

## PRACTICE ABSTRACT 7

### Tomato: Seed treatment for organic agriculture

Harmful seed-borne plant pathogens (present in/on the seed) can be the source of infection on the crops that originated from infected seeds.

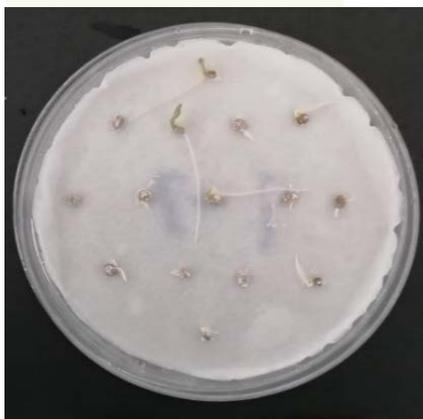
The use of healthy seed is therefore a very important tool for the success of the crop. Seed treatments aim to reduce/inactivate the inoculum of seed-borne pathogens or indirectly improve plant defence responses using a mechanism known as biopriming.

In organic farming, where chemical solutions cannot be applied, products based on microbial consortia (MCs) and natural compounds (NCs) are currently being studied as sustainable alternatives.

To preserve their activity, products containing MCs and NCs need to be stored using correct procedures normally provided by the manufacturer.



In fact, MCs and NCs are natural ingredients which are normally found in nature and are susceptible to temperature, humidity, oxidation, and UV exposure. Formulations provide a very high degree of conservation when products are kept in a cool, dry environment that is not exposed to the sun. Once opened, products should be used rapidly as oxygen will interact with NCs and promote MCs growth. If the products derived from NCs are usually stable, the MCs must be stored away from extreme temperatures (optimal range from 10–30 °C).



When using compounds such as MCs and NCs for an application on seed, products should be diluted using water, at the doses recommended by the manufacturer.

Seed dressing should be carried out by soaking the seed in the MC suspension/NC solution. The recommended volume used is about 10 times the volume of seeds, to cover them completely.

After 10 minutes of shaking to ensure a uniform distribution, the seeds need to be left to dry on absorbent paper.

It is recommended to sow the seeds within 24 hours after seed dressing to maintain unaltered the NCs characteristics and MCs vitality during the first stages of germination.



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#### THE AUTHORS

Ferdinando Branca is an associate professor at the University of Catania, UNICT (Italy), where he studies diversification and innovation in vegetable production. He has collected, characterised, and evaluated several wild and cultivated vegetable species, in particular Brassicaceae.

Giulio Flavio Rizzo is a PhD student in Biotechnology at University of Catania with a master's degree in Agricultural Biotechnologies. After his studies he performed the experimental activities for UNICT in the framework of task 4.2 of the BRESOV project, supervised by Prof. Vittoria Catara.

Vincent Lefebvre du Prey is Head of Marketing at ITAKA crop solution, whose products are totally suitable for "ZERO RESIDUE" strategies and respond to today's eco-sustainable production systems, requiring a reduction in the use of synthetic products.



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#### THE PROJECT

##### BRESOV

##### SHAPING THE FUTURE OF ORGANIC BREEDING & FARMING

BRESOV aims to tackle the nutritional challenges of a growing world population and changing climatic conditions by enhancing productivity of different vegetable crops in an organic and sustainable farming infrastructure. BRESOV works on broccoli, snap bean and tomato as those staple vegetable crops have significant roles in meeting our global food and nutritional security goal, and under organic conditions can contribute to storing carbon, introduce nitrogen and improve organic soil quality.

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