

Control of Spoilage Fungi by Lactobacilli

Authors : Laref Nora, Guessas Bettache

Abstract : Lactic acid bacteria (LAB) have a major potential to be used in biopreservation methods because they are safe to consume (GRAS: generally regarded as safe) and they naturally occurring microflora of many foods. The preservative action of LAB is due to several antimicrobial metabolites, including lactic acid, acetic acid, hydrogen peroxide, bacteriocins, carbon dioxide, diacetyl, and reuterin. Several studies have focused on the antifungal activity compounds from natural sources for biopreservation in alternatives to chemical use. LAB has an antifungal activity which may inhibit food spoilage fungi. Lactobacillus strains isolated from silage prepared in our laboratory by fermentation of grass in anaerobic condition were screened for antifungal activity with overlay assay against *Aspergillus* spp. The antifungal compounds were originated from organic acids; inhibitory activity did not change after treatment with proteolytic enzymes. Lactobacillus strains were able also to inhibit *Trichoderma* spp, *Penicillium* spp, *Fusarium roseum*, and *Stemphyllim* spp by confrontation assay. The inhibitory activity could be detected against the mould *Aspergillus* spp in the apricot juice but not in a bakery product. These antifungal compounds have the potential to be used as food biopreservation to inhibit conidia germination, and mycelia growth of spoilage fungi depending on food type, pH of food especially in heat, and cold processed foods.

Keywords : lactic acid bacteria, Lactobacillus, *Aspergillus*, antifungal activity

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