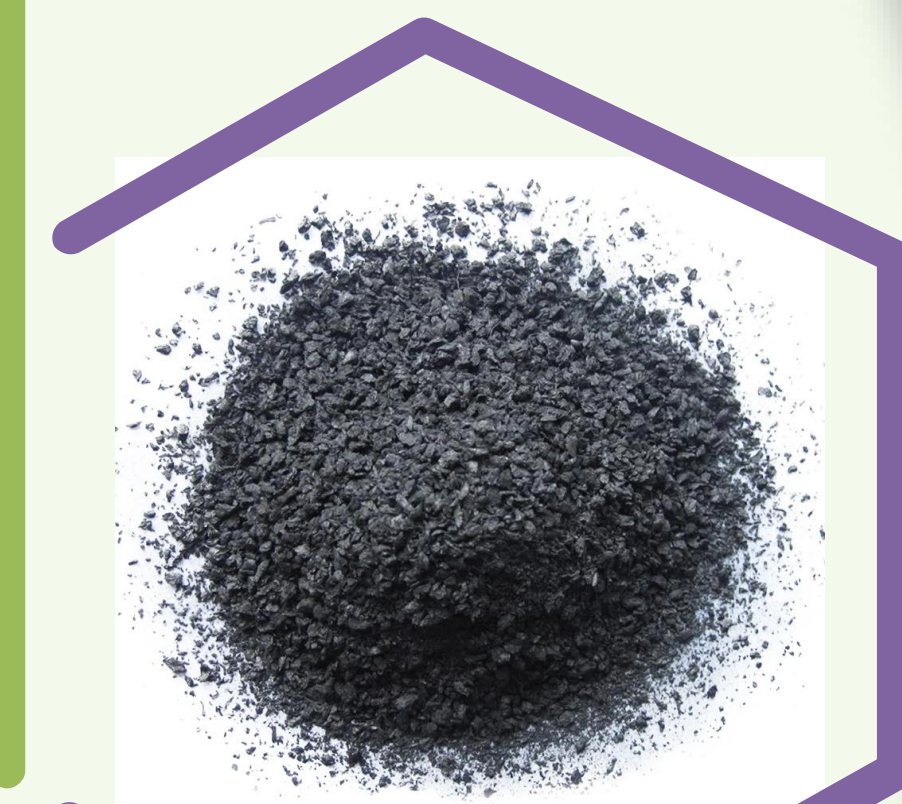


# Olive husks biochar application in microbial remediation of pyrene polluted soil: a possible win-win solution

Lea Piscitelli (piscitelli@iamb.it) , Anna Daniela Malerba, Giuseppe Natale Mezzapesa, Stefano Dumontet, Donato Mondelli, Teodoro Miano, Giovanni Luigi Bruno.

Bioremediation technologies are efficient in situ soil remediation processes, widely considered as a cost-effective and eco-friendly approach.

