



Book of Abstracts

III International Conference on Antimicrobial Research

Madrid, Spain, 1-3 October 2014

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Antimicrobial activity of extracts from agroindustrial subproducts

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Microbial growth is a process usually associated with disease and food spoilage. Therefore, some solutions have been searched but, during a long period of time, these solutions were almost focused exclusively in antibiotic therapies. Considering the increase of resistance of microorganisms against this conventional therapy, new alternatives have been studied and so, natural compounds with antimicrobial activity seem to be a great solution. Several authors have found antimicrobial properties in certain classes of polyphenols, which have been proposed to be included in the innovative approaches of new preservatives in foods. These compounds are widely distributed in the most extensive range of vegetable materials, as is the case of lignocellulosic materials (LCMs). These materials are mainly made up of cellulose, hemicelluloses and lignin, and they are the most abundant biomass, comprising nearly 70% of the total plant biomass produced by photosynthesis. Agroindustrial activities are an inexhaustible source of LCMs.

In this work, four extracts obtained from agroindustrial subproducts were used: corn cobs (CC), eucalypt wood (EW), almond shells (AS) and grape pomace (GP). To evaluate the antimicrobial activity of these extracts, five foodborne pathogenic bacteria were used: *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Listeria monocytogenes* and *Salmonella* spp. Four concentrations (1, 2, 3 and 4 % (w/v)) were tested for the antimicrobial activity evaluation of the extracts. Although the extracts did not show a selective action upon either Gram-positive or Gram-negative bacteria, they displayed antimicrobial activity. The EW extract was the most active, whereas the AS and CC extracts were the least active, but in all cases, this effect was not immediate; in the majority of cases it occurred only after approximately 24h.

Keywords: Antimicrobial activity; Pathogenic bacteria, Extracts, Agroindustrial sub-products, Lignocellulosic materials