



ANTIFUNGAL LACTIC ACID BACTERIA ISOLATED FROM ROMANIAN TRADITIONAL FOOD PRODUCTS INVOLVED IN THE REDUCTION OF *PENICILLIUM EXPANSUM* SPOILAGE ON APPLE FRUITS

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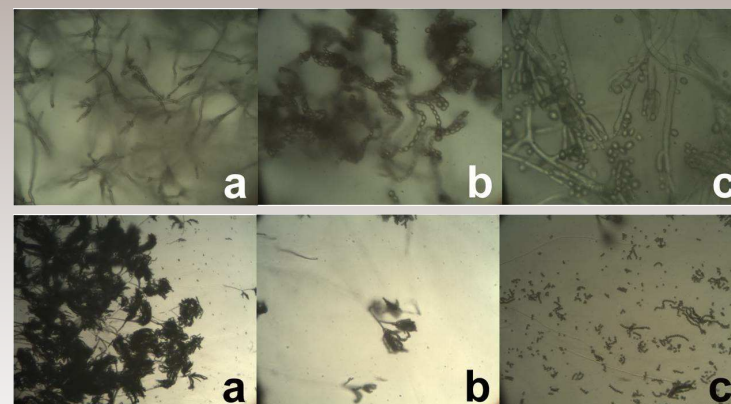
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INTRODUCTION

Spoilage fungi create significant quantitative losses and major qualitative depreciation in all kinds of agricultural products. Mold growth can induce mycotoxins contamination with hazardous effects. An important strategy for the prevention and decontamination of food and feed products is the use of biological control microorganisms, generally regarded as safe. Lactic acid bacteria (LAB) are promising bioprotectants, shown to have various mechanisms able to inhibit microbial contaminants of foods and feeds.



AIM

The aim of our study was to evaluate six LAB strains for antifungal action against blue mould spoilage fungi on apple fruits.

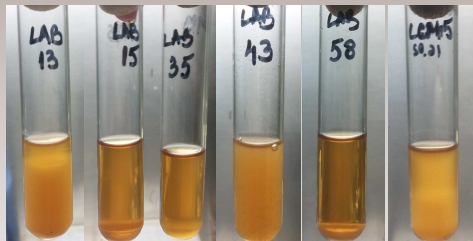
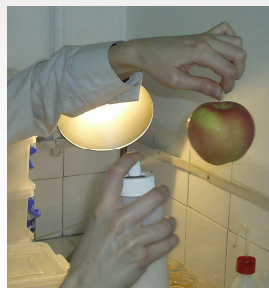
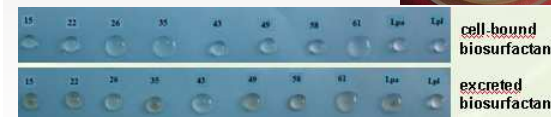
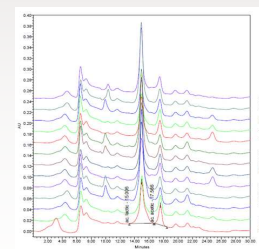
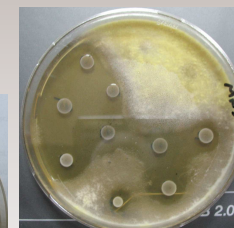
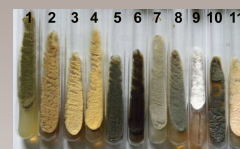
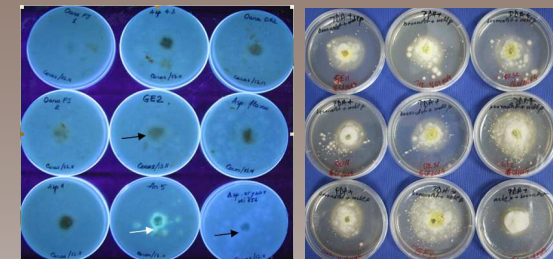


A close-up photograph of a row of ripe, red apples with some yellowing, resting on a wooden surface. The apples are arranged in a slightly overlapping line, showing their smooth, glossy skin and prominent stems. The background is a light-colored wooden plank.

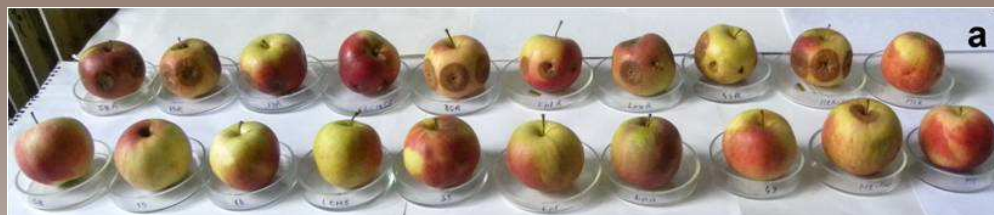


A photograph of a variety of fresh vegetables. On the left is a large head of green lettuce. Next to it is a smaller head of purple lettuce. In the center are several red tomatoes, some whole and some sliced. There are also green cucumbers, yellow bell peppers, and orange carrots. The vegetables are arranged on a light-colored surface.

