

Valorization of whey and vinasses by producing antimicrobial extracts using biotechnological processes

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Description

This invention is based on the production of antimicrobial extracts with potential application against pathogenic microorganisms. The biotechnological production of antimicrobial metabolites was carried out using *Lactobacillus plantarum* strains. Two industrial wastes, whey, and wine distilled lees (or vinasses) were assayed in order to make the process economically competitive with regard to the chemical one. The extracts are mainly composed by lactic acid, 3-phenyllactic and bacteriocins. Whey was enzymatically hydrolyzed and the solutions were fermented sequentially or simultaneously. The bioprocesses were carried out continuously or discontinuously.

Innovative aspects and advantages

The innovative aspect of this invention is the formulation of economic culture media from agroindustrial wastes (whey and lees) for the production of antimicrobial extracts by *Lactobacillus plantarum* strains. Whey and lees are two environmentally harmful wastes. In this process, whey was used as a carbon source and to generate solutions of phenylalanine by enzymatic hydrolysis, meanwhile lees were used as a source of nitrogen. It is also outstanding the application of these extracts (containing lactic acid, phenyllactic acid and bacteriocins) as antimicrobial agents against the growth of some of the major pathogenic strains transmitted along the food chain was also claimed.

Minimization and revalorization of contaminant wastes from food industries. Formulation of economic culture media to make the process competitive with regard to the chemical one. Use of natural antimicrobial extracts to preserve foods from pathogenic bacteria.

Commercial applications and potential users

Food industries that generates wastes and food industries for the conservation and preservation of foods.

Patent status

Spanish patent.

Type of collaboration

Licensing of the technology and collaboration on the commercialization of the product.