



Research, Validation and Commercialization of Technologies

**Part D-1: Plausible Scientific Evidence of Supreme(AG)TM with
Nutri-MasticTM as a Mulch, Soil Amendment, Natural Fertilizer,
and More**

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IFUS Table of Contents:

IFUS Point 1: Preface to Comments (PART A)

IFUS Point 2: Predation Prevention as a Natural Pesticide (PART B)

IFUS Point 3: Mulching and/or Soil Amendment (PART B)

IFUS Point 4: Soil Fertilization (PART C)

IFUS Point 5: Soil Hydration, Mineralization, & The Biome (PART D-1, D-2, & D-3)

IFUS Point 6: Summary (In Progress)

IFUS Point 7: IFUS Conclusions (On-Going)

IFUS Point 8: Possible Next Steps

IFUS Point 9: Data: IFUS Trials and Reports

IFUS Point 10: Eco-centric Efficacy of SupremeAGTM

IFUS Addendum 1: Application Guidance

IFUS Addendum 2: Two-Stage Application

As a brief reminder, the IFUS Scientific Team is challenged with finding plausible explanations as to the reported efficacy of SupremeAG™ with Nutri-Mastic™, and NOT attempting to create science to justify the use of this IFUS or any other IFUS Product line. The intent is to provide guidance on how to best apply this Product Line for any given respective application, such that efficacy of SupremeAG™ with Nutri-Mastic™ creates desired performance outcomes. As we say, Input / Output.

SGP+™ being aged and transformed into SupremeAG™.



Hence, the science being explored is simply this: to offer plausible explanations as to why SupremeAG™ with Nutri-Mastic™ is being reported to produce desired outcomes in plant, tree, and/or shrub performance.

We begin with the notion of "Soil: The Foundation of Nutrition" per the illustration below. This simplified, yet complex diagram attempts to illustrate the actions, interactions, and relationships (both inter- and intra-) that create a maze of inter-dependencies that allow for the health, and unfortunately more so the illness of what is believed to be over 2-Billion of the roughly 8.25-Billion humans from "micronutrient deficiencies." This affects more than 25% of the present global population...the socio-economic consequences of which are staggering.



Source: https://talborne.co.za/wp-content/uploads/2023/02/a-bc275e_page-0001-1024x724.jpg

We do find interesting studies recently published that continue to challenge both historical and contemporary thinking as to plant-based nutrients.

Fazal Sultanbawa and Yasmina Sultanbawa pose an interesting group of questions worthy of consideration in their treatise, "Mineral nutrient-rich plants – Do they occur?" (Applied Food Research, Volume 3, Issue 2, 2023,100347, ISSN 2772-5022, <https://doi.org/10.1016/j.afres.2023.100347>.)

(<https://www.sciencedirect.com/science/article/pii/S2772502223000847>)

"Abstract: Mineral composition of plants is influenced by the growing environment, plant genetics and management practices. This affects claims about nutritional value of food plants. This review attempts to highlight the various factors associated with absorption of mineral nutrients by plants. Influences of soil factors which can be physical, chemical, and biological are identified. Environmental factors such as temperature, seasonality, and CO₂ levels as well as plant factors such as genetics, variety, root architecture, stage of growth etc. affect absorption of mineral nutrients. The role of agronomy in the form of fertilizer inputs, irrigation, plant densities etc. is also a significant factor in the availability and absorption of mineral nutrients. The practical significance of such a critical review of mineral absorption arises due to its implications for health and nutrition and the various claims made for nutritional value and dietary interventions. It is also of value to food producers to ensure that their produce meets the expectations of consumers who rely on such foods for diet and wellbeing. The topic is also of significant national and global importance for food policy and nutrition planning."

Sultanbawa and Sultanbawa challenge and explore the nature, relevance, accuracy, and precision of our collective present thinking. In this, they challenge not only said thinking, but the data we are considering, the manner in which we test and measure, our testing designs, and our conclusions.

IFUS contends that this is indeed a worthy challenge, as it asks (from our perspective) fundamental questions:

1. What constitutes actual nutritive value of the plants (and more broadly the foods) that we consume?
2. What impact is this information (or lack thereof) having on the health and well-being of life on the planet (as well as the planet itself)?
3. Are there solutions that are consistent with the "Natural Order" that substantively allow for said "Natural Order", so as to produce viable outcomes for plants, animals, and humans in an eco-friendly and cost-effective manner?

Furthermore, it would be remiss on our part were we not to offer a reminder of a perspective provided by Dr. Robert E. Pettit, Emeritus Associate Professor Texas A&M University in his treatise "ORGANIC MATTER, HUMUS, HUMATE, HUMIC ACID, FULVIC ACID AND HUMIN: THEIR IMPORTANCE IN SOIL FERTILITY AND PLANT HEALTH."

Dr. Pettit states: “Man became distracted from the importance of organic compound cycling when it was discovered that soluble acidic based N P K "fertilizers" could stimulate plant growth. Large industrial concerns took advantage of the N P K discovery to market industrially processed 'fertilizers' from mineral deposit. Continued use of these acidic fertilizers in the absence of adequate humic substances (in the soil) has caused many serious sociological and ecological problems. Man needs to reconsider his approach to fertilization techniques by giving higher priority to soil humus.”

CLAY HUMUS COMPLEX

HUMIC SUBSTANCES
Dead organic matter biodegrades over time, leaving behind a nutrient rich residue.

Humic Substances

-Fractions, properties, formation of humic substances

FULVIC ACID **HUMIC ACID**

Sethupathi Slva, M.Sc., In SS & AC 11/29/2018 18

Source: [Soil organic matter and Humic substances | PPTX](https://www.slideshare.net/slideshow/soil-organic-matter-and-humic-substances/124338723)

<https://www.slideshare.net/slideshow/soil-organic-matter-and-humic-substances/124338723>

The absence and/or presence of Humic Substances is a critical aspect of proper soil hydration and mineralization...as well as a whole list of phytochemicals (to include natural phytohormones and nutrients)...along with the natural biome.

The presence and critical interplay of this complex array of chemistry and biochemistry is both supported by and driven by (as well as in support of and a driver for) a delicate balance of the physics, mathematics, electrical transduction,

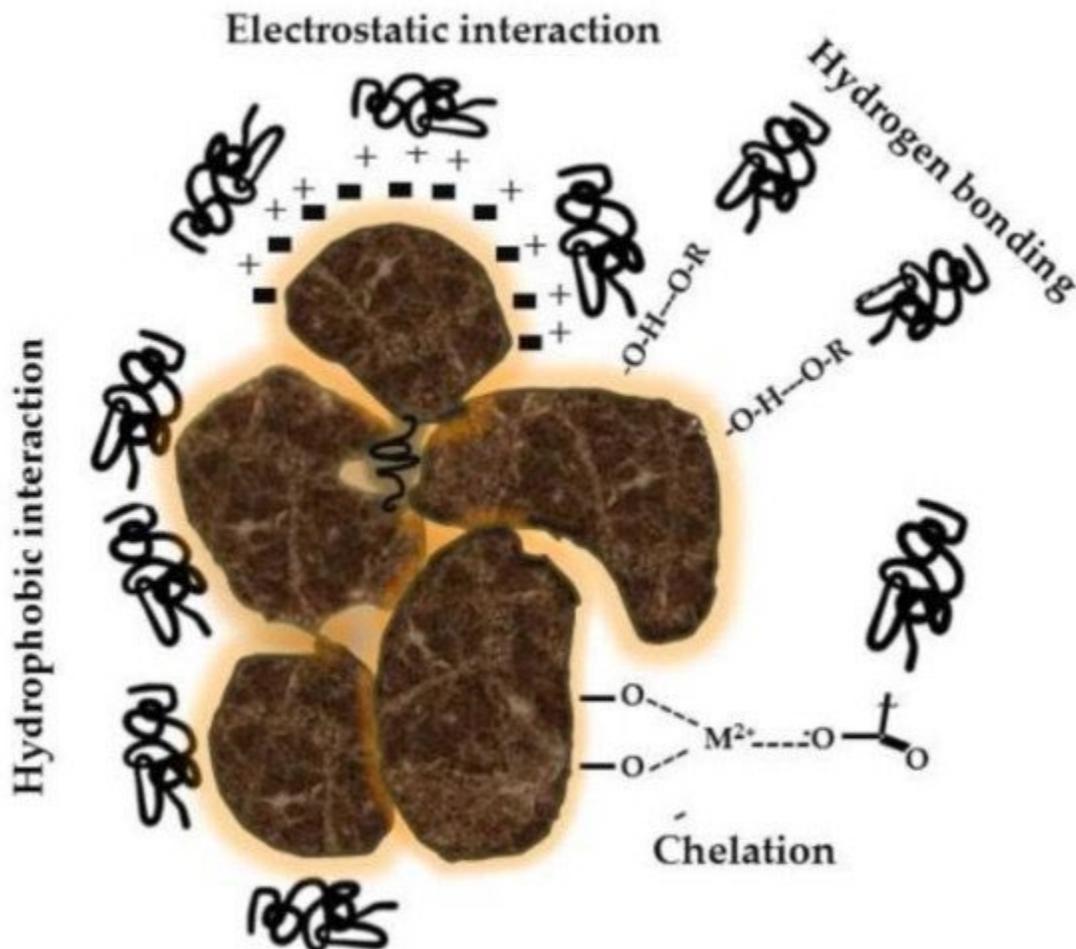
and any number of chemical and physical forces (even those of a most subtle nature...as these often are found to operate as a "smoking gun" of sorts).