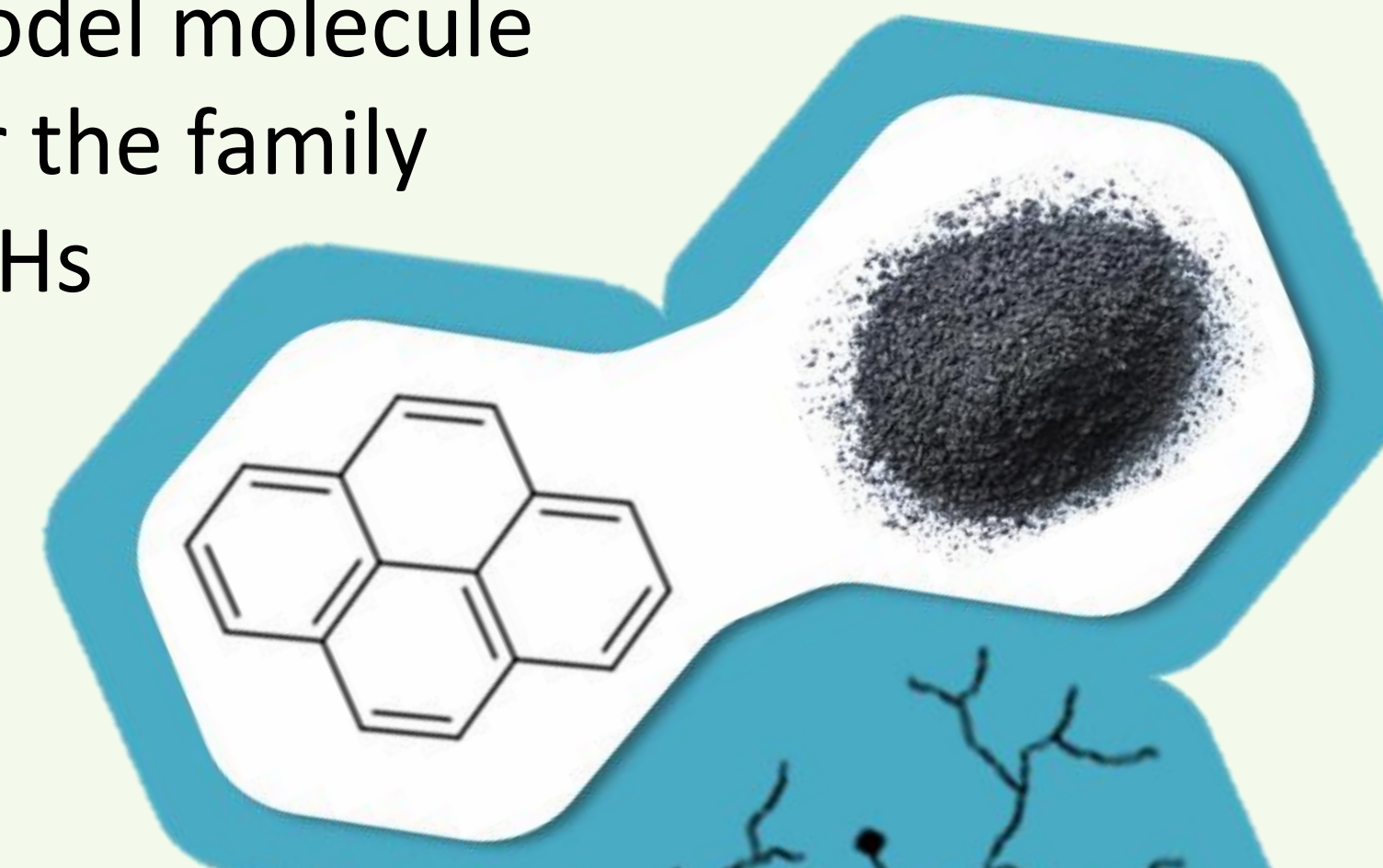


Polycyclic aromatic hydrocarbons are a large group of pollutants, widespread in the environment, soil included, and extremely toxicity for human and environmental health.

Biochar is currently considered an excellent soil conditioner and its incorporation into soil seems to promote PAHs adsorption and to interact positively with soil microorganisms.

## BIOAUGMENTATION TEST

pyrene is the model molecule for the family PAHs

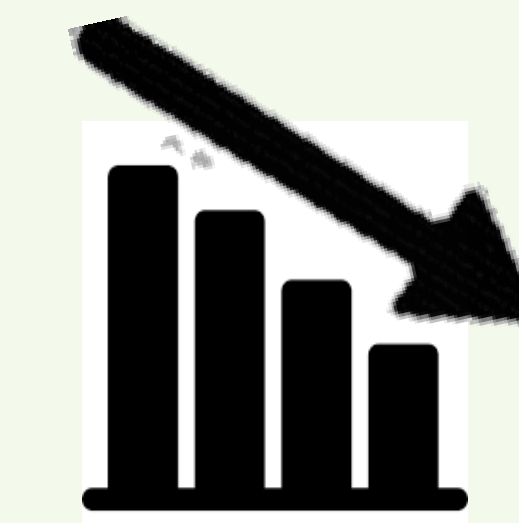
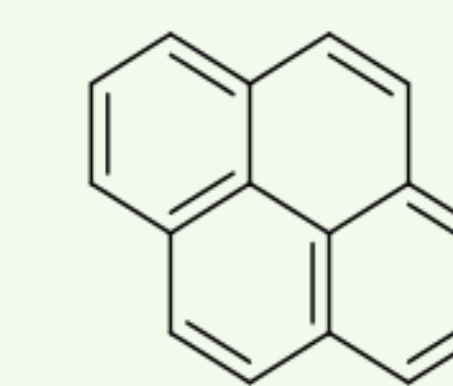


