

For Preventing Cardiovascular Disease By-products from Olive Oil Production show Promise

Researchers investigated the potential of a derivative of wastewater from olive oil production enriched in hydroxytyrosol, a powerful [antioxidant](#), to be used in dietary supplements to prevent cardiovascular diseases.

Their findings indicate that the olive oil derivative shows promising antioxidant, anti-inflammatory, and antibacterial properties, suggesting it may help prevent cardiovascular diseases and [heart infections](#).



Study

In this study, researchers focused on an extract from OMWW, which is rich in polyphenols. They investigated its effects on [heart](#) and vascular health, including its ability to improve heart function and reduce inflammation.

The extract, which has been patented, was also tested for its antioxidant properties and potential to prevent myocarditis, a heart infection caused by bacteria like streptococci, which are becoming more resistant to [antibiotics](#).

The study used a liquid rich in polyphenols extracted from olive oil wastewater for its experiments. To start, the researchers analyzed the liquid's chemical makeup to understand its organic and inorganic content, especially focusing on [phenolic compounds](#).

They used a process that separates and identifies these compounds based on their characteristics and how long they take to pass through a system, creating [calibration charts](#) to ensure precise measurements.

Then, the total amount of phenolic compounds was measured using a method that compares the sample to known standards by measuring how much [light](#) it absorbs.

Next, the researchers tested the liquid's antioxidant properties using a method that measures how well it can neutralize harmful [free radicals](#). Recording how much the sample reduced the activity of these radicals, they calculated the concentration needed to reduce the activity by 50%.

For the cardiovascular part of the study, guinea pigs were used to test how the liquid affected the heart and [aortic tissue](#). The researchers measured how the heart's right and left atria contracted in a controlled setting.

They also tested the liquid's ability to relax contractions in the aorta caused by high potassium levels and studied its effects on natural [muscle contractions](#).

Finally, additional tests were done on human cells to see how the liquid influenced cell health and stress caused by [oxidation](#).

Results

The study found that the polyphenolic extract from olive oil wastewater contained no harmful contaminants such as heavy metals or persistent pollutants, making it safe for use. Chemical analysis showed that the extract was rich in phenolic compounds like gallic acid and tyrosol, which have known cardiovascular and [antimicrobial benefits](#).

The antioxidant potential of the derivative was also confirmed, although it was less potent than pure [gallic acid](#).

In cardiovascular tests, the derivative reduced heart contraction force and slowed [heart rate](#) in guinea pig tissue samples, showing effects similar to known heart medication nifedipine.

However, it had little impact on vascular contractions caused by [potassium](#), although it did increase spontaneous contractions in aorta tissues at higher concentrations.

In cell studies, the derivative demonstrated anti-inflammatory and antioxidant properties, reducing stress and inflammation in [human endothelial cells](#).

It also inhibited the activity of a key enzyme involved in inflammation and showed antimicrobial activity against various [streptococcal strains](#), particularly those linked to infections of the heart valves.

Overall, the extract displayed promising antioxidant, cardiovascular, anti-inflammatory, and antimicrobial effects, supporting its potential use as a [nutraceutical](#) for heart health.

Conclusion

The study highlights the potential of phenolic complexes to protect cardiovascular health and repurpose waste into valuable health-promoting products. The derivative demonstrates significant antioxidant, antimicrobial, and [anti-inflammatory properties](#), which suggest that it could be beneficial in preventing cardiovascular diseases.

The derivative's high hydroxytyrosol content provides robust antioxidant benefits, potentially protecting cardiovascular tissues from oxidative damage. Its anti-inflammatory effects are also noteworthy, as the derivative effectively reduces inflammation by inhibiting an enzyme implicated in cardiovascular [disease](#).

Furthermore, the extract's ability to combat streptococcal infections highlights its potential to address serious [health issues](#) related to heart infections.

However, the derivative's impact on cardiovascular parameters appears weaker compared to established treatments like nifedipine. Additionally, the study's small sample size limits the reliability of findings, particularly concerning measurements of arterial stiffness and [elasticity](#).

Future research should focus on long-term studies to assess the derivative's sustained cardiovascular benefits and [safety](#). Its effects across different populations and potential use in conjunction with other treatments should also be explored to enhance its overall therapeutic efficacy.

Source:

<https://www.news-medical.net/news/20240910/By-products-from-olive-oil-production-show-promise-for-preventing-cardiovascular-disease-study-shows.aspx>