

Abstract:

Tomato slices are a common constituent of hamburgers, and most consumers expect their tomato slice to be red in colour. Unfortunately, this is often not the case. Many, if not most, tomato slices used by fast-food outlets in Australia are a light pink in colour, commonly with a pale white centre. The pigment responsible for the red colour in tomatoes is lycopene (Gross, 1987), a carotenoid of very high anti-oxidant capacity (Di Mascio et al., 1989). Lycopene intake has also been linked to a lower incidence in cancer, particularly prostate cancer (Giovannucci et al., 1995). For most Australians, tomatoes are the prime source of dietary lycopene, although lesser amounts are found in watermelon, guava, and red papaw (Mangels et al., 1993). As the redness of a tomato slice is a reasonable indication of its lycopene content, it is probable that many tomato slices found on hamburgers are not only visually unappealing, but also of reduced health benefit to the consumer due to the lower lycopene concentration present. One of the principal reasons for tomato slices being presented in a pink colour rather than red, is that 'semi-ripe' fruit tend to be less prone to mechanical injury and have longer shelf-life than their fully-ripe equivalent. Unfortunately, this saving is at the expense of visual quality and potential health benefit. This needn't be the case however. High lycopene tomatoes currently exist, incorporating a gene known as old gold crimson (ogc), which increases lycopene levels by 40-50%. Further increases to 150% can be attained using other genes, although at the expense of some agronomic characteristics which we are currently addressing. This paper presents a sampling of the current state of tomato slice appearance in the market, together with a comparison of high lycopene varieties.