S. Nardi, et.al., attempt to illustrate just one fraction of this "delicate balance"

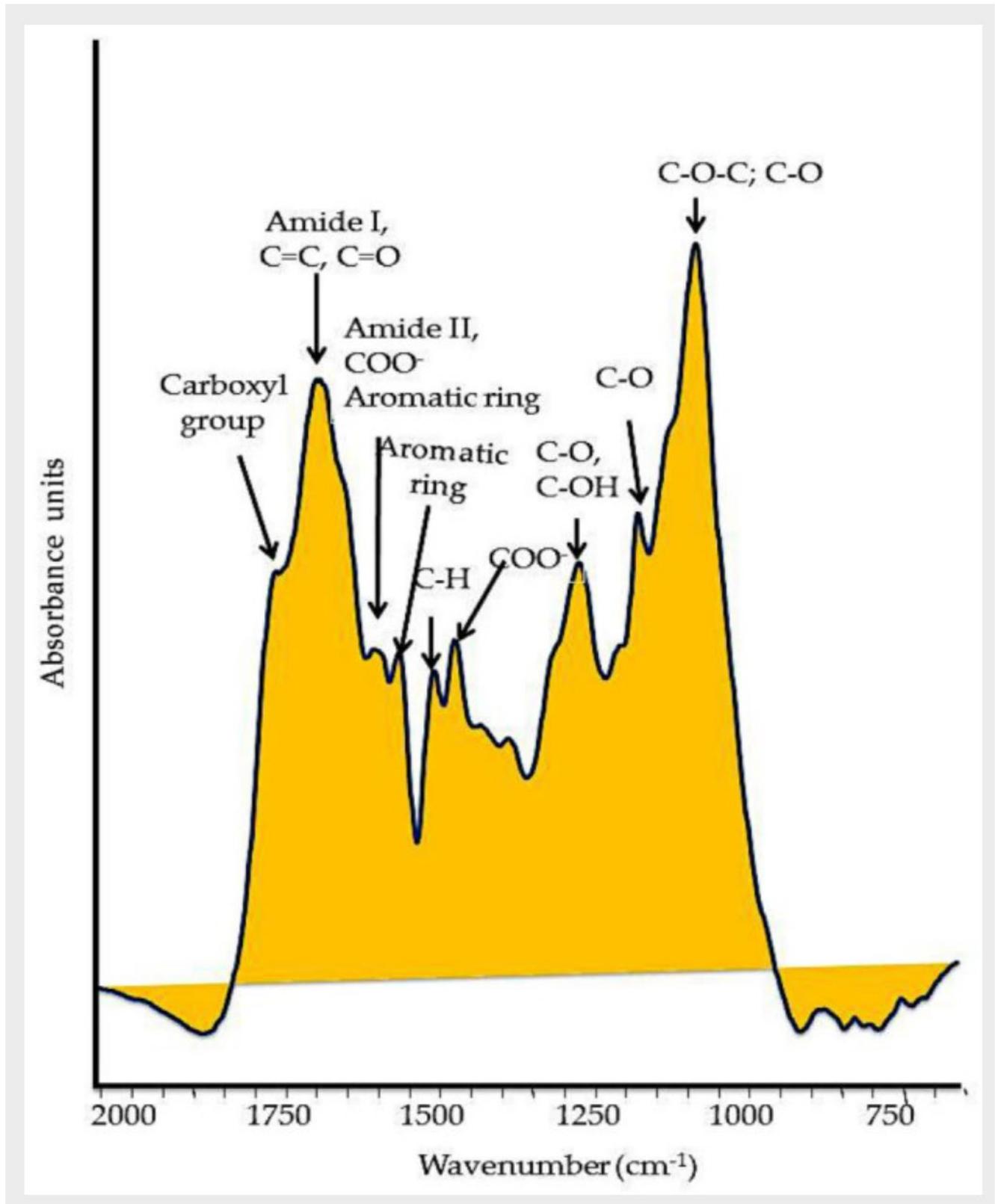
Source: Nardi, S.; Schiavon, M.; Francioso, O. Chemical Structure and Biological Activity of Humic Substances Define Their Role as Plant Growth Promoters. *Molecules* 2021, 26, 2256.
<https://doi.org/10.3390/molecules26082256>

Figures 1, 2, 4, and 8 below provide insight as to how this "delicate balance" affects and is affected by (1) soil hydration, (2) soil mineralization, (3) and the soil biome (which is affected by and affects soil hydration and mineralization).

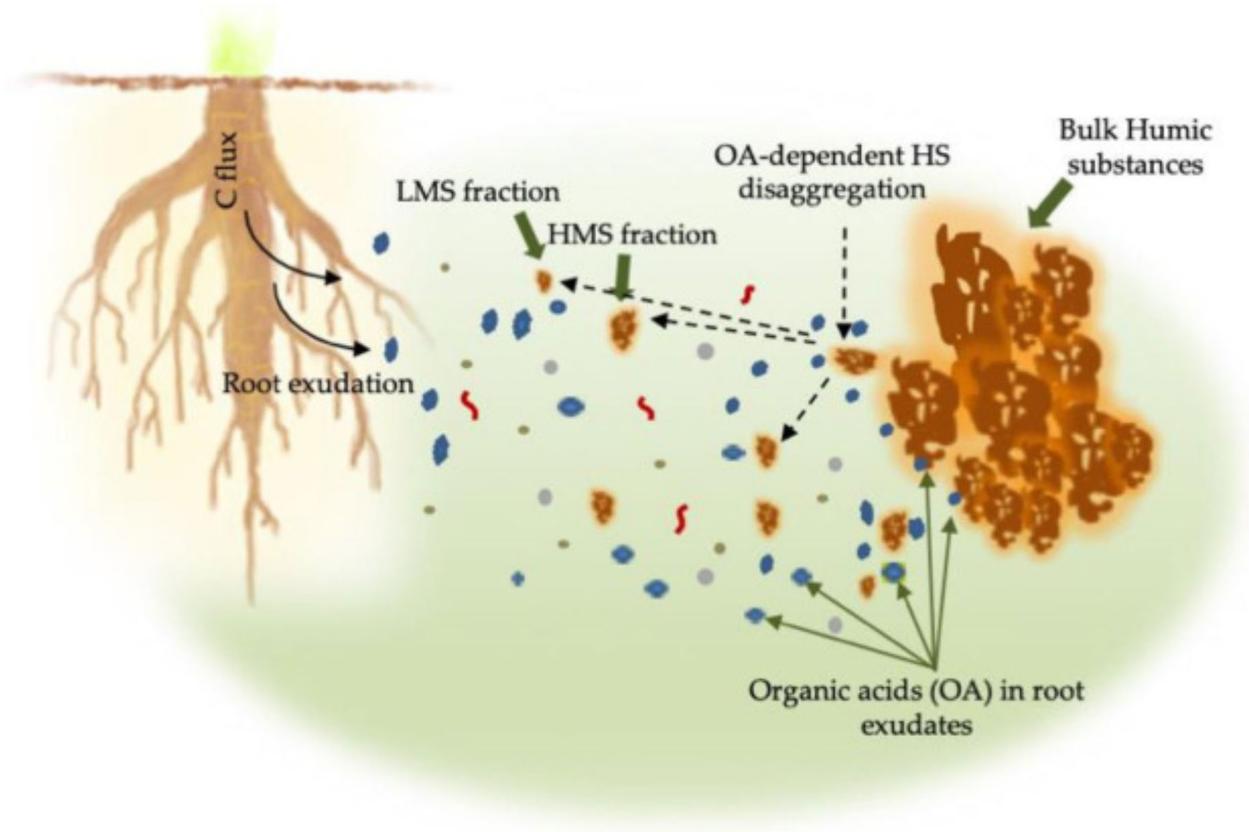
"Figure 1. Associations between mineral colloids and humic substances are characterized by a variety of interactions and chemical bonds that make these structures stable in soils."



