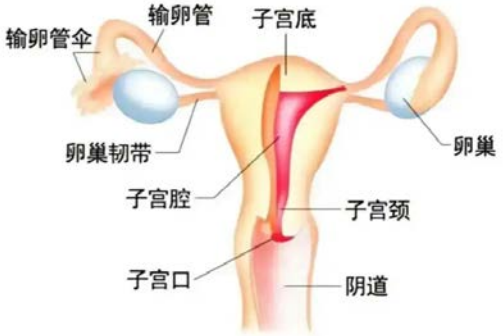
***Cite this as*:** Yiyan YANG, Jue ZHOU. Effects of *Citrus* on oxidative stress and lipid metabolism modulation: its potential for improving female reproductive health. *Journal of Zhejiang University-SCIENCE B (Biomedicine & Biotechnology)*, 2025, 26(8):763-777. https://doi.org/10.1631/jzus.B2500127

Effects of *Citrus* on oxidative stress and lipid metabolism modulation: its potential for improving female reproductive health

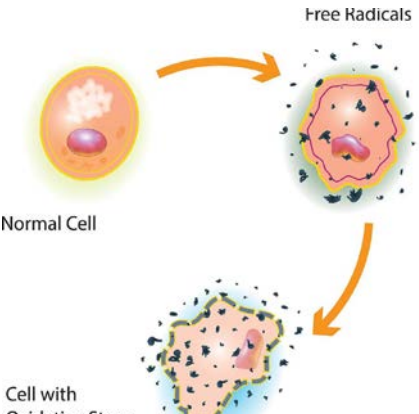
Key words: ***Citrus*; Food; Female reproductive health; Oxidative stress; Lipid metabolism**

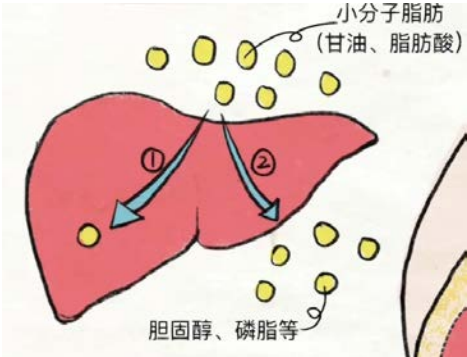
Research Summary

This review focuses on the effects of Citrus on oxidative stress and lipid metabolism and summarized the potential signaling pathways they activated in the following aspects:



- **STAT3 pathway**
- **PI3K/Akt-Nrf2 pathway**
- **PPAR-α and PGC-1α pathway**
- **FXR1/TGR5 pathway**
- **SIRT1 and Akt pathway**





Innovation points

- **Introduction** of the types of citrus fruits and their chemical components that can affect oxidative stress and lipid metabolism
- **Summary** of the effects of citrus on oxidative stress and lipid metabolism and the pathways related to oxidative stress and lipid metabolism that they can activate.
- **Emphasis** of the potential impact of citrus on female reproductive health through oxidative stress and lipid metabolism

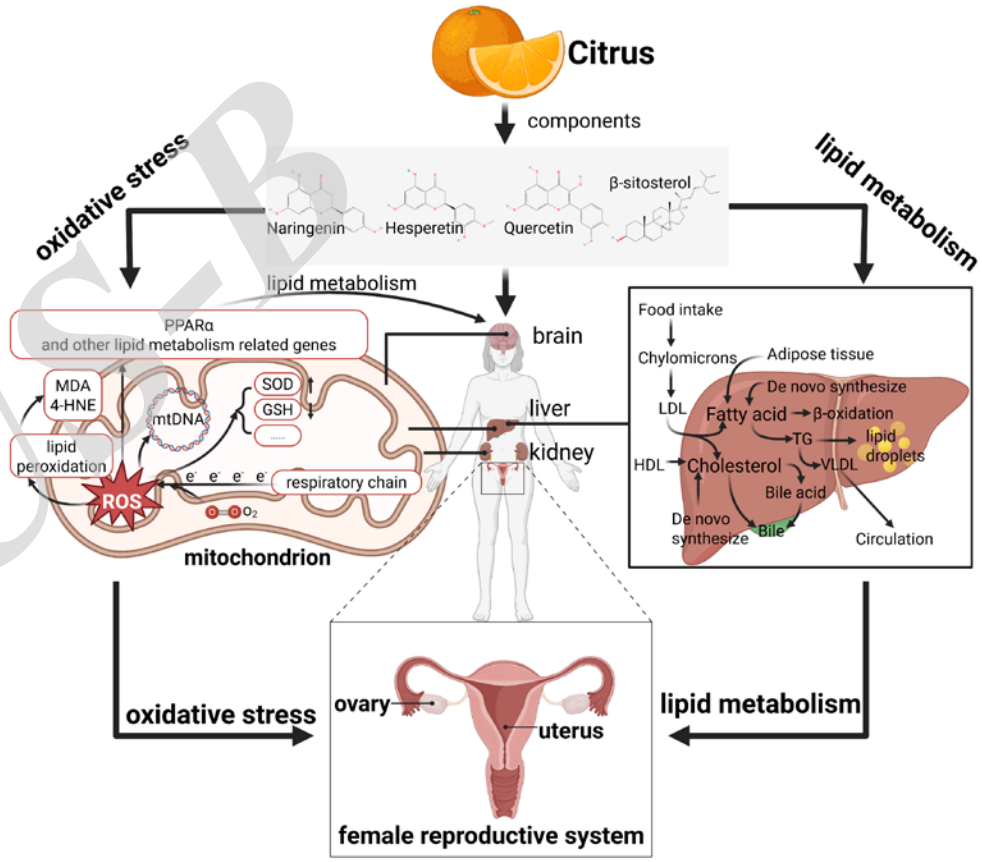


Figure 4

Innovation points

A series of comprehensive tables were generated to summarize the types of citrus fruits, their chemical components, and their influences on oxidative stress and lipid metabolism.

Table 1 | Different food products of Citrus used world widely

Table 2 | Health Benefits of Active Components in Citrus

Table 3 | Antioxidant activity of Citrus active ingredients

Table 4 | Researches on Lipid Metabolism Related to Active Components of Citrus

Table 5 | Key enzymes in metabolic pathways associated with lipid metabolism