Selection and evaluation of *Debaryomyces hansenii* isolates as potential bioprotective agents against toxigenic penicillia in dry-fermented sausages

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Félix Núñez*, María S. Lara, Belén Peromingo, Josué Delgado, Lourdes Sánchez-Montero, María J. Andrade.

Higiene y Seguridad Alimentaria, Instituto Universitario de Investigación de Carne y Productos Cárnicos, Facultad de Veterinaria, Universidad de Extremadura, Avenida de la Universidad s/n, 10003 Cáceres, Spain.

* Corresponding author: fnunez@unex.es

Abstract

Biocontrol using autochthonous *Debaryomyces hansenii* isolates is a potentially suitable strategy for inhibiting toxigenic moulds in dry-cured meat products. The antifungal activity of 280 *D. hansenii* isolated from dry-cured meat products as well as the mode of action of the most active isolates against toxigenic penicillia were evaluated in this work. A 13.9% of the *D. hansenii* isolates showed inhibitory activity in a radial inhibition assay. The effects on penicillia growth of both the cell-free culture filtrate and volatile compounds from active yeast isolates were analysed. Penicillia growth inhibition by *D. hansenii* was probably based on additive or synergistic effects of several inhibiting factors such as competition for nutrient and space, and production of soluble or volatile compounds. When four *D. hansenii* isolates were tested on dry-fermented sausage, two of them produced a significantly growth reduction of the ochratoxigenic *Penicillium verrucosum*, keeping its counts under the level considered as hazardous for the mycotoxin presence. Therefore, the use of these two *D. hansenii* isolates during the processing of dry-fermented meat product could be a promising tool to control toxigenic moulds in the meat industry.