

# Greenhouse experiment on radish

## Huplaso effect on radish plant

### Foreword

The first results obtained of the Huplaso analysis show it has several physicochemical properties involved in improving agricultural soil fertility. Its macro and microelement composition would be able to meet the nutrient requirements of several crop types while remaining below the metal trace element concentration thresholds imposed in Canada. Greenhouse radish experiments were conducted to test Huplaso's agricultural potential as an amendment.

### Material and methods

For the greenhouse experiment, Huplaso was compared to a control plant. The agricultural amendment was mixed to obtain a pH between 5.5 and 6.5 in the growth test pots.

The mineral soil used comes from an agricultural parcel in the Baie-du-Petit-Pokemouche region. For each treatment, four replicas were observed.

For each substrate created, a radish growth monitoring was carried out in a greenhouse with conditions of 25 ° C and 50% humidity (average values). The variety of radishes chosen is radish saxa from Caillard in the form of organic seeds. This root vegetable variety was chosen for its rapid germination (5 days) and a possible harvest one month after sowing.

As part of this experiment, the radish seeds were sown on December 4, 2015 and the fruits were harvested once mature. Maturity was judged by a radish diameter equivalent to a \$ 1 coin (about 25 mm). At the end of the experiment, all the radishes were harvested even if the diameter of 25 mm was not reached. In each pot, 4 radishes were sown; which makes a total of 16 radishes sown per treatment. The last harvest took place on February 19, 2016.

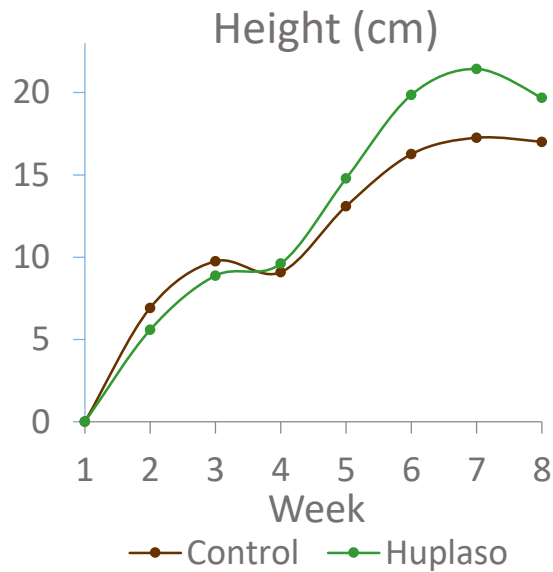
During plant growth, several parameters were observed on a weekly basis: plant height, plant weight at harvest, number of leaves, leaf chlorophyll, leaf weight, diameter, weight and quotation at harvest.

### Plant height

The height of the plants was measured over 8 weeks; so, until the start of the harvest.

A first comparison with the control substrates shows that with Huplaso, the height of radish plants is higher in mineral soil.

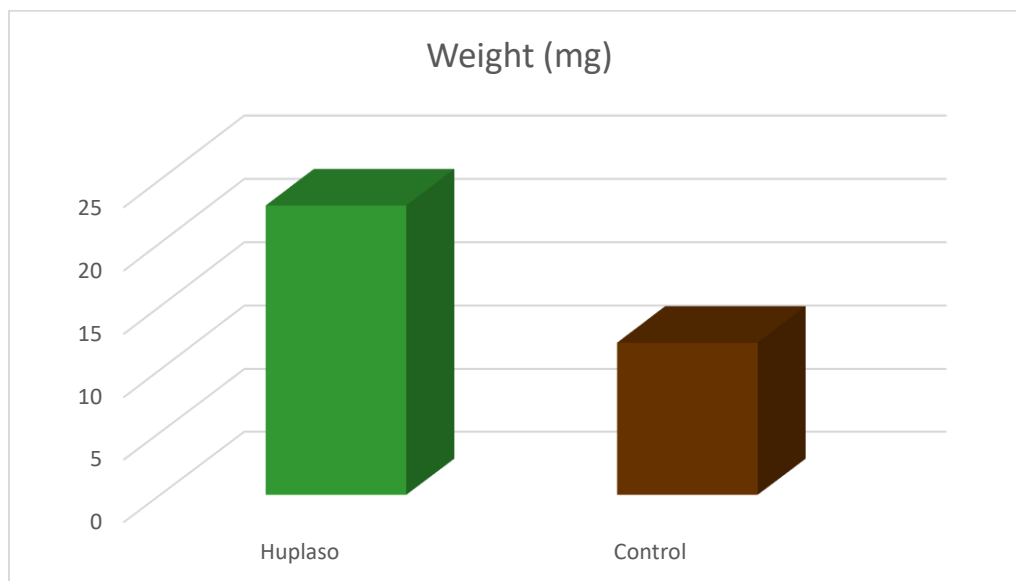
By observing the results obtained, we can notice a demarcation of Huplaso against the competitors as well as the witness. We can see an 18% increase against the witness.



