



## LIFE MICROFIGHTERS:

an EU funded project for the implementation and use of innovative Zeo-biopesticides, based on beneficial microorganisms, as an alternative to the use of copper-based products

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### State of the Art

The common and widespread use of Cu-based pesticides (hydroxide, oxychloride, sulphate, peptidate, gluconate, tallate, chloride and their mixtures) to control bacterial and fungal diseases poses several safety questions, since this element is currently contaminating many agricultural soils in European countries with highly resilient compounds that will last in the environment for a very long time.

Starting from the last decade of the 20th century, limitations have been made on its uses because of its tendency to accumulate in the environment (soils and water sediments) and its connections with biodiversity loss. The European regulation in 1991 imposed a limit of 8 kg/ha/year (COUNCIL REGULATION (EEC) No 2092/91, 24 June 1991), reduced in 2006 to 6 kg/ha/year (maintained with the COMMISSION REGULATION (EC) No 889/2008, 5 September 2008). The actual European limitations levels correspond to 28 kg/ha over a period of 7 years and 4 kg/ha/year as mean (EC NO° 1981/2018).

### Ambition

The LIFE MICROFIGHTER project has the ambition to demonstrate in open field, and on different crops, the effectiveness of innovative pesticide formulations based on the intimate association of bacterial antagonists with zeolites micro-particles, which will support bacterial viability and efficacy after their spray on the crop canopy.

### Partners' Consortium

Name	Country
Co&So, Florence (Coordinator)	Italy
Symbiagro s.r.l., Roncadelle, BS	Italy
Astra, Innovazione e Sviluppo, Tebano, RA	Italy
Consorzio Agrario di Ravenna	Italy
Federacion de Cooperatives Agroalimentares, Valencia	Spain
CNR, Bologna	Italy
University of Ferrara	Italy
University of Modena and Reggio Emilia	Italy
University of Zadar	Croatia



### Pathosystems

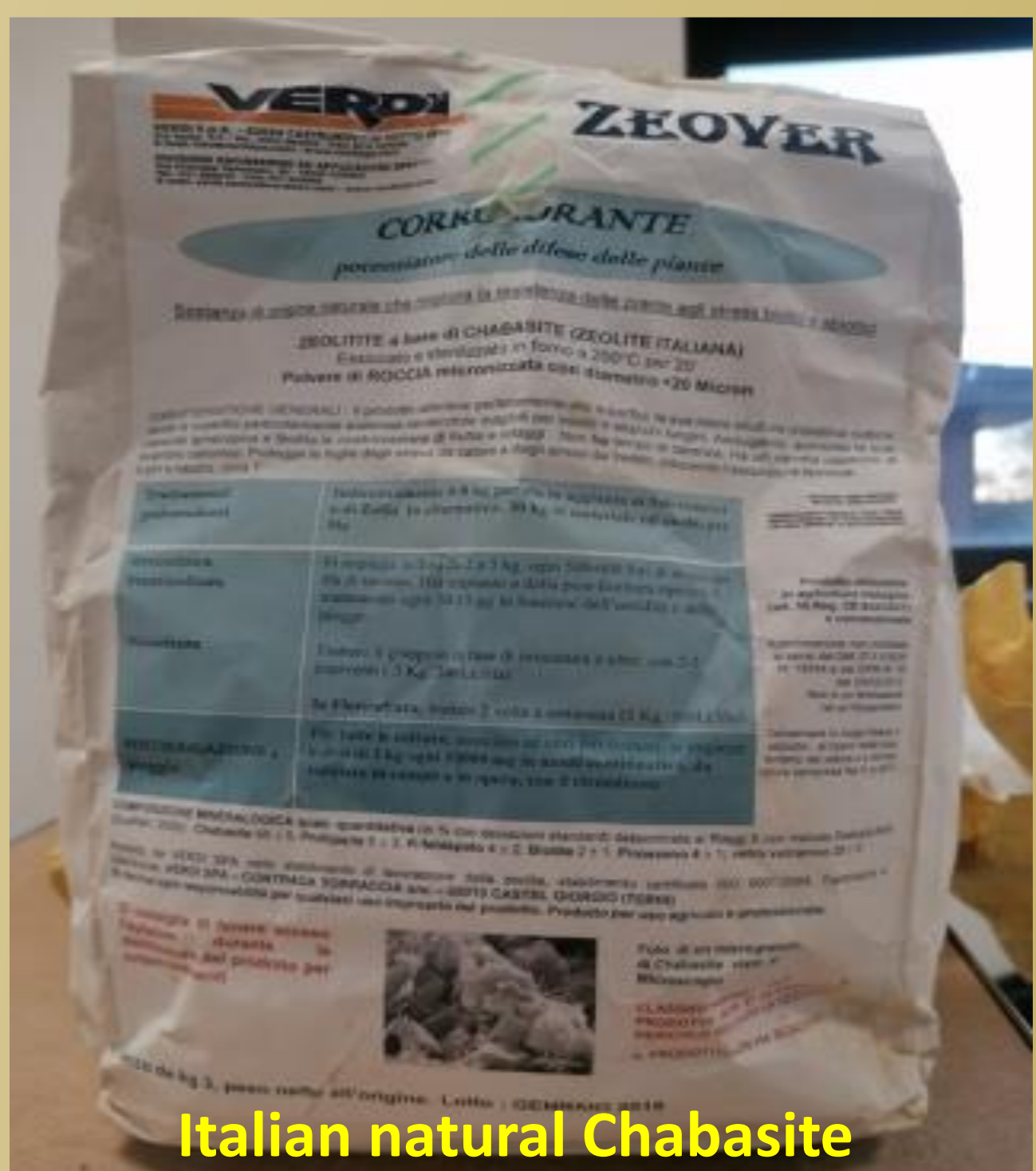
Grapevine – *Plasmopara viticola*

Olive – *Pseudomonas savastanoi* pv. *savastanoi*

Tomato – *Xanthomonas* spp.

### Project objectives

- Demonstrate the efficacy of a new natural and environmentally sustainable Zeo-Biopesticide, composed by Italian natural chabasite zeolites and a specific mBCA (*Pseudomonas* sp. DLS65) as an alternative to copper-based products for the control of the most threatening diseases of grapevine, tomato and olive in Italy, Croatia and Spain.
- Reduce the copper input in the agricultural soils from average 4 kg/ha/year to average 2 kg/ha/year, without affecting the yields and the quality of produce.
- Demonstrate that the cultivation with the new Zeo-Biopesticide will decrease the amount of copper accumulated in the topsoil of at least 0.7 ppm each year of experimental cultivation and increase soil biodiversity.
- Promote, encourage and support the use of the innovative Zeo-Biopesticide and the cultivation strategies tested in the project, as alternatives to copper for the cultivation of grape, olive and tomato.



This research is supported by the European Commission through a LIFE-2021-SAP-ENV-ENVIRONMENT project. Grant Agreement Nr. 101074218