

SOLULYS® soluble protein extract range extension : SOLULYS®145V-EXP and SOLULYS®046V-EXP

INTRODUCTION

Plant nutrition and protection are at the heart of growers' requirements, to ensure optimal growth of their crops and meet the global food demand. Fertilizer use is essential, with estimates suggesting that global food crops would be around half their current levels without the addition of synthetic nitrogen¹. It is crucial to ensure that plants have all the essential nutrients they need for their growth. That's why plant fertilization and soil nutrition are key components. Raising the challenge of sustainability with no compromise on yield.

Moving towards more sustainability in agriculture, growers need to find alternative solutions to conventional synthetic fertilizers, to lower their environmental impact and respond to consumers' consciousness of how their food is cultivated. Yet, growers still expect optimum plant growth and crop yield results.

Biostimulants stimulate the process of plant nutrition independently of the nutrients they contain, for the unique purpose of improving one or more of characteristics of plants or their rhizosphere like nutrient utilization efficiency, tolerance to abiotic stress, quality characteristics, and availability of nutrients confined to the soil.

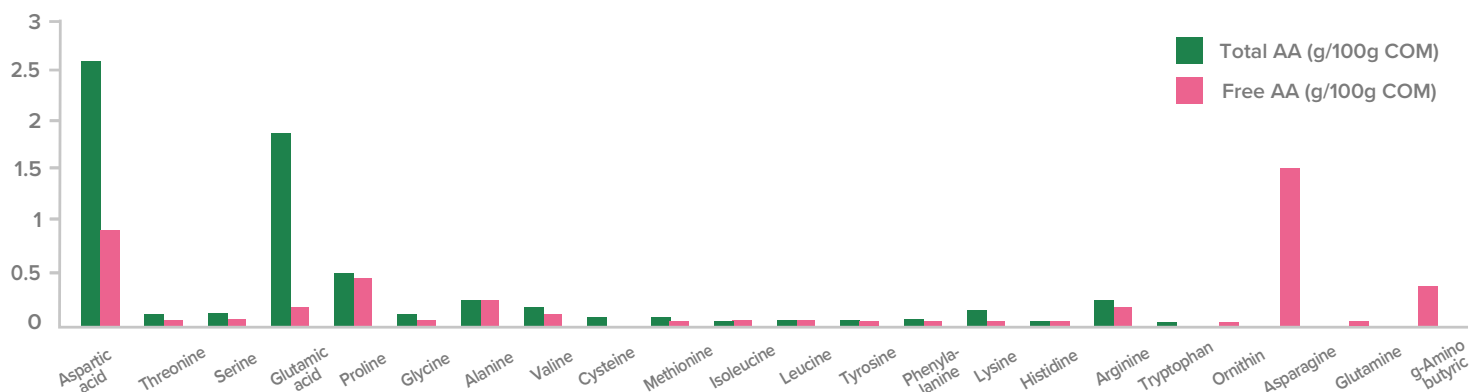
PRODUCT PRESENTATION

SOLULYS® 145V-EXP and SOLULYS® 046V-EXP can be used as raw materials in biostimulant formulations. Both help to stimulate the natural defenses of plants and to improve nutrients use efficiency.

Claims for each product:

- **SOLULYS® 145V-EXP is a soluble product with a high value of K₂O that increases plant deployment and facilitates nutrition absorption.**

