



## **Press release**

### **STUDY HIGHLIGHTS No. 8/2023**

## **Benefit of homeopathic treatment on the development of turnip crops**

Berlin, 09 Nov 2023 – Homeopathy in agriculture – several scientific studies have highlighted the positive effects of homeopathic medicines authorised for humans on the development of nutritionally important plants in the last years. In this eighth issue of our “Study Highlights series”, we present a controlled study published in 2020 which showed a beneficial impact of three different homeopathic treatments on the development of turnip crops.

### **Topic and lead author**

**“Effect of homeopathic medicines on the agronomic behaviour of the turnip by Dr. Fernando Abasolo-Pacheco, Faculty of Agricultural Sciences, State Technical University of Quevedo, Quevedo, Los Ríos, Ecuador**

### **What is the study about and what is the added value of homeopathic treatment?**

Turnip is a fundamental component of the Ecuadorian diet. Beyond its nutritional profile, which is rich in vitamins, minerals, and proteins, turnip possesses medicinal qualities. To meet the population's needs, production is on a large scale with intensive use of agrochemicals. However, their excessive and indiscriminate use has multiple detrimental impacts on the ecosystem, including heightened resistance of insect pests to agrochemicals, gradual degradation of soil quality, and accumulation of toxic waste in food.

Agricultural homeopathy, also known as agrohmeopathy, is an emerging field providing ecological alternatives to enhance plant health. Experiments have shown that use of homeopathic preparations can help with pest control and increase the plants' resistance to various diseases and stress factors such as salinity and drought. Several studies have shown improved growth in terms of size and weight, as well as a higher rate of germination and emergence through the soil in various plant species treated with homeopathic medicines authorised for humans.

In light of these findings, the current study was conducted to evaluate the effects of three homeopathic medicines in the development of turnips.

## How was the study conducted?

- Three homeopathic medicines were assessed, each in two different dosages (potencies<sup>1</sup> 7CH and 31CH): *Silicea terra* (SiT), *Natrium muriaticum* (NaM) and *Phosphoricum acidum* (PhA), leading to six homeopathic treatments<sup>2</sup>. The control treatments consisted of water. For each treatment, there were three replicates.
- 3 growing phases of the plants were examined: germination (eruption of the radical (future root) from the seed), emergence (breaking through the soil surface) and the vegetative development stage (phase between germination and flowering when leaves develop)<sup>3</sup>.
- During the germination and emergence phase, the following variables were analysed: percentage of seeds germinated, length of stem and radicle, and fresh and dry weight of the aerial part.
- During the vegetative development stage, plant height, stem diameter, number of leaves and weight were examined on days 15, 30 and 45 of treatment.
- A basic economic analysis was performed by looking at the cultivation yield, the benefit/cost ratio<sup>4</sup> and the profitability<sup>5</sup>.

## What are the scientific results?

### Germination phase:

- 100% germination was obtained with the homeopathic treatments SiT-7CH, PhA-7CH and NaM-31C, which was significantly higher ( $p < 0.05$ ) than that of the control group (83.5%).
- PhA-7CH and NaM-31C treatments stimulated the stem growth significantly (3.4 cm vs. 2.63 cm in the control group;  $p < 0.05$ ).
- Treatment with SiT-7CH yielded seedlings with the greatest radicle length (5.63 cm vs. 4.05 cm) and the highest fresh biomass compared to control (0.025g vs. 0.015g,  $p < 0.05$ ).
- Emergence phase:
  - Plants treated with NaM-7CH had the greatest average stem length (8.64cm vs. 7.33 cm) and radicle length compared to the control group (4.07 cm vs. 2.74 cm,  $p < 0.05$ ).
- Vegetative developmental stage:
  - **All 6 homeopathic treatments had a positive influence on the plants' height at all 3 time points. On days 30 and 45, the homeopathically-treated plants were all significantly higher than the control plants**

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<sup>1</sup> Potency: term for dosage in homeopathy, where a substance is diluted with alcohol or water and then vigorously shaken or "succussed". When substances are diluted 1:10, DH potencies are obtained. With 1:100 dilutions, CH potencies are obtained. 7CH e.g. means that a substance has undergone seven serial steps of 1:100 dilution and succussion.

<sup>2</sup> SiT-7CH; NaM-7CH; PhA-7CH; SiT-31CH; NaM-31CH; PhA-31CH.

<sup>3</sup> Germination – seeds were considered germinated when the radicle showed around 2 mm in length.

Emergence – seeds were considered emerged when the plant passed through the substrate surface.

Vegetative development phase – began when seedlings with an average height of 15 cm were transferred to observation plots.

<sup>4</sup> Benefit/cost ratio measures whether you get value or benefit from the money spent.

<sup>5</sup> Profitability in agriculture is the income from sale of crops/ products grown, minus the costs incurred to produce them.

- (**p<0.05**). The greatest plant height was obtained with NaM-7CH (43.2 cm vs. 31.17 cm in the control group).
- Plants treated with SiT-7CH had the highest number of leaves and the broadest stem diameter. These plants also showed a significantly higher total plant fresh weight compared to the control group (1020 g vs. 400 g, p<0.05).
  - Economic analysis:
    - The highest cultivation yield was obtained under SiT-7CH treatment (34,250 kg/ha), followed by NaM-7CH (33,000 kg/ha) vs. 18,575 kg/ha in the control group (p<0.05).
    - These two treatments were also linked to the best benefit/cost ratio and profitability compared to the control group.

### **Why are the results of this study important and what do they add to the scientific evidence?**

The study shows positive effects of homeopathic medicines, especially of *Silicea terra* and *Natrium muriaticum*, on the numerous development phases of turnip. Although the lower potencies (7CH) seemed to have a greater effect, good results were also obtained with high potencies for the three homeopathic medicines studied. **These results confirm previous findings by other research groups that have found positive effects of these, and other homeopathic treatments, on the development of various nutritionally important plants** like wheat, peas and cabbage.

Combined with the positive findings on the economic impact, the results of the current study indicate that agricultural homeopathy is a sensible alternative in horticulture. Given the problems caused by the excessive use of agrochemicals, these results are particularly important as they support the idea of using homeopathy in agriculture as an environmentally conscious option.

The authors indicate that further research is needed in agrohmeopathy to gather more data on its possible technological and productive applications.

### **Where were the results published?**

Abasolo-Pacheco F, Ojeda-Silvera CM, Cervantes-Molina JE et al. Agronomic behavior of the turnip (*Brassica napus* L.) during the application of homeopathic medicines. *Terra Latinoamericana* 2020;38:67-82.

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