### Weight of plants at harvest

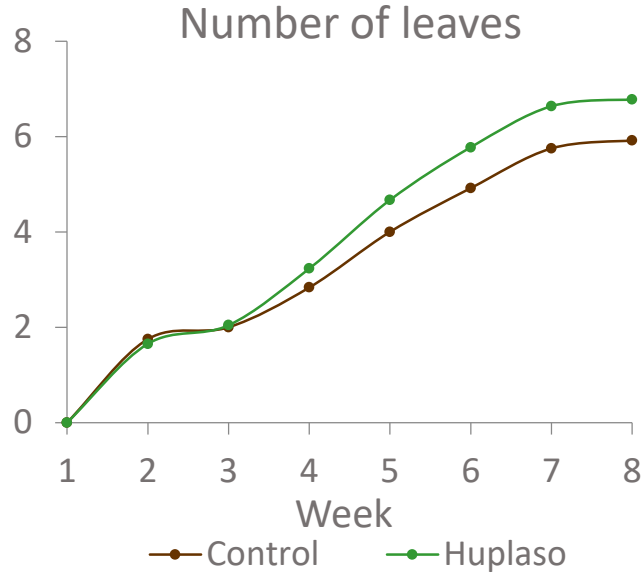
To get an idea of Huplaso's influence on biomass, the mass of plants was measured following the harvesting of radishes. This mass takes into account the stem, roots and leaves.

We can see the obvious demarcation of Huplaso product compared to the control; is an increase of 89%.



### Number of leaves

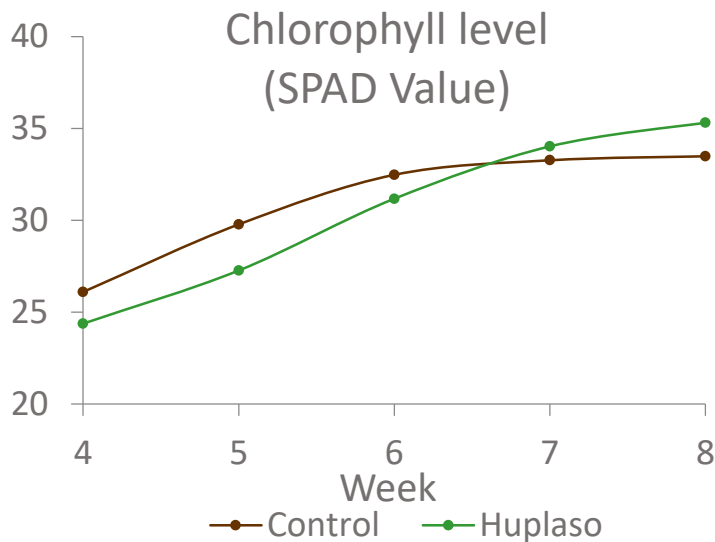
A first comparison with the control substrates shows that with Huplaso, the number of radish leaves is greater.



### Chlorophyll level

The chlorophyll level is considered as an indicator of health of the plant. It is also related to the leaf nitrogen content of the plant. As part of the experiment, it was measured weekly, with a SPAD 502 on the 3rd leaf from the top of the radish plant. As consequence, the results are presented from the 4th to the 8th week.