biochar from slow pyrolysis from olive pomace

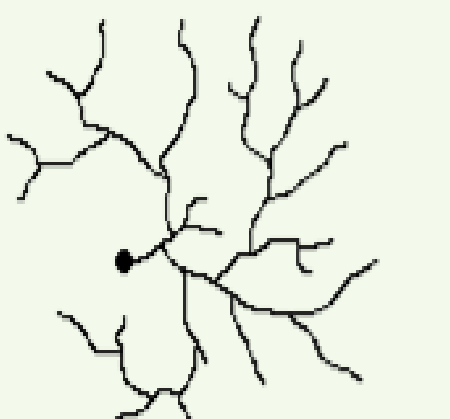
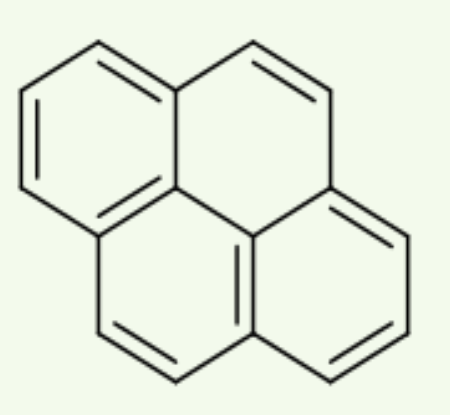
*Trichoderma harzianum* exogenous microorganisms

In this study we assess the efficacy of biochar as promoting substrate for microbial remediation techniques

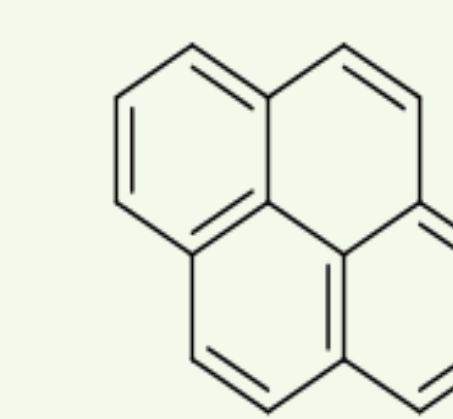
Biochar was able to stimulate the *T. harzianum* growth; *T. harzianum* does not display a distinctive ability in degrading pyrene.