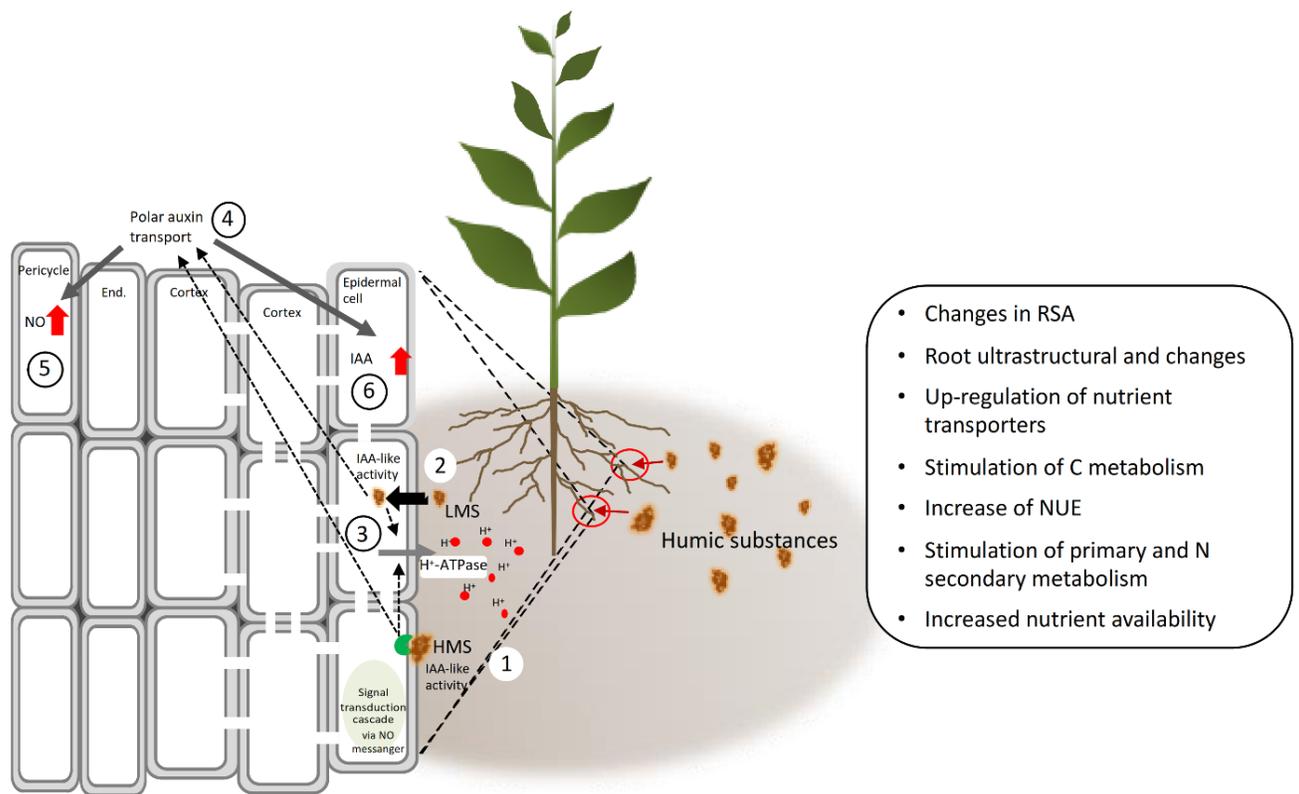
"Figure 2: Typical FT-IR spectrum of a soil humic substance. The main oxygenated functional groups are reported in the spectrum."



"Figure 4. Root exudates contain substances, including low molecular weight organic acids (OA) that may influence the solubility of soil HS (bulk HS) by inducing their disaggregation to produce LMS and HMS fractions."



"Figure 8. Mechanism of action of HS at root level to induce lateral root emergence and stimulate root hair density and length, and metabolic-physiological targets in plants. HMS interact with membrane receptors to induce cascade signaling inside root cells (1); LMS enters the root cells (2). Both HMS and LMS stimulate the activity of the root membrane H⁺-ATPase (3); and the auxin polar flux (4) to promote auxin and NO accumulation at the pericycle cells to enhance lateral root emergence (5). HMS and LMS induce accumulation of auxin in the root epidermal cells, resulting in increased root hair formation and cell elongation (6)."



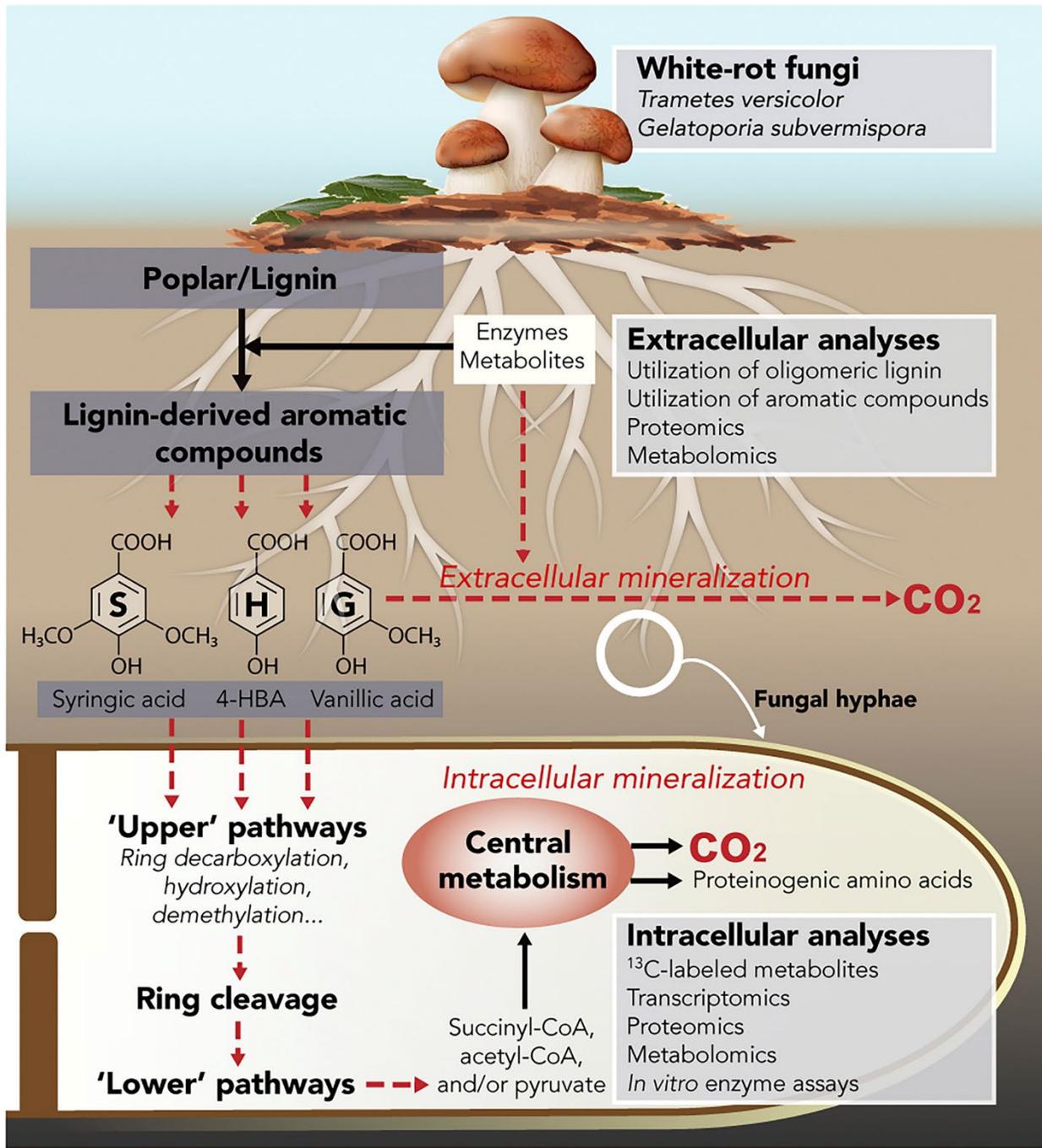
Hence, in consideration of the aforementioned information, this Part D-1 White Paper with the other SupremeAG™ White Papers are written with the intent of objectively uncovering whether plausible scientific evidence exists in support (and/or the refutation) of claims being made by IFUS Customers, Trials, and Performance Outcomes.

