



BOOK OF ABSTRACTS



Biochemistry & Microbiology Applied Technologies

International Congress
November 3-5, 2017- Hammamet, Tunisia

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Lgerian Dates Intended for Export

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 Dynamiques des systèmes de production agricoles en
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 for its high nutritional and market value, but
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 eted in Algeria based on the microbial load
 and molds

as to evaluate the microbiological quality of
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Saccharomyces cerevisiae And molds *Aspergillus flavus*,
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ogical and nutritional quality but our agri-
 risk control systems such as the HACCP
 products abroad and thus increase their

B-P-06

Effect of phenolic compounds extracted from chestnut (*Castaneasativa* Mill.) industry by-productson antibiotic resistant bacteriaVanessa Silva¹, Gilberto Igrejas^{2,3,4}, Virgílio Falco⁵, Joana Amaral^{6,7}, Carmen Torres⁸, Patrícia Poeta^{1,4}

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Background: In the last years, antibiotic resistance has become a serious threat to human and animal health since a large number of microorganisms have developed resistance to the drugs commonly used. Several natural compounds have been getting increased attention as alternatives to many drugs. Phenolic compounds are secondary metabolites which exhibit several properties, such as, antimicrobial, antioxidant, anti-inflammatory, antimutagenic and cardioprotective. Thus, this study aims to investigate the antibacterial properties of the phenolic compounds extracted from the chestnut (*Castaneasativa* Mill.) industry by-products against antibiotic resistant bacteria.

Materials/Methods: The extraction of phenolic compounds from the shell, inner shell and bur of the chestnut of the 'Longal' variety, as well as from the leaves of chestnut tree, was performed with 100% ethanol. The extracts were freeze-dried to powder and the obtained residue was redissolved in dimethyl sulfoxide to a final concentration of 100, 75, 50, 25 and 10 mg/mL. The evaluation of phenolic compounds in the extracts was performed by HPLC-DAD. A disk diffusion method was used to assay the extracted phenolic compounds for bactericidal activity against 4 gram-positive bacteria: *E. faecalis* vanB2-C3735, *E. faecium* vanA-C2302, *S. aureus* C5932 (MRSA CC398), *S. epidermidis* C3658 (linezo-R); and 4 gram-negative bacteria: *E. coli* C999 (CTX-M-15), *S. enteritidis* C4220, *K. pneumoniae* C1370 (CTX-M-15), *P. aeruginosa* C4660 (VIM-2).

Results: *S. aureus* and *S. epidermidis* showed susceptibility to all tested extracts. The inner shell's extract exhibited the highest antimicrobial capacity since all gram-positive and 2 gram-negative bacteria were inhibited by this extract. The shell, bur and the leaves extracts had inhibitory effect in only 3 bacteria each. None of the extracts had inhibitory effect on *E. coli* or *S. enteritidis*. All the bacterial strains demonstrated some degree of sensitivity.

Conclusion: The phenolic compounds extracted from chestnut industry by-products, particularly from the inner shell showed some antimicrobial effect against 6 out of the 8 antibiotic resistant bacteria tested. The industry by-products are a cheap source of polyphenols which may be a new alternative to antibiotics.