Biology of flavorful orange juice

A “so what” story. That’s how I would label the enticingly titled “Juicy Secrets” investigation of “premium” orange juice by CBC’s Marketplace.

The program claims to reveal secrets that orange juice producers don’t want you to know. What secrets? Simply that some of the flavours lost during processing are added back into the juice. “A miracle of nature has become a miracle of manipulation,” goes the accusation. Actually, I would categorize it more as a significant achievement for modern science.

Anyone who has ever squeezed oranges and stored the juice will attest to dramatic changes in flavour within a few days. The flavour of orange juice is due to hundreds of compounds, with linalool, limonene, beta-phellandrene, terpinene-4-ol, ethyl-3-hydroxyhexanoate, geraniol, decanal, octanal, myrcene, citral, nerol, octanol and decanol being among the major components. Of course the exact composition varies according to the type of orange, climatic conditions and ripeness when picked. And chemical changes begin to occur as soon as juice is squeezed. Some compounds react with oxygen in the air, others are subjected to the activity of enzymes released during squeezing, natural yeasts present in the orange trigger fermentation and any bacteria present begin to multiply. If freshly squeezed orange juice were just sealed in a container and distributed, it would quickly spoil.

What consumers look for is good taste and safety. And the so-called “premium” products deliver that, thanks to a great deal of scientific research.

Read full, original article: The Right Chemistry: Thanks to science, we get orange juice all year