

Antimicrobial activity and properties of *Enterococcus faecium* strains isolated from pasteurized milk

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Bacteria of the genus *Enterococcus* are ubiquitous Gram-positive, catalase-negative cocci that often occur in large numbers in vegetables, plant materials, and foods, especially those of animal origin such as dairy products. *Enterococci* have been used in many different applications as starters or adjunct cultures, and in foods, they seem to have a major role in improving flavor development and quality of cheese. Additionally, enterococci harbor some useful biotechnological traits, such as the production of bacteriocins with anti-listeria activity. The role and the application of *enterococci* in food and health and more specifically in meat and dairy products has been reviewed recently

Enterococcus faecium isolated from pasteurized milk; For isolation of *Enterococci* the diluted homogenates were plated on M-17 medium and azide agar medium was used aerobically. The plates were incubated at 37°C for 2-3 days. All isolates were examined as described by Harrigan and McCance (1967), Schillinger and Lücke (1987) and Stiles and Holzapfel (1997). Carbohydrate fermentation tests were carried out using the API 50CHL kit according to the manufacturer's instruction (BioMérieux, France).

Ribotyping was performed with a Ribo Printer Microbial Characterization System (Qualicon Inc., Wilmington, DE) and the standard *EcoRI* DNA preparation kit as described in the manufacturer's operations.

Antagonistic activity screening was investigated by two methods. The agar spot test and well diffusion assay, as described by Schillinger and Lücke (1989), Tagg et al. (1976) and Harris et al. (1989), respectively.

The amount of produced lactic acid, hydrogen peroxide, proteolytic activity of the lactic acid bacteria was determined.

In vitro antiradical, anti-inflammatory and antifungal activities of essential oils of two aromatic plants, *Apium graveolens* (Apiaceae) and *Thymus vulgaris* (Lamiaceae)

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Yeast and moulds are ubiquitous micro-organisms with a great capacity to colonize many kinds of substrates and to proliferate under extreme environmental conditions. Some of these microscopic fungi such as *Candida* and *Aspergillus* spp. are opportunistic pathogens that can cause local and systemic infections in predisposed persons. Despite advances in antifungal therapy, fungal infections remain a major cause of morbidity and mortality in immunocompromised patients, with fatality rates of 50–100% in such patients. *Aspergillus* species is the second most commonly recovered fungus in opportunistic mycoses following *Candida*. *Candida* and *Aspergillus* are the predominant causative agents of mortality in patients with haematological malignancies. *Cryptococcus neoformans* is the cause of the most common life-threatening meningitis in HIV-positive patients.

Investigations were conducted to determine the chemical composition, antiradical, anti-inflammatory and antifungal activities of essential oil extracted from the fresh leaves of *Apium graveolens* and *Thymus vulgaris* (leaves and twigs) from Cameroon. The essential oil obtained by hydrodistillation was analysed by GC and GC/MS. The antiradical activity was evaluated using the DPPH scavenging method and the anti-inflammatory activity was determined using the enzymatic method of 5-lipoxygenase inhibition. The disc diffusion method and dilution methods on a solid medium and in a liquid medium were used to evaluate growth inhibition of three yeasts and three moulds. The major components were limonene (50.7%) for *Apium graveolens* and Thymol (57.9%) for *Thymus vulgaris*. These essential oils have shown antiradical properties with respective SC₅₀ of 0.41 and 0.06 g/l for *Apium graveolens* and *Thymus vulgaris*. Only *Thymus vulgaris* presented an anti-inflammatory activity with an IC₅₀ of 0.19 g/l. *Cr. neoformans* was the most susceptible fungal strain while *C. albicans* was the most resistant one.

These results show that these essential oils could be exploited to combat some fungal strains responsible for mycoses, free radical species and chronic inflammatory reaction.