IFUS Point 5: Soil Hydration (PART D-1)

We begin with another reminder: White Rot Fungi seem to be nourished by the ingredients in the SupremeAG™ with Nutri-Mastic™ formulation, resulting in the accelerated degradation and depolymerization of the lignin as demonstrated in

Diagram 2 below. An invaluable component of lignin depolymerization is the production of H₂O and CO₂.

Diagram 2:



Source: "Intracellular pathways for lignin catabolism in white-rot fungi" written by Carlos del Cerro, et.al in "The Proceedings of the National Academy of Sciences: Systems Biology/Biological Sciences," Feb. 23, 2021

Additionally, the IFUS Scientific Team finds evidence of the degradation and depolymerization of lignin when opening bags of SupremeAG™ with Nutri-

Mastic™ (Picture 3). Product prepared and stored in SuperSaks for about 3-months, revealed active White Rot Fungi per the picture below taken at the IFUS Test Farm in SE Louisiana (about 15.5 miles SSW of NOLA).

Picture 3:



Additionally, in the same bag (aged, then bagged for 3-months) of SupremeAG™, it was noted that when compared to SuperSaks containing aged material that had been bagged for 6-months, that the material in the 3-month-old SuperSaks presented a different profile in structure and texture; that is, the material in 3-month-old

SuperSak was less degraded (See Picture 4):

Picture 4: Note White Rot Fungi on Right Hand Side of Bag



As SupremeAG™ with Nutri-Mastic™ is made from SGP+™ with Nutri-Mastic™, we consider 2000-lb compressed bales 6-months after production. Unlike untreated bagasse (or hay) compressed into bales, SGP+™ bales begin to collapse with darkened water produced (an indication of lignin depolymerization by microbes naturally occurring in the Sugarcane Bagasse). These bales become unusable for optimum supplementation of Bovine Ration Management.

However, when stored and aged in IFUS' Proprietary method, these once compressed bales begin to transform into SupremeAG™ as indicated by the bales collapsing (as shown in Pic 3-1 and 3-2):

Pic 3-1:



The science tells us that, “Under anaerobic conditions, major bacterial decomposition occurs, leading to the formation of black or dark grey colored wastewater [30],” Abdoul Wahab Nouhou Moussa, et.al., “Critical State of the Art of Sugarcane Industry Wastewater Treatment Technologies and Perspectives for Sustainability,” Membranes (Basel). 2023 Jul 31;13(8):709. doi: 10.3390/membranes13080709

Normally, this black-water from Sugarcane Bagasse results from pile maceration to prevent spontaneous combustion; i.e., water continually added to the pile of Sugarcane Bagasse as seen in the picture below.

Please note the black pool of water in the upper back area of the bagasse pile. Also, note the water (or effluent) leaching at ground level from the pile.



"Bagasse tailings pile at a paper and tissue wadding mill in South Africa." Note the pool of water at the top of the pile as well as the leaching of the water from the bottom of the pile. This is unlike SupremeAG™ with Nutri-Mastic that is compressed into a 2000-lb bale (which removes virtually all water).

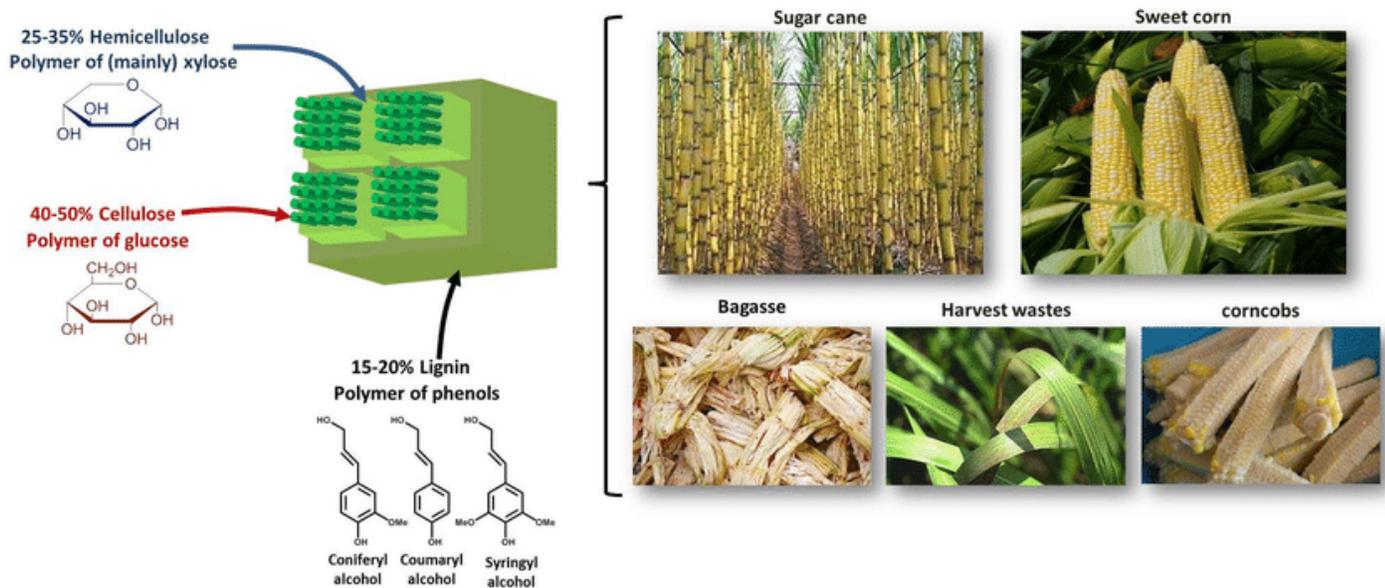
Source: https://www.freepik.com/premium-video/bagasse-tailings-pile-paper-tissue-wadding-mill-south-africa_3121029

The effluent from the SB Pile would be filled with Iron Sulfides with a characteristic Sulfide smell.

HOWEVER, where water leaching from compressed bales of SGP+™ with Nutri-Mastic™ have the dark color (which is attributed to Iron), there is **NO Sulfide smell** in the IFUS facility from the black-water as well as **NO water added to prevent combustion** (as the bales are cool). Hence, the toxic water produced from naturally degrading SB, is transformed into an Iron-rich water source favored by Iron- and acid-loving plants when formulated into SupremeAG™.

How then does SGP+™ and SupremeAG™ both with Nutri-Mastic™ actually produce water?

Lignin in Sugarcane Bagasse (SB) ranges from roughly 18% to 28% lignin depending on the Sugarcane varietal planted.