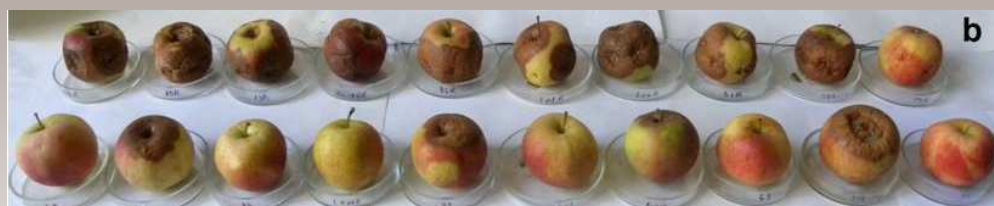
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A petri dish containing a bacterial culture on agar. The agar surface is covered with a dense, confluent layer of bacterial growth. There are several distinct, circular colonies visible, some of which are larger and more opaque than others. The petri dish is labeled "M-3" in the top left corner.

RESULTS



Wounded and non-wounded apples at 7 days (a) after inoculation

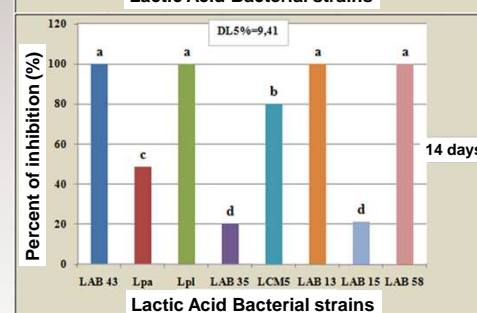
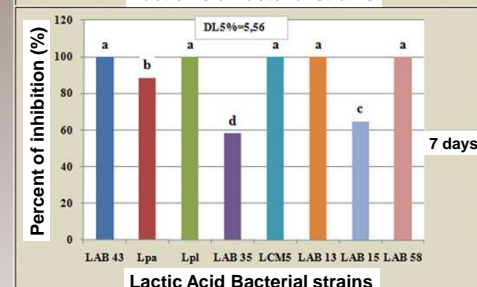
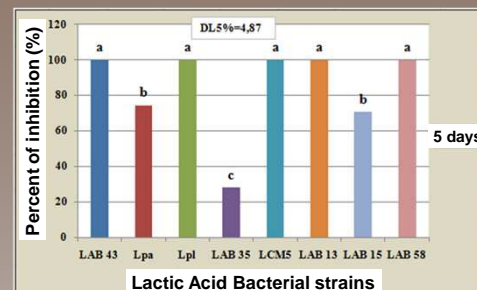


Wounded and non-wounded apples at 14 days (a) after inoculation

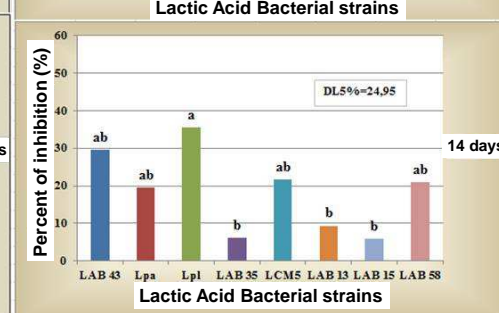
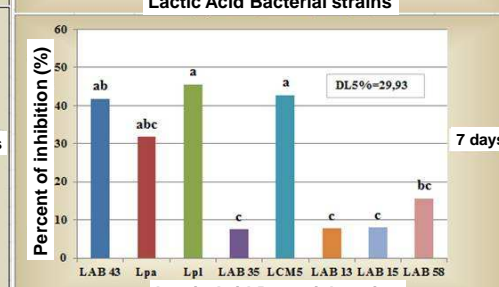
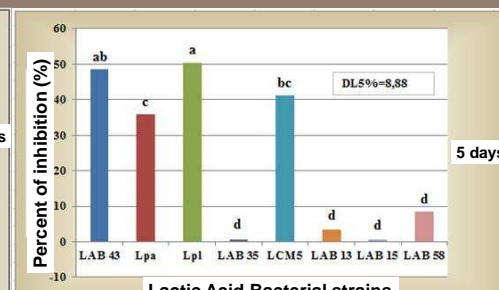


Non-wounded apples after 21 days (a) from the inoculation

Legend: 1-LAB 58, 2-LAB 15, 3-LAB 13, 4-LCM5, 5-LAB 35, 6-Lpl, 7-Lpa, 8-LAB 43, 9-Mt (Control)+*P.expansum*, 10-Mt netratat (nontreated control)



Wounded apples



Non-wounded fruits

CONCLUSIONS

The infection rates were considerably lower in unwounded apples, compared to the wounded fruits

A delayed development of the fungal contamination, with a reduced lesion size, during the 14 days of incubation, on apple fruits treated with Lpl and LAB 43 strains, compared with the untreated control.

The same LAB strains are tested on other fruits in order to evaluate their antifungal protection against *Penicillium* spp. in other fruit systems.