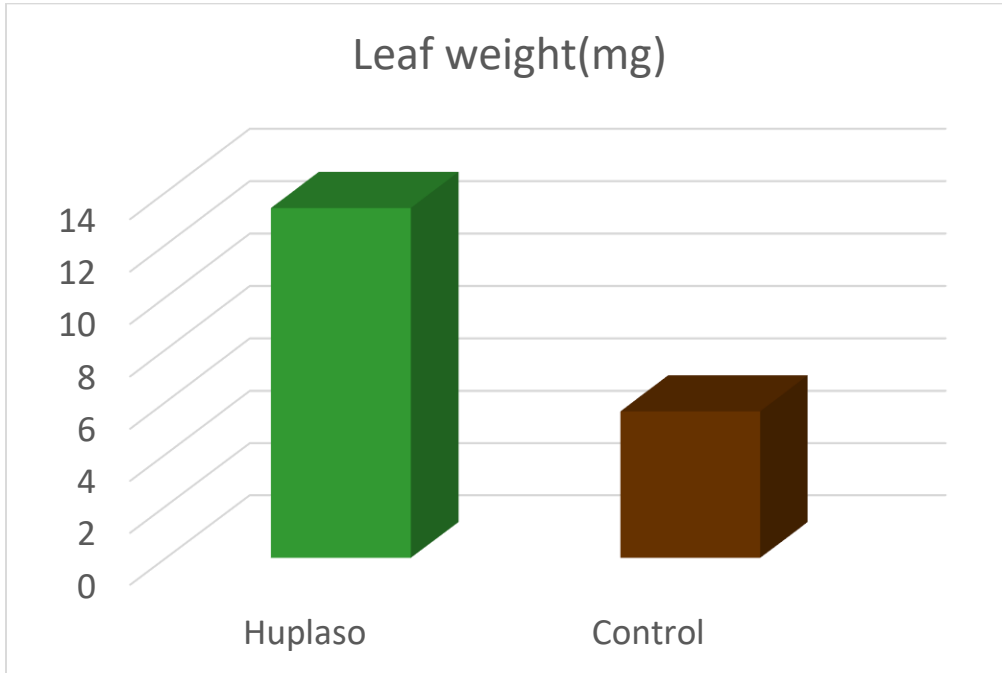
A first comparison with the control substrates shows that with Huplaso, the chlorophyll level in mineral soil is lower until the 6th week, then it becomes superior to the control substrate.



### Leaf weight at harvest

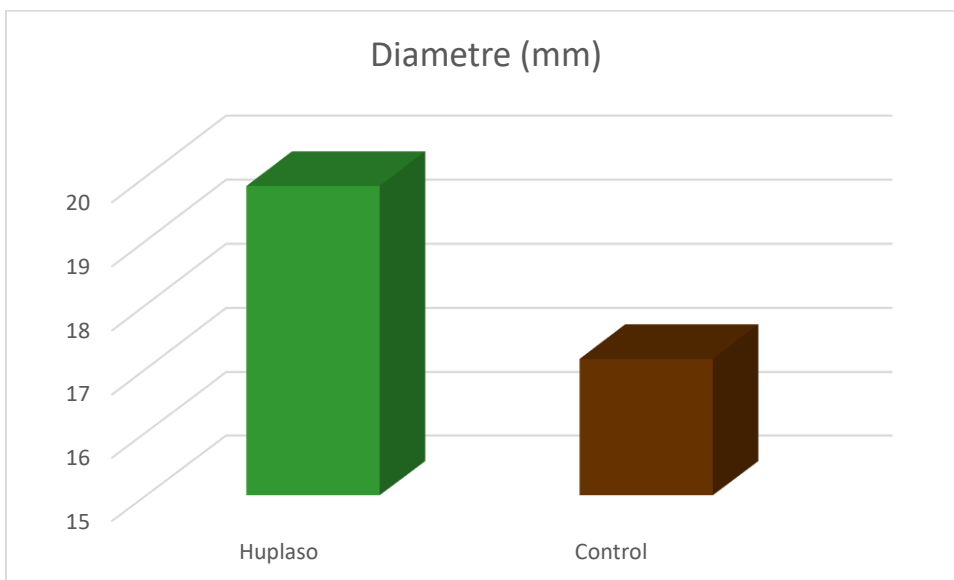
The mass of radish leaves was measured following the harvest of radishes to evaluate the influence of Huplaso on radish leaves from another angle.

In mineral substrate, the results in the presence of Huplaso are superior to the control substrate.