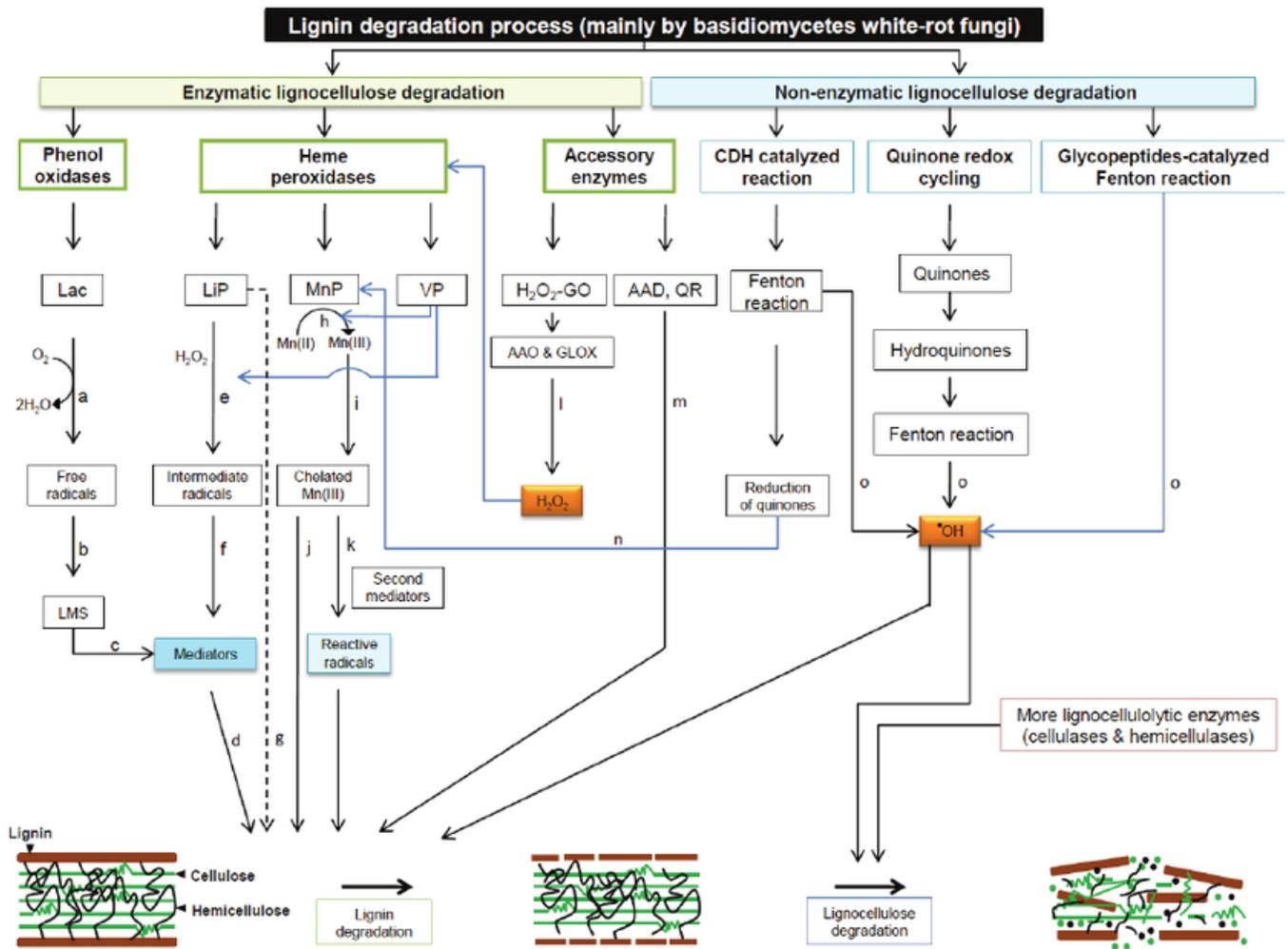


Let us remember that lignin is considered to be particularly "recalcitrant"; i.e., "not responsive to treatment." Hence, to date, where lignin is considered the second most abundant biomaterial on the planet, commercial utilization is both economically infeasible and less than eco-friendly.

However, IFUS contends this is NOT the case with both SGP+™ and SupremeAG™ with Nutri-Mastic™. Hence, we offer another piece of science that supports this contention.

In a study published by Mehdi Dashtban, et.al., "Fungal biodegradation and enzymatic modification of lignin", (May 2010 International Journal of Biochemistry and Molecular Biology 1(1):36-50), we find the following Biochemistry (Diagrams A&B)

Diagram A:



Lac: laccase, LMS: laccase-mediator system, LiP: lignin peroxidase, MnP: manganese peroxidase, VP: versatile peroxidase, H₂O₂-GO: H₂O₂-generating oxidases, AAO: aryl-alcohol oxidase, GLOX: glyoxal oxidase, H₂O₂: hydrogen peroxide AAD: aryl-alcohol dehydrogenases, QR: quinone reductases and $\cdot OH$: free hydroxyl radicals.

Diagram B:

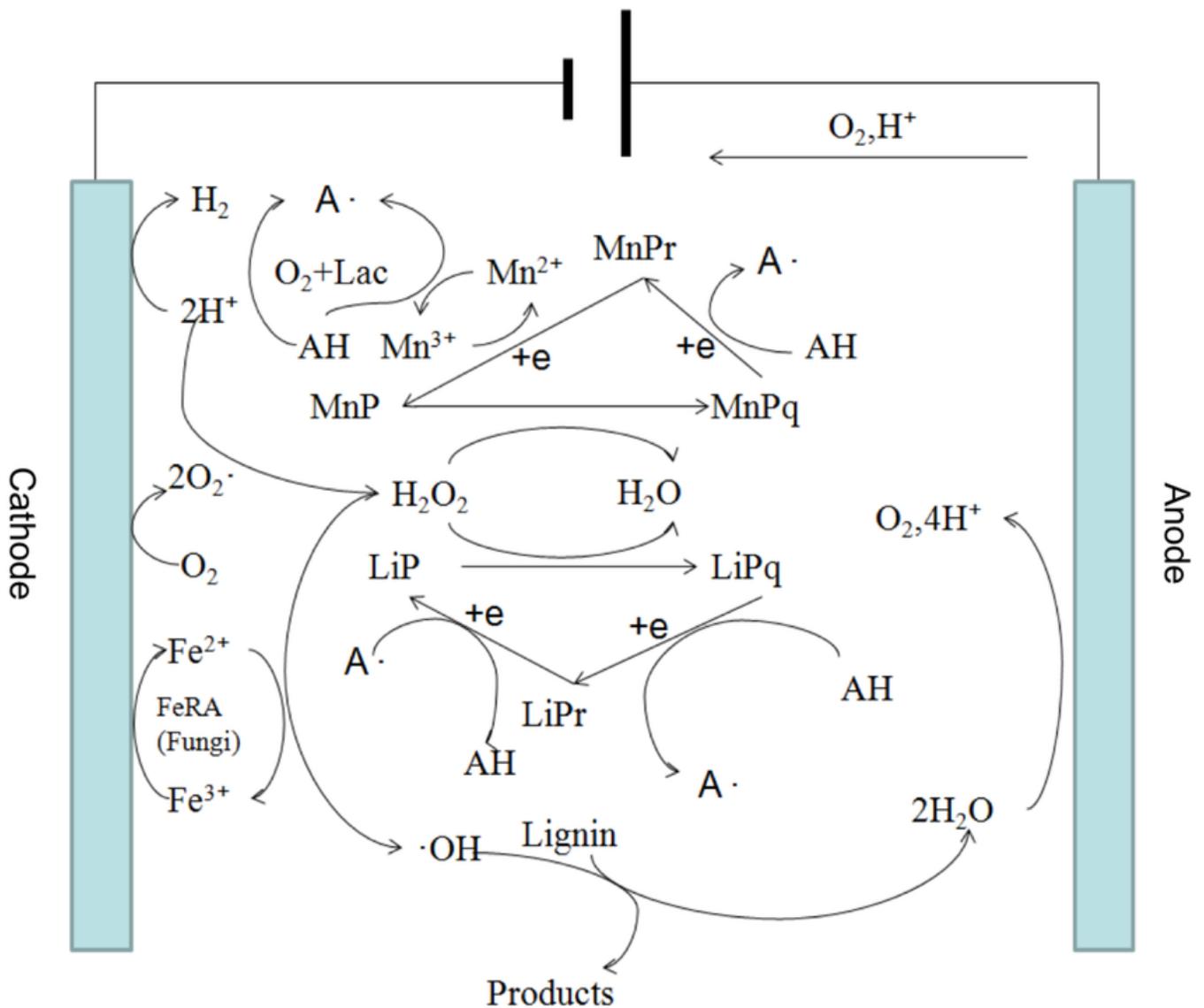
Type of enzymes	Reaction ¹	Cofactor	Metals or ions ²	Mediators	Subunits & molecular mass (kDa)	Range of optimum temperature (°C)	Range of pH optimum	Localization	Glycosylation	References
Phenol oxidase (laccase)	4 benzenediol + O ₂ = 4 benzoquinone + 2 H ₂ O	N/A	Ca ²⁺ Cd ²⁺ Cu ²⁺ H ₂ O ₂ Imidazole K ⁺ K ₂ SO ₄ Mn ²⁺ Na ₂ SO ₄ (NH ₄) ₂ SO ₄	Phenols, aniline, 3-HAA, NHA, syringaldehyde, hydroxybenzotriazole and ABTS	Monomeric (43-100), dimeric, trimeric & oligomeric (e.g. tetramers with ~390 KDa)	20-80	2-10	Mostly extracellular ³	Yes (N-glycosylated) ⁴	[36,44,45,68,84,131]
Peroxidases:										
a) Lignin peroxidase (LiP)	1,2-bis(3,4-dimethoxyphenyl)propane-1,3-diol + H ₂ O ₂ = 3,4-dimethoxybenzaldehyde + 1-(3,4-dimethoxyphenyl)ethane-1,2-diol + H ₂ O	Heme	Iron	Veratryl alcohol	Monomeric (37-50)	35-55	1-5	extracellular	Yes (N-glycosylated) ⁴	[36,68,84,132]
b) Manganese peroxidase (MnP)	2Mn(II) + 2H ⁺ + H ₂ O ₂ = 2Mn(III) + 2H ₂ O	Heme	Ca ²⁺ Cd ²⁺ Mn ²⁺ Sm ³⁺	Organic acid as chelators, thiols, unsaturated fatty acids	Monomeric (32-62.5)	30-60	2.5-6.8	extracellular	Yes (N-glycosylated) ⁴	[36,68,84,133,134]
c) Versatile peroxidase (VP)	donor + H ₂ O ₂ = oxidized donor + 2H ₂ O (e.g. reactive black 5 + H ₂ O ₂ = oxidized reactive black 5 + 2H ₂ O)	Heme	Mn ²⁺ Ca ²⁺ Cu ²⁺ Iron	Veratryl alcohol, compounds similar to LiP and MnP mediators	Monomeric	Not known	3-5	extracellular	Yes	[68,101,135]

