# Article information:

Microstructural changes enhance oxygen transport in tomato (Solanum lycopersicum) fruit during maturation and ripening - Xiao - 2021 - New Phytologist - Wiley Online Library  
<https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.17712>

# Article summary:

1. Tomato (Solanum lycopersicum L.) is a widely produced and consumed horticultural crop, and serves as a model organism for studying climacteric ripening.

2. During ripening, tomato fruit exhibits a rise in both respiration and ethylene production, which require oxygen in their final steps of biosynthesis.

3. X-ray micro-computed tomography (μ-CT) can be used to provide quantitative insight into changes of the 3D microstructure (including cells and intercellular spaces) of all fleshy tissues in tomato during final development and ripening.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable and trustworthy, as it provides an overview of the current research on tomato fruit maturation and ripening, including its physiological processes such as respiration and ethylene production. The article also provides detailed information on the use of X-ray micro-computed tomography (μ-CT) to provide quantitative insight into changes of the 3D microstructure (including cells and intercellular spaces) of all fleshy tissues in tomato during final development and ripening.

The article does not appear to have any biases or one-sided reporting, as it presents an objective overview of the current research on tomato fruit maturation and ripening. Furthermore, there are no unsupported claims or missing points of consideration in the article. All claims made are supported by evidence from previous studies, such as those conducted by Klee & Giovannoni (2011), Shinozaki et al. (2018), Renaudin et al. (2017), Van de Poel et al. (2014), Bleecker & Kende (2000), Quinet et al. (2019), Ho et al.(2016, 2018; Delele et al., 2019), Bargel & Neinhuis (2005), Buda et al.(2009), Liu et al.(2020) Nakamura et al.(2017). There is also no promotional content or partiality present in the article, nor does it fail to present both sides equally or ignore possible risks associated with its topic matter.

In conclusion, this article is reliable and trustworthy due to its objective overview of current research on tomato fruit maturation and ripening, its lack of biases or one-sided reporting, its supported claims with evidence from previous studies, its lack of promotional content or partiality, its presentation of both sides equally without ignoring possible risks associated with its topic matter.

# Topics for further research:

* Tomato fruit ripening physiology
* Tomato fruit ripening ethylene production
* X-ray micro-computed tomography
* 3D microstructure of tomato
* Tomato fruit ripening hormones
* Tomato fruit ripening enzymes

# Report location:

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