Sociedad Argentina de Microbiología General

XIX CONGRESO DE LA SOCIEDAD ARGENTINA DE MICROBIOLOGÍA GENERAL

22 al 25 de octubre del 2024
Centro cultural y Pabellón Argentina de la Universidad Nacional de Córdoba, Córdoba, ARGENTINA.

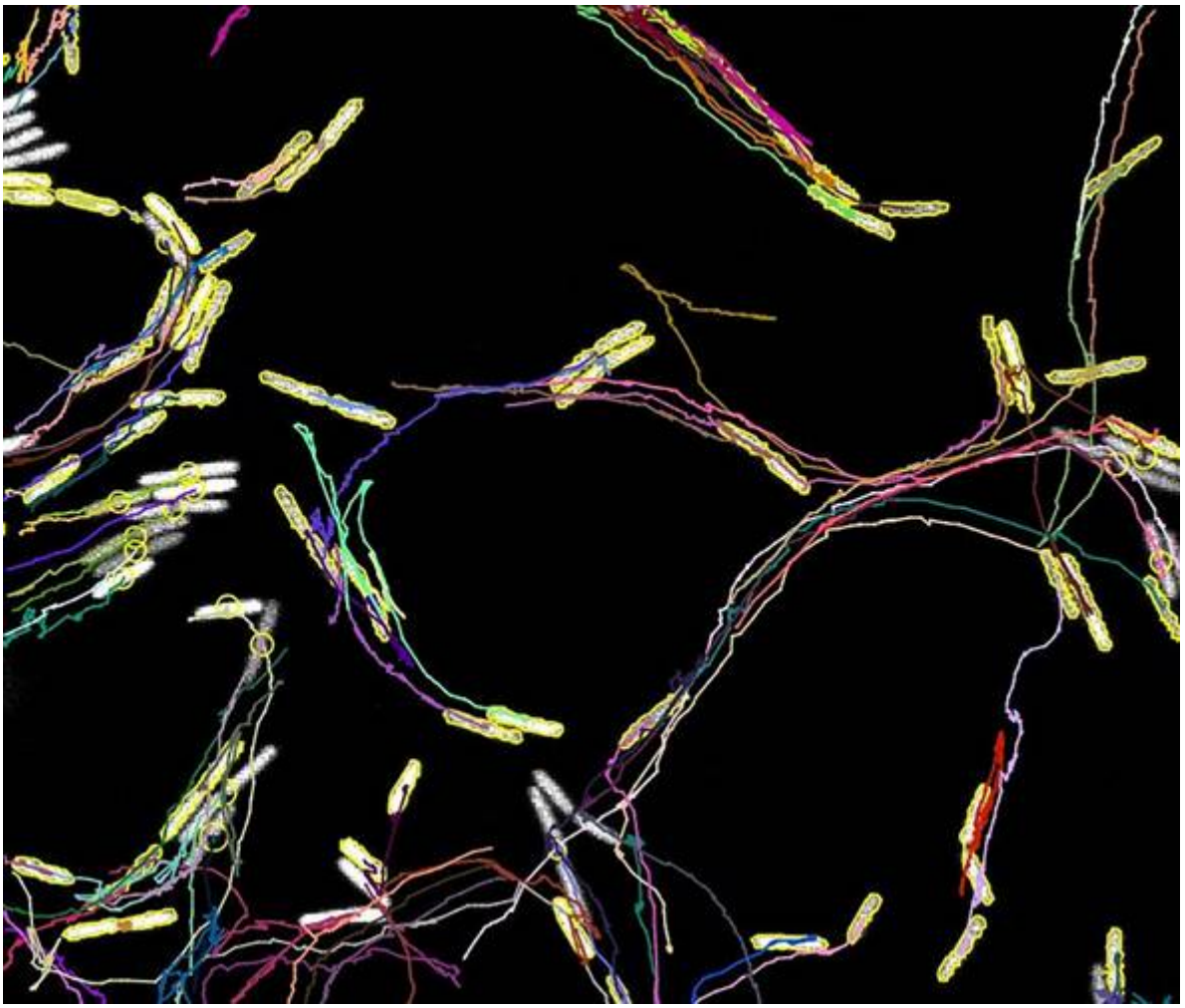

Foto: Se hace camino al andar. Celeste Dea. 1er puesto. Concurso fotográfico SAMIGE 20 años.

OPTIMIZATION OF GROWTH CONDITIONS FOR PRODUCTION OF CONIDIA OF THE NEMATOPHAGOUS FUNGUS, Purpureocillium lilacinum, IN DIFFERENT SUBSTRATES

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Crop infestation caused by nematodes is one of the recurring problems in covered and open field crops in the horticultural belt of Río Cuarto. The continuous use of agrochemicals to improve crop protection and productivity in horticultural agroecosystems is related to negative impacts on human health and the environment. Therefore, eco-compatible strategies would allow pest control in crops, guaranteeing the productivity of the system. The previous results of biocontrol studies of *N. aberrans* s.l. with strains of *Purpureocillium lilacinum* make them potential candidates for commercial use in vegetable production areas. For extensive application of the bioinput, large-scale production of micropropagules is required. Solid substrate fermentation (SSF) is a cost-effective process, widely used for mass production of filamentous fungi. The present study was approached in two stages: 1) selection of substrates -rice, corn, whole peanut shell (WPH), ground peanut shell (GPH), rice + WPH (50:50), rice + GPH (50:50)- for the production of *P. lilacinum* SR14 and SR38 conidia through FSS and; 2) optimization of culture conditions: i) container: bags, flasks; ii) aw: 0.99; 0.97, 0.95; iii) temperature: 20, 25, 30 °C; iv) incubation time: 15, 20, 30 d; v) substrate: rice, corn, WPH + rice (50:50)- to maximize the production and viability of *P. lilacinum* SR14 and SR38 conidia, using a factorial design. In both trials, total conidia production and spore quality were determined. The first trial determined that production (sp./g) (SR14= 6.2x107 SR38= 2x108) and viable spore count (cfu/g) (SR14= 1.7x108; SR38= 3.8x108) was significantly higher ($p<0.05$) in rice and corn for SR14 and rice and its mixture with CMM for SR38, compared to other substrates. In the second trial, where the influence and interaction of the five factors (selected substrate, aW, temperature, time, container) was evaluated by the optimization model (24 runs using the Design-Expert V 7.0 design) showed that the optimal conditions for biomass production for SR14 and SR38 were rice/ 0.99 aW/ 11 °C/ 15 d/ bag and rice/ 0.98 aW/ 25 °C/ 11 d/ flask, respectively. By developing the fungal strains under the optimized conditions, it is possible to ensure a fungal biomass yield at a level greater than 13 log units, and high viability (germination = 85%; viability = 2.3x1013cfu/g), to be produced on a larger scale and applied to areas intended for horticultural production with problems of infestation by phytoparasitic nematodes.

Palabras clave: Purpureocillium lilacinum-Nematodos fitoparásitos-Bioinsumos-Optimización-Cultivos hortícolas