SOLULYS® 145V-EXP aminogram



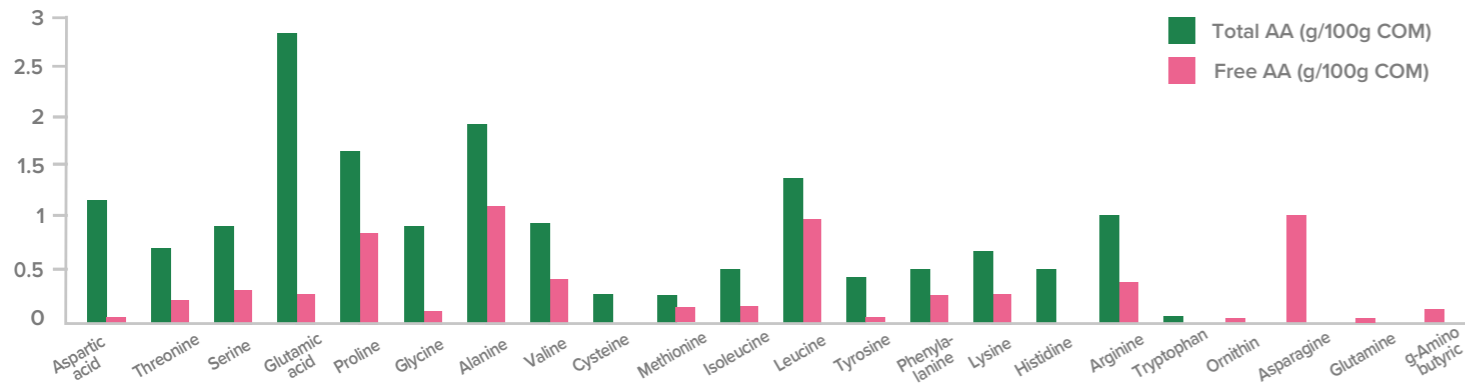
1. H. Ritchie and M. Roser. "Fertilizers." Our World in Data.org. Available at: <https://ourworldindata.org/fertilizers>

Based on as is indicative values

SOLULYS® 145V-EXP	
Appearance	Brown liquid
% Dry Substance	46 %
N-P ₂ O ₅ -K ₂ O	2-1-9
Total Nitrogen	2%
Phosphorus (P ₂ O ₅)	1%
Potassium (K ₂ O)	9%
Free Amino Acids	4%
Total Amino Acids	7%
Total Organic Carbon	13%

- SOLULYS® 046V-EXP is a soluble product with well-balanced N; P₂O₅; K₂O, with a good aminogram (with high % of free amino acids) that brings several key nutrients for the plant

SOLULYS® 046V-EXP aminogram



Based on as is indicative values

SOLULYS® 046V-EXP	
Appearance	Brown liquid
% Dry Substance	45%
N-P ₂ O ₅ -K ₂ O	3-4-4
Total Nitrogen	3%
Phosphorus (P ₂ O ₅)	4%
Potassium (K ₂ O)	4%
Free Amino Acids	7%
Total Amino Acids	17%

CASE STUDY

- Trial 1: Lettuce development on inert substrate

SOLULYS® 145V-EXP, was compared with an untreated negative control, and a commercial synthetic fertilizer on lettuce seedlings grown in an inert substrate (vermiculite and perlite). Products were applied at equivalent nitrogen levels at the root zone.

Results showed SOLULYS® 145V-EXP having larger fresh and dry biomass values for both roots and aerial compared to a commercial synthetic fertilizer after 3 weeks. Roots of lettuce plants treated with SOLULYS® 145V-EXP were more robust than the commercial synthetic fertilizer with an additional 23 milligrams (mg) of root dry matter and 247 mg of fresh root matter. With a better root system, the plant assimilates nutrients easier.

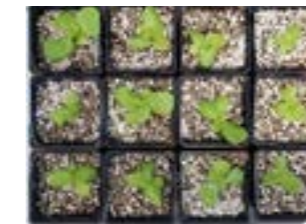
SOLULYS® 145V-EXP also has a noticeable effect on the aerial part of lettuce with 11 additional mg of aerial dry matter compared to the commercial synthetic fertilizer. Trial 1 shows SOLULYS® 145V-EXP has potential as a formulant in soil-based fertilizers. Foliar applications of this product are also a possibility.