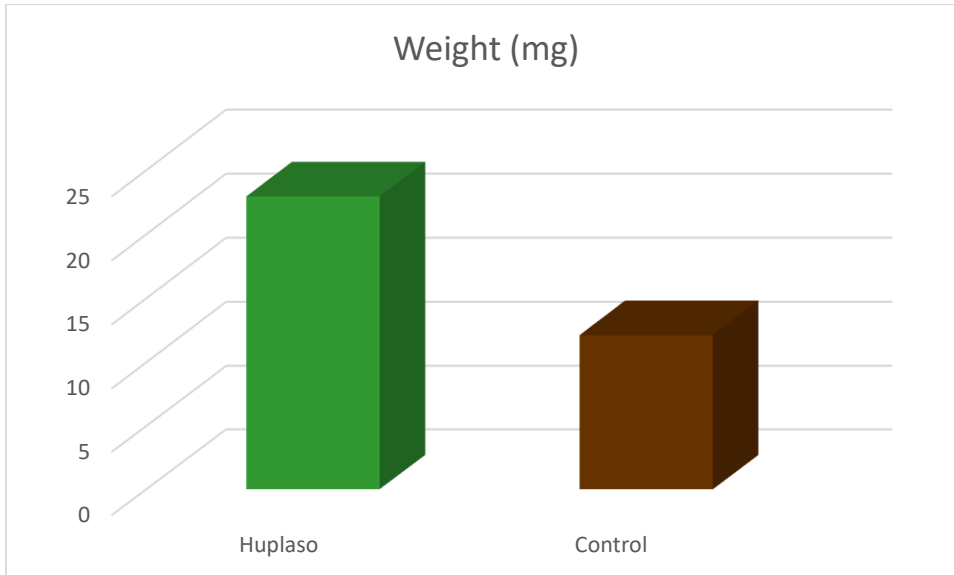


### Harvested radish: diameter, weight and quotation

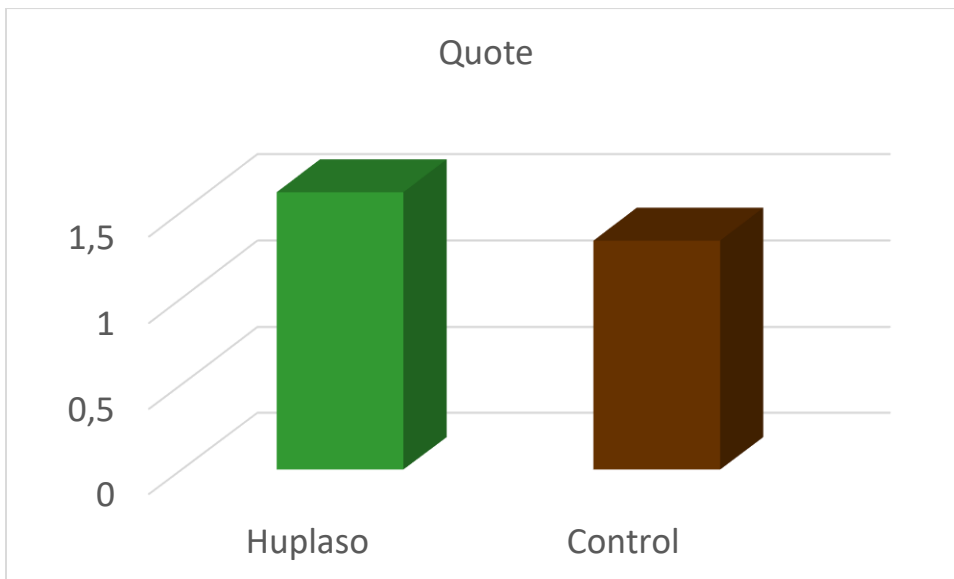
The diameter of radishes in the presence of Huplaso is greater than the one obtained with the other control treatments.



Weights of radishes harvested in the presence of Huplaso are superior than those of other control treatments.



In regards to the quotation of harvested radishes, figures 0, 1, 2 and 3 correspond respectively to an absence of radish, a non-marketable radish, a marketable radish with apparent defect (s) and a marketable radish with a very good appearance. Given these criteria, 50% of radishes in the presence of Huplaso are marketable, 25% with a very good appearance. Compared to other control treatments, those of Huplaso are found superior in mineral substrate.



Experiments carried out so far show that Huplaso plays a dual role in soils. More specifically, in addition to being able to increase the soil's pH, it is able to remineralize it, thus providing the necessary nutrients for the growth of a plant.

Par:



**Institut de recherche**  
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*Affiliated with the Université de Moncton - Shippagan Campus*

Soils, peat and sustainable development

Marion Tétégan Simon, Ph.D

September 2016

\* For ease of understanding, the original term that was basalt powder was replaced by the name Huplaso. \*