their putative physiological consequences. For example, in Qing dynasty China, where the fruit originated, peaches symbolized immortality [13], the pomegranate was associated with sanctity, fertility, and abundance according to Judaism and, while it is worth noting that the Bible isn’t specific on this theme (it just says fruit), when it comes to Christian iconography, the apple undoubtedly takes precedence, with Adam often portrayed picking the proverbial fruit. And while it is the freshness of fruit that has typically been admired, the 18th century poet Friedrich Schiller idiosyncratically preferred to keep rotting apples in his study because he felt that the scent stimulated his creativity [14].

When it comes to illustrating the full deliciousness of flavour in all of its multisensory complexity, a case can be made that there is no more apposite choice than the taste (or rather flavour and texture) of a ripe, aromatic peach. And yet, despite all that, too many contemporary food scientists would appear to prefer to study much simpler multisensory food matrices. However, for those searching how to make healthy foods more sensorially appealing, perhaps

it is time to take inspiration from the delicious multisensory fruit that so evidently captured the interest of painters and writers over the centuries.

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FIGURE LEGENDS

Figure 1. **Dish of peaches c. 1894. Paul Cézanne**. Cézanne used the fruit merely as compositional devices [11]. This contrasts with the appearance of sliced lemons in many Dutch still life paintings. In the latter case, the aim was to make the viewer salivate. [Public domain: https://www.wikiart.org/en/paul-cezanne/dish-of-peaches.]