Name of pots	Aerial part			Roots		
	Fresh matter in mg	Dry matter in mg	Chlorophyll mmol of chlorophyll/m ²	Root length in cm	Fresh matter in mg	Dry matter in mg
Negative control (vermiculite+perlite)	148	6	66	14	88	6
SOLULYS® 145V-EXP 6,00.10 ⁻³ gN/plant + (vermiculite+perlite)	773	40	145	20	571	45
Commercial synthetic fertilizer 6,00.10 ⁻³ gN/plant + (vermiculite+perlite)	665	29	124	19	324	22

Figure 1: Data for lettuce illustrate the ability of plant-derived products to stimulate the plants development. The results were processed statistically, contact us for more information.



Negative control (vermiculite + perlite)



SOLULYS® 145V-EXP 6,00.10⁻³gN/plant + (vermiculite+perlite)



Commercial synthetic fertilizer 6,00.10⁻³gN/plant + (vermiculite+perlite)



Negative control (vermiculite + perlite)



SOLULYS® 145V-EXP 6,00.10⁻³gN/plant + (vermiculite+perlite)



Commercial synthetic fertilizer 6,00.10⁻³gN/plant + (vermiculite+perlite)

• Trial 2: Tomato plantlets development on inert substrate

SOLULYS® 046V-EXP was subjected to a comparative analysis alongside an untreated negative control and commercial plant-based fertilizer using tomato seedlings grown on inert media (vermiculite and perlite). Products were applied at equivalent nitrogen levels at the root zone.

SOLULYS® 046V-EXP had observably larger plants and roots than the commercial counterpart. The aerial components of plants treated with SOLULYS® 046V-EXP demonstrated greater quantities of both fresh and dry matter in contrast to those treated with commercial plant-based fertilizer.

Plants treated with SOLULYS® 046V-EXP had roots slightly shorter but with much more ramifications. Thus, SOLULYS® 046V-EXP encouraged the growth of a dense root system with 120 additional milligrams in dry root matter compared to the commercial fertilizer.

Overall, it can be concluded SOLULYS® 046V-EXP composition, which includes amino acids and key nutrients, provides benefits for plants grown on inert media. Notably, the enhanced root system facilitates improved nutrient assimilation, ultimately contributing to the overall development and vitality of the plant.

Name of pots	Aerial part			Roots		
	Fresh matter in mg	Dry matter in mg	Chlorophyll mmol of chlorophyll/m ²	Root length in cm	Fresh matter in mg	Dry matter in mg
Negative control (vermiculite+perlite)	148	12	8	17	151	8
SOLULYS® 046V-EXP 3,90.10 ⁻² gN/plant + (vermiculite+perlite)	4877	548	338	14	5308	263
Commercial plant-based fertilizer (NPK «6-3-2») 3,90.10 ⁻² gN/plant + (vermiculite+perlite)	2312	338	318	16	3354	143

Figure 2: Data for tomato plantlets illustrate the ability of plant-derived products to stimulate the plants development, 7 weeks after treatment applications. The results were processed statistically, contact us for more information.



Negative control (vermiculite + perlite)



SOLULYS® 046V-EXP 3,90.10⁻²gN/plant + (vermiculite+perlite)



Commercial plant-based fertilizer 3,90.10⁻²gN/plant + (vermiculite+perlite)



Negative control (vermiculite + perlite)



SOLULYS® 046V-EXP 3,90.10⁻²gN/plant + (vermiculite+perlite)



Commercial plant-based fertilizer 3,90.10⁻²gN/plant + (vermiculite+perlite)

CONCLUSION

Our SOLULYS® range of products shows promising results in terms of plant development and ability to perform similar to commercial fertilizers. Choose Roquette’s SOLULYS® range extension products, which offer a sustainable, plant-based alternative for plant nutrition formulations.

To find out more about our plant-derived products for plant nutrition and protection products and how they can help you formulate an optimized plant care solution for your needs, check our [website](#) and [contact us](#)

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