

Assessment of the antipseudomonal activity of plant extracts using classical antibiogram and flow cytometry approach at low and mesophilic temperatures

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Description

Conservation at low temperatures prolongs the shelf life of food products, but some-times it promotes the growth of psychrophilic microorganisms. In addition, use of syn-thetic conservatives is restricted (Olmedo, Nepote & Grosso, 2013); hence the interest to explore alternative antimicrobial sources. Most essential oils have been classified as gen-erally recognized as safe (Burt, 2004), and their antimicrobial activity is well demonstrated in vitro and in food model. In this work, we have determined the antibacterial activity of essential oils (EO) from *Thymus fontaneseii*, alone or in combination with and *Scirpus ho-loschoenus* phenolic extract (SPE), against *Pseudomonas aeruginosa* ATCC 27853, which is an opportunist and food spoilage bacteria. The EO was obtained with hydrodistillation and phenolic extract with microwave assisted extraction. The diameters of the zones of inhi-bition at 7 C were 43.00 ± 1 mm, 17.7 ± 0.57 mm and 63 ± 2 mm with EOd (12.5%), SPE (70mg/mL) and their combination (75% EOd and 25% SPE), respectively. The measured values at 37 C were 23.5 ± 0.8 mm, 15.5 ± 0.5 mm and 30.00, for EOd (12.5%), SPE (70mg/mL) and their combination (75% EOd and 25% SPE), respectively. Beside its rapidity, flow cytometry is a very sensitive technique allowing both the detection of dead, metabolically active, viable and viable but no-cultivable cells. Suber green, Propidium iodide and ChemChrome V6 have been utilized for the experiments. The functional damages induced in *P. aeruginosa* treated with the plant extracts and incubated at 7 C and 37 C was assessed and growth of tested strain was followed. Irrespective of the culture ...