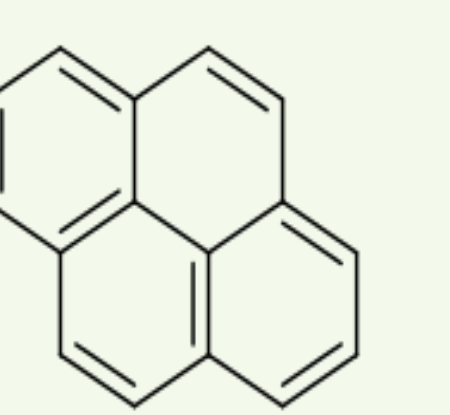
-70 %  
in 4 week



In both the tests biochar does not interfere in Pyrene adsorption



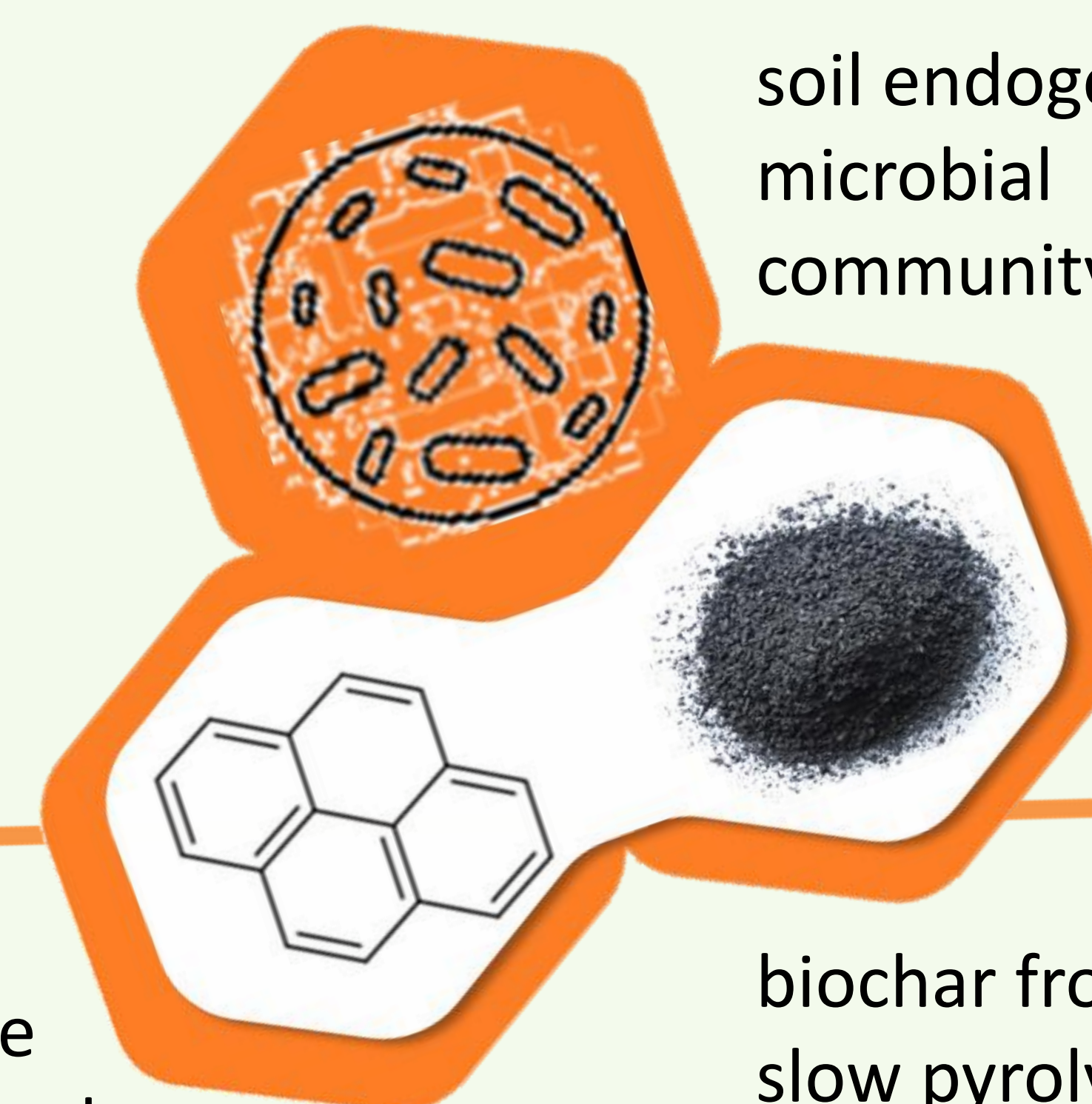
-70 %  
in 1 week



Biochar was able to stimulate the soil endogenous microbial community growth; Pyrene concentration was reduced of about 70% in 1 week.

## BIOSTIMULATION TEST

pyrene is the model molecule for the family PAHs



biochar from slow pyrolysis from olive pomace

soil endogenous microbial community