The features of the main two groups of fungal ligninolytic enzymes

Of particular note from Diagrams A & B above, is the actions, interactions, relationships, and inter-relationships of an array of phytochemicals, minerals, and elements like Oxygen (and other simple chemical compounds; e.g., H₂O₂, Mn-Peroxidase, etc.), either naturally available or naturally synthesized with the cooperation of the "biome" ...each of which contributes to "Nature taking its course" ...with one exception. Both SGP+™ and SupremeAG™ with Nutri-Mastic™ seemingly have a positive "Impact" on Nature, such that various critical biochemical processes are brought into an alignment. IFUS contends that this allows for the accelerated degradation and depolymerization of lignin found in Sugarcane Bagasse. Hence, making the formulations contained with SGP+™ and SupremeAG™ more "Intact" through the overall actions, interactions, relationships, and inter-relationships of the (1) natural "biome", (2) the phytochemical and mineral contents of the ingredient and (3) the phytochemical and mineral contents already in the soil and/or contained in the plant, tree, and/or shrub.

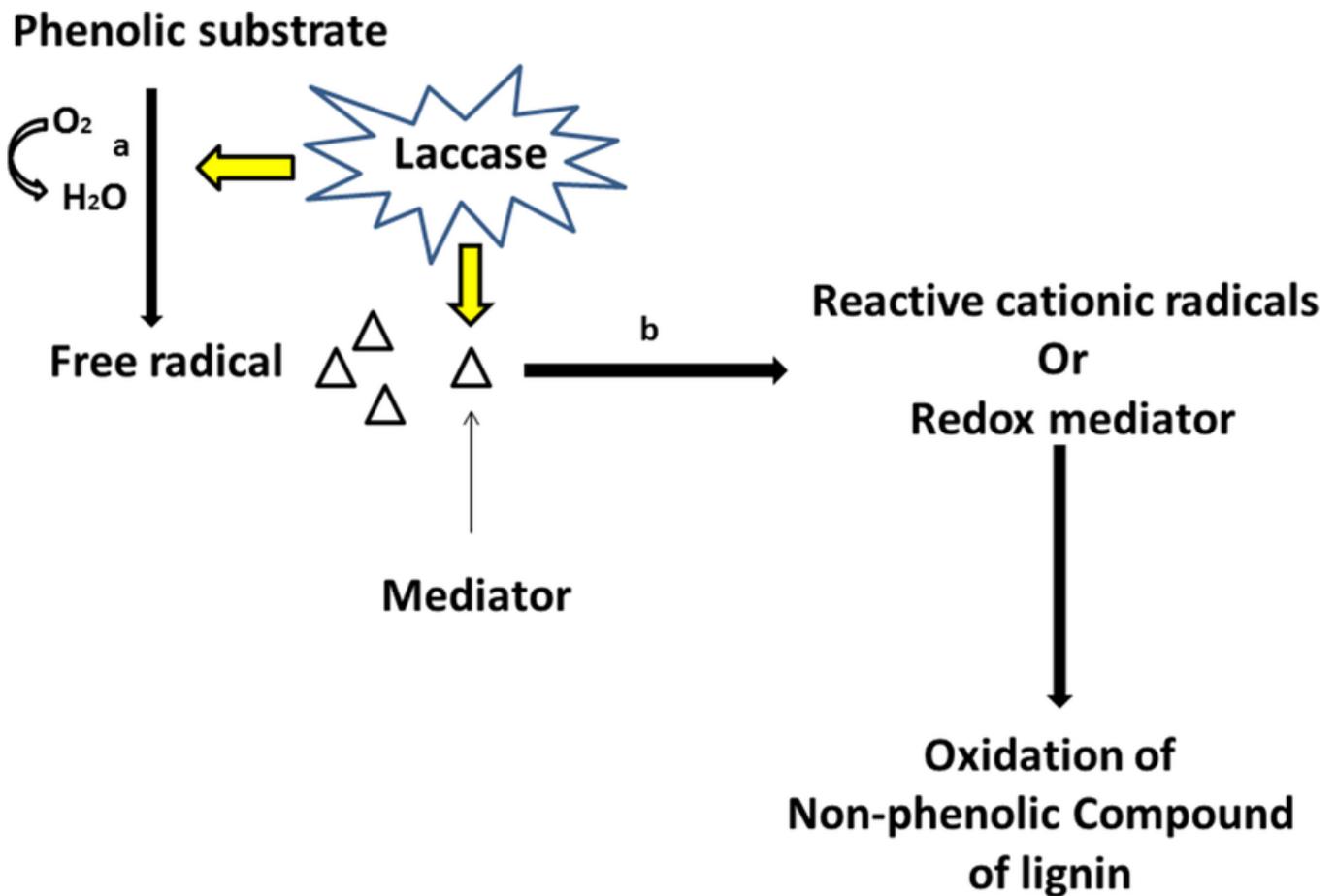
Additionally, in the support of the aforementioned, we find science in a "Proposed mechanism of the synergistic degradation of lignin by electro-Fenton reaction and white-rot fungi," the production of water (in support of observations made by customer as well as other trials, which report of reduced hydration requirements).

(Source: Hou, Lipeng & Ji, Dan & Dong, Weifang & Yuan, Lin & Zhang, Fengshan & Li, Yan & Zang, Lihua. (2020). The Synergistic Action of Electro-Fenton and White-Rot Fungi in the Degradation of Lignin. *Frontiers in Bioengineering and Biotechnology*. 8. 99. 10.3389/fbioe.2020.00099.)



While an over-simplified illustration of water production, the involvement of the Laccase Enzyme System produced from White Rot Fungi to degrade and depolymerize lignin becomes evident and supported by another study, "Lignin degradation by laccase in white rot fungi", in which the production of water is illustrated.

(Source: Bayen, Sourajit & Roy, Somnath & Chakraborti, Dipankar & Mukhopadhyay, Ananda & Hazarika, Lakshmi & Pramanik, Prabhat & Borchetia, Sangeeta & Mukherjee, Sudipta. (2021). Mutualistic relation of termites with associated microbes for their harmonious survival. Symbiosis. 85. 10.1007/s13199-021-00809-w.)



Hence, based on the science, we conclude that water is produced from lignin degradation and depolymerization. This is why 2000-lb compressed bales of

SupremeAG™ with Nutri-Mastic™ generate puddles of water (See Picture 3.1 above) until transformed into grey, dry powder as illustrated below:

Pic 4-1:



This natural process occurring within bales of SupremeAG™ can apparently provide mineralized hydration requirements for plants, trees, and/or shrubs...with an array of beneficial phytochemicals. The performance of the plants, trees, and/or shrubs (the output) suggests this to be true.

We also offer the photo below, which illustrates the layering of Sugarcane Bagasse (SB) during the active milling of harvested Sugarcane. Please note the size of the SB mound as compared to the heavy equipment working to manage continually added material. Also, please note the coloration of this fresh bagasse, which is quite wet and fibrous. Mounds like this are created every year across the globe, so as to create a stockpile of material containing the second most abundant biomaterial on the planet...lignin!



Source:

https://static.wixstatic.com/media/91d5e5_0d61ce8bd6a0455381b68392d74d3128~mv2.png/v1/fill/w_867,h_458,al_c,q_90,enc_auto/91d5e5_0d61ce8bd6a0455381b68392d74d3128~mv2.png

Furthermore, let us remember that Sugarcane Bagasse (SB) at roughly 145 degrees F goes into the IFUS Proprietary Formulation Process (where Carob and Nutri-Mastic™ are added to the SB) and in less than 2-minutes exits the IFUS Process in a 2000-lb compressed bale at roughly 94 degrees F. The bales continue to cool in the warehouse until a steady-state temperature of roughly 84 degrees F is reached.

