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Organic substances against *Monilia laxa* on apricot – in-vitro and on-farm experiments

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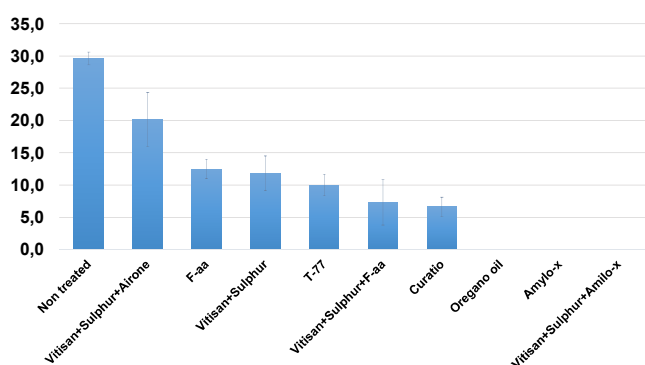
Monilia laxa is an ascomycete causing brown rot in different important cultures, especially in *Prunus* genus. So far chemical products were used during flowering and harvest time to avoid the propagation of this fungus in flowers and fruits. Recently the tendency of using less and less these products and the high demand of the consumers takes to an organic or integrated production using biological agents to control this disease. In order to find some organic solutions to manage *Monilia laxa*, some in-vitro and on-farm tests were achieved between 2017 and 2019.

In-vitro-tests

A set of biological fungicide products were used in Petri plates with a special medium (V8-agar) where three inverted mycelial plugs of *Monilia laxa* were added. Plates were incubated four days at 23°C and the growth of the mycelium was measured.

Product	Active Ingredient	%
Oregano Oil	Oregano Oil	4
Curatio	Lime Sulphur Calciumpolysulfides	1.6
Vitisan	Potassium bicarbonate	0.3
Sulphur Stulln	Micronized sulphur	0.2
T-77	<i>Trichoderma atroviride</i>	0.05
Airone WG	Cupric Fungicide 280 g/kg Cu	0.2
Amilo-X	<i>Bacillus amyloliquefaciens subsp. plantarum</i>	0,16
F-aa	Plant extract	0,18

Biological fungicides used in the in vitro test. Name of the product, active ingredient and recommended dosage in %.



M. laxa mycelium growth diameter (in mm) after application in vitro of different fungicides. Recommended concentration.

The mix of Vitisan, Sulphur and Amilo-x, Oregano oil and Amylo-X alone were the products that most inhibited the mycelium growth of *M. laxa*. Inhibiting totally the growth of the fungus. Curatio, the mix of Vitisan, Sulphur and F-aa, T-77, the mix of Vitisan and Sulphur and F-aa inhibited more than the half of the mycelium growth respect to the non treated sample.

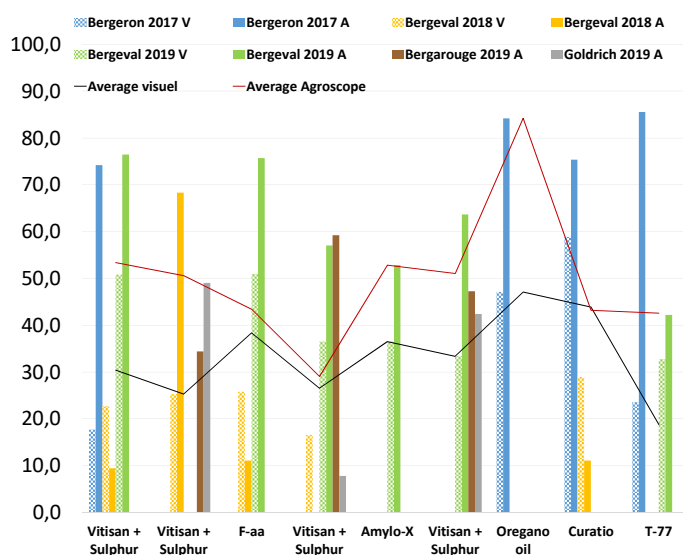
On-farm trials

On-farm trials were conducted in 3 locations according to GEP standards:

- Agroscope-Conthey (Wallis), var. Bergeron, planted in 2013
- Vétroz (Wallis), var. Bergeval, planted in 2008
- Olsberg (Aargau), var. Goldrich and Bergarouge, planted in 2014.

Products were applied during the bloom period of apricot (BBCH 53 to 69), before a wet period. Efficacies were assessed with two methods:

- V = visual assessment (rating on 10)
- A = Agroscope method (Monilia weight / branch section)

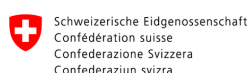


Efficacies (%) in comparison to untreated plot

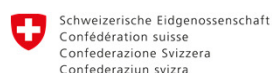
The two methods of assessment don't always match and the results are fluctuating according to weather conditions and parcels. Oregano oil reached the best efficacy but was only tested one year on one parcel. Globally all others products achieved medium efficacies.

Abstract

Natural substances against *Monilia laxa* were on-farm and in-vitro tested. According to on-farm tests, some products reached interesting efficacies. The fluctuation of the year and parcel pressures, makes it difficult to perform the results.



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