

***Streptomyces* sp. IPV2742: solid-state fermentation on defatted wheat bran and application as candidate biocontrol agent**

L. Pisoni¹, M. Saracchi¹, C. Pizzatti¹, A. Kunova¹, P. Cortesi¹, M. Pasquali¹, D. Bulgari¹

¹*Department of Food, Environmental and Nutritional Sciences, University of Milan, Milan, Italy. E-mail: daniela.bulgari@unimi.it*

Fungal pathogens represent a major threat to global crop production. Generally, they are controlled by fungicides. However, fungicides can have negative effects on the biosphere, posing risks for environment and human health. The sustainability of the agricultural sector is strongly bound with development of new biological approaches as an alternative to chemicals. *Streptomyces* species play a key role in the biocontrol of phytopathogens thanks to the high number of secondary metabolites with antimicrobial activity produced. Moreover, growing *Streptomyces* spp. on unconventional substrates like agri-food waste can both revalorise agricultural waste and, at the same time, reduce crop loss.

In this study, the spore morphology of *Streptomyces* sp. IPV2742, isolated from *Vitis vinifera*, was characterized by scanning electron microscope (SEM). It was observed that IPV2742 strain produces rugose ornamented spores.

Moreover, the growth in solid-state fermentation (SSF) strain was evaluated. *Streptomyces* sp. IPV2742 grew well on defatted wheat bran, reaching the maximum concentration of 10⁸ CFU/g seven days after the inoculation.

The crude extracts obtained from fermented substrates were tested against *Sclerotinia sclerotiorum*, *Fusarium culmorum*, *Botrytis cinerea* and *Fusarium oxysporum* f.sp. *basilici*. The crude extract showed stronger antimicrobial activity against *F. culmorum* (35%), while the activity against *F. oxysporum* f.sp. *basilici* was less significant (10%).

These results suggest that IPV2742 can be considered a possible biocontrol agent against phytopathogens and as a source of new bioactive molecules.