As a reminder, we offer the picture of steaming bagasse (at about 145 degrees F) being dumped into the IFUS Raw Material Staging Warehouse in Napoleonville, LA. There, the bagasse is stored and managed in small piles to prevent spontaneous combustion. It is stirred regularly and NO water is added to the piles. This bagasse typically contains a less than desirable vinegar (acetic acid) smell to it.



The Sugarcane Bagasse shown above is ultimately transferred into an advanced stage of the IFUS Proprietary Formulation Process, and ultimately transformed into a 2000-lb compressed bale as seen in the picture below.



The bales shown above, when either stored or shipped, create a smell of coffee and cacao (with visitors often commenting that the warehouse smells like a coffee shop). Also, visitors note the lack of pests to include flies and rodents in the warehouse.

By contrast, Sugarcane Bagasse in open piles or other storage options can spontaneously combust and even flash when stacked into a pile (See picture below):



Source: <https://www.researchgate.net/profile/Jack-Broughton-2/publication/290589506/figure/fig1/AS:787416931647490@1564746234965/Bagasse-Mountain-on-fire.ppm>

Hence, the need to carefully manage the mountain-sized piles where SB is typically stored outdoors and away from the immediate sugar mill is well-established. This includes in many cases the continue addition of effluent (water) to the pile to suppress spontaneous combustion.

Additionally, where this stored bagasse is quite hot and wet (from added effluent), by contrast both SGP+™ and SupremeAG™ (compressed into bales) are cool (by comparison) and water generated from the product (as compression drives out most of the water in the untreated SB).

This contrast of SB to SGP+™ / SupremeAG™, offers plausible evidence to the presence of Natural Humic Substances. Furthermore, the formulation and processing of the natural ingredients in SGP+™, then aged in the IFUS Proprietary Formulation Process (where there are NO other additives), provides a platform of visible transformation. When overlaid with established information on Humic Substances, further plausible evidenced is offered.

Hence, the focus shifts to Fan Yang, et.al, in their paper, "Natural and artificial humic substances to manage minerals, ions, water, and soil microorganisms" (Royal Society of Chemistry, DOI: 10.1039/D0CS01363C (Review Article) Chem. Soc. Rev., 2021, 50, 6221-6239), illustrate the following in Figs. 4 & 5:

"Fig. 4 Schematic diagram of the effect of HSs on the physical and chemical properties of soil (A: soil structure; B: water retention capacity; C: cation exchange capacity)."

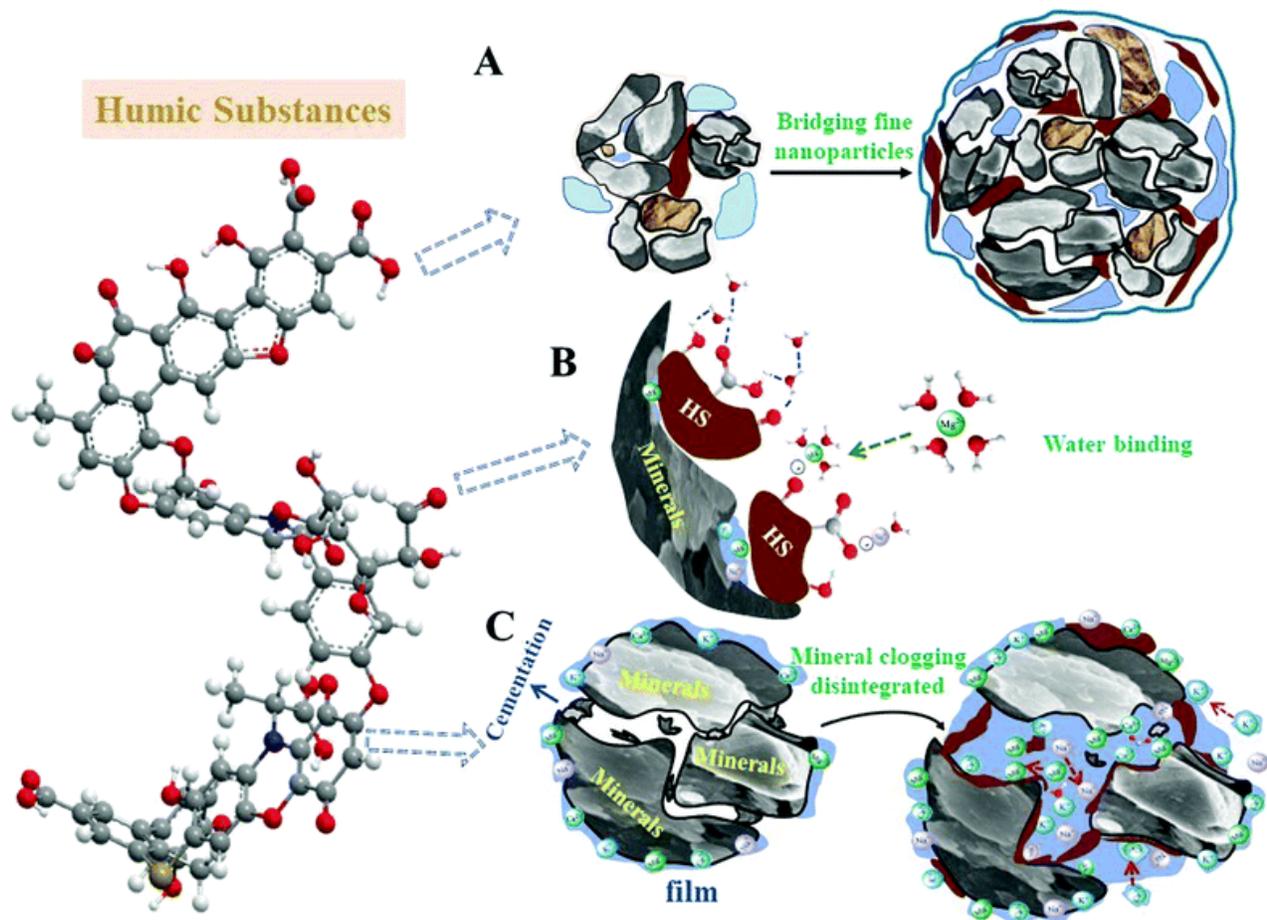
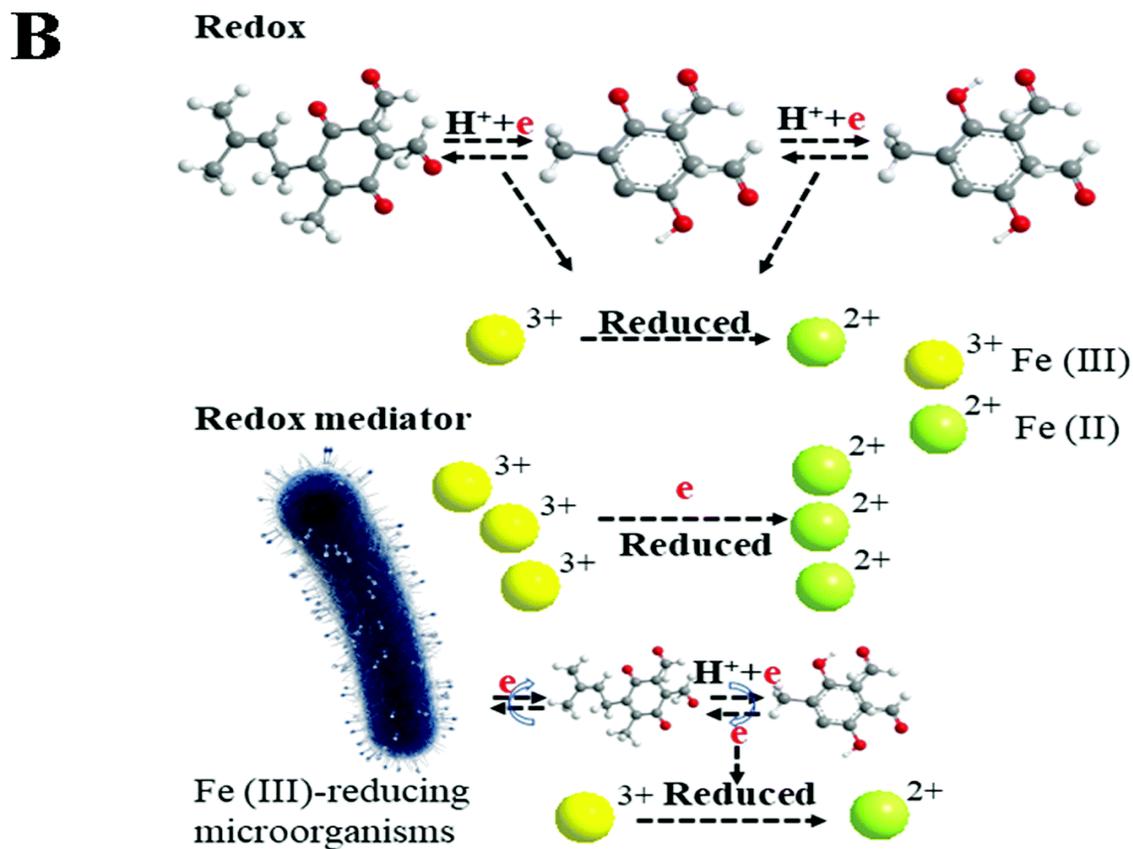
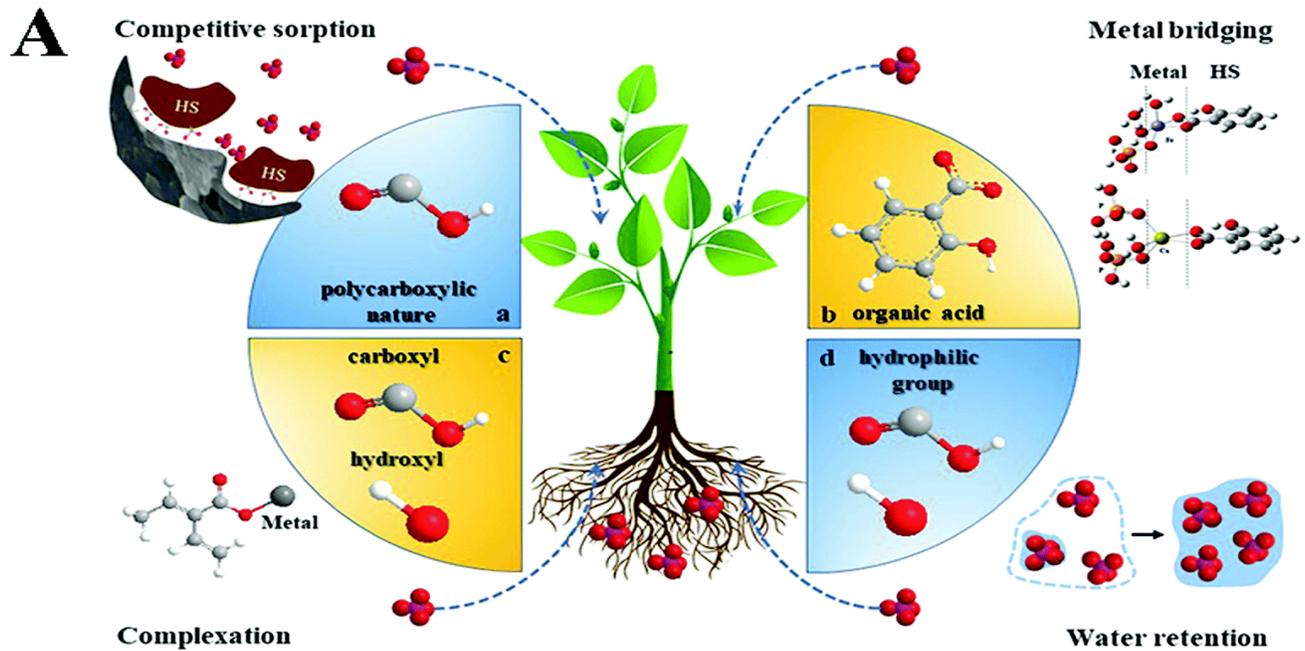


