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MAINTENANCE AND CUSTODY OF MICROORGANISMS FOR AGRI-INDUSTRY

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Abstract:

The Fermentation Processes Laboratory of Embrapa Food Technology has maintained, during two decades, a collection of filamentous fungi (molds) used in the development of fermentation processes for production of metabolites, mainly enzymes. During this period, about 40 strains were isolated from different biomes, characterized and genetically improved by mutation using traditional techniques. The aim of this work was to isolate, characterize, preserve and identify taxonomically new mold strains for application in food industry and energy in order to increase the culture collection. Initially, these fungi were isolated in test tubes with basic-Socarean medium containing mineral salts, agar-agar and specific carbon sources for bioproduct identification (olive oil for lipase, pectin for pectinase, carboxymethylcellulose for cellulose, xylan for xylanase, starch for amylase). After isolation the cultures were purified using the technique based on making a single ridge on the surface of Potato Dextrose Agar (PDA) medium with a heave from the isolated mold and incubated for 48 hours. This procedure was repeated until the complete isolation of the fungi and for their maintenance in basic-Socarean medium. These fungi were biochemically characterized using the enzymatic extract obtained from solid or submerged fermentation, identified and stored in soil at -20°C. The preservation of mold is done in test tubes containing sterile soil and stored at -20°C. This soil was sterilized five times under 1 atm for 1 hour, to ensure their safety. After storage in the soil, the strains have remained viable for at least ten years. It is expected to include other microorganisms such as bacteria related to food safety or technical barriers and yeasts for agri-industrial processes. Financial support: EMBRAPA

Key words: microorganism, isolation, screening, preservation