

# Strawberry Tree (*Arbutus unedo*) Flowers as a Sustainable Source of Phenolic Compounds with Activity against Canine Pathogens

V. Silva, A. Silva, A. Aires, R. Carvalho, L. Maltez, J.E. Pereira, G. Igrejas, P. Poeta

MicroART, UTAD, Vila Real, Portugal; Functional Genomics and Proteomics Unit, UTAD; LAQV-REQUIMTE, NOVA University Lisbon; CITAB, UTAD; Department of Agronomy, UTAD; CECAV, UTAD; AL4Animals, UTAD

Presenting author: ppoeta@utad.pt

## 1. Background

- Antibiotic-resistant bacteria are a major threat to human and animal health.
- Staphylococcus pseudintermedius* is a predominant canine staphylococcal species and a leading cause of canine pyoderma.
- The spread of methicillin-resistant *S. pseudintermedius* (MRSP) has increased the need for complementary antimicrobial strategies.
- Plant-derived polyphenols are promising bioactive compounds with antimicrobial effects associated with bacterial membrane disruption.

## 2. Objective

Recover phenolic compounds from strawberry tree (*Arbutus unedo*) flowers, an underexploited plant by-product, and evaluate their antibacterial activity against methicillin-resistant and methicillin-susceptible *S. pseudintermedius* isolated from canine pyoderma.

## 3. Materials and Methods

- Freeze-dried flowers
- Grinding
- Extraction: hydroethanolic (20:80, v/v) or methanol
- 14 clinical isolates: 7 MRSP + 7 MSSP
- Agar dilution assay
- MIC determination: 10–500 µg/mL

Flower samples were processed and extracts were tested against clinical canine pyoderma isolates to assess antibacterial activity.

## 5. Conclusion

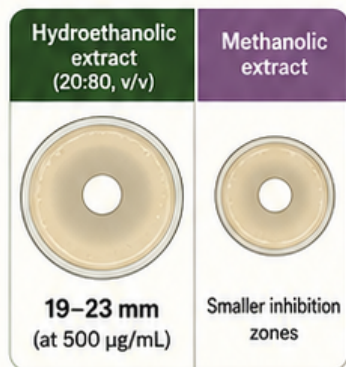
Strawberry tree flowers represent a sustainable source of bioactive phenolic compounds with antibacterial activity against both resistant and susceptible *S. pseudintermedius* strains. Their valorization supports the development of complementary antimicrobial solutions and contributes to u-management of plant resources.



## 4. Key Results

### A Antibacterial activity

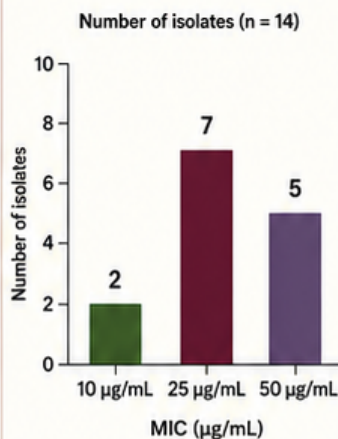
- Both hydroethanolic and methanolic extracts inhibited all tested isolates.
- Hydroethanolic extracts showed more pronounced antibacterial effects.
- At 500 µg/mL, hydroethanolic extracts produced inhibition zones of 19–23 mm.



Hydroethanolic > Methanolic

### B MIC profile

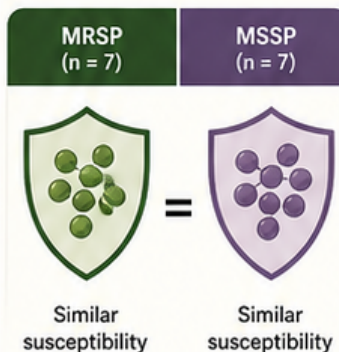
- MIC values varied among isolates.
- Lowest MIC: 10 µg/mL in 2 isolates.
- Most isolates were inhibited at 25 or 50 µg/mL.



Most isolates inhibited at 25 or 50 µg/mL

### C MRSP vs MSSP response

- No significant differences in susceptibility were observed between MRSP and MSSP strains.
- Methicillin resistance did not affect the antibacterial performance of the extracts.

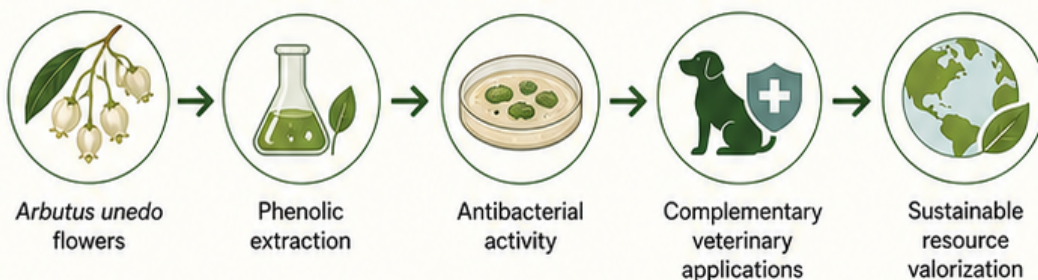


No significant difference in susceptibility



- Strawberry tree flowers are a promising source of phenolic compounds.
- Extracts showed broad antibacterial activity against canine isolates.
- Hydroethanolic extraction provided the strongest inhibition.
- These extracts may act as complementary agents to conventional antibiotics.

## Sustainability and Valorization Concept



## Acknowledgements

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