



## In vitro evaluation of olive- and grape-based natural extracts as potential preservatives for food

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### Abstract

The use of natural antimicrobial compounds, especially extracted from plants, as food preservatives is nowadays widely used, since plant matrices possess antimicrobial natural products to protect themselves from microbial infection and deterioration. Plant phenolics are currently of growing interest due to their likely human health benefit properties.

In the present study, the antimicrobial activities of two waste-derived extracts—from olive oil and wine production—, both rich in polyphenols, and three standard well recognized antioxidants (quercetin, hydroxytyrosol and oleuropein) were investigated against five microbial species (*Escherichia coli*, *Salmonella poona*, *Bacillus cereus*, *Saccharomyces cerevisiae* and *Candida albicans*). The tests were carried out using a microplate photometer assay. The results obtained suggest that the natural extracts may have important applications in the future as natural antimicrobial agents for food industry as well as for medical use. The natural extracts showed more antimicrobial activity than shown by the selected antioxidants alone against all microorganisms.

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**Keywords:** Natural extracts; Olive; Grape; Hydroxytyrosol; Quercetin; Oleuropein; Antimicrobial activity

**Industrial relevance:** This manuscript is a step forward in the development of effective natural preservatives for food. It is focused on the antimicrobial activity against five microbial species (*Escherichia coli*, *Salmonella poona*, *Bacillus cereus*, *Saccharomyces cerevisiae* and *Candida albicans*) of two waste-derived extracts—from olive oil and wine production— and three standard well recognized antioxidants (quercetin, hydroxytyrosol and oleuropein).

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