Fig. 5 Mechanism of HS promoting nutrient availability (taking P and Fe as examples, in which, A-a: competitive sorption; A-b: metal bridging, 81 figures have been adapted from ref. 81 with permission from Elsevier, copyright 2018); A-c: complexation; A-d: water retention; (B: the pathways for increasing Fe(II) content

include the redox properties of HS and its participation as a medium in redox reactions under anaerobic conditions).



Where the research of Fan Yang, et.al is of great importance and value (as it underscores the critical integration of any number of scientifically oriented

biological, chemical, and physical processes), IFUS contends that their conclusions on the formation of Artificial Humic Substances can be replaced with formulations like SupremeAG™...an evolutionary product and technology consisting of all-natural ingredients and processed without added chemical additives, hence making the formulation more eco-friendly and cost-effective.

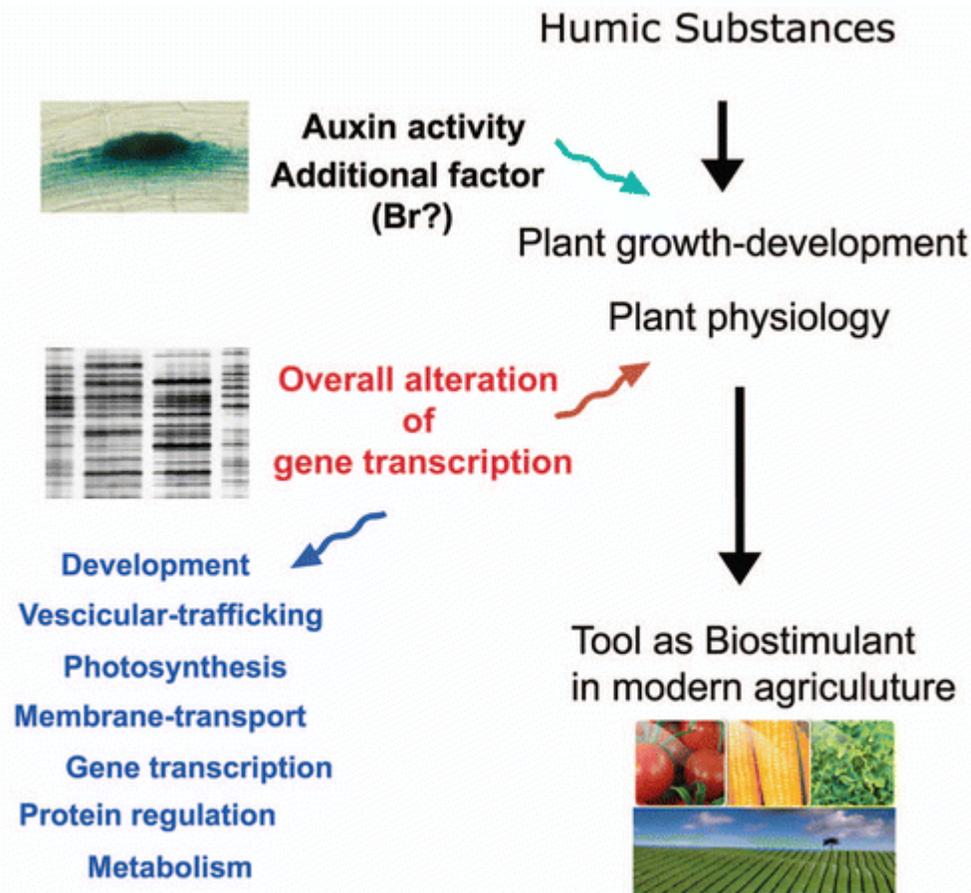
The IFUS contention is that formulations like SupremeAG™ attempt to replicate the integrative processes of "Mother Nature", such that when applied with soil, it does not attempt to "fix Nature", but rather allow "Her" to do that which it seems "She" is programmed to do...support optimal performance and survival of the organism...in this case the plant, tree, and/or shrub. IFUS contends that SupremeAG™ provides integrated nutritional supplementation in an "overlay" of the natural abilities of the biome in the soil and other such natural chemical processes to produce vital phytochemicals and other nutritional substances.

This kind of supplement seemingly cannot be "invented", but "discovered." This is what the IFUS Scientific Team contends is the case for SupremeAG™...a product resulting from what was thought to be spoiled product prepared for disposal...SPG+™.

Reports from customers and scientific trials (admittedly non-statistical in design) are suggesting Performance-Based Outcomes that are highly desirable, when SupremeAG™ is applied to respective plants, trees, and shrubs consistent with Best Gardening Practices. Hence, the IFUS Scientific Team offers what it believes to be plausible explanations in support of these reported successes.

This DOES NOT preclude the application of SupremeAG™ outside of Best Gardening Practices for any respective plant, tree, and/or shrub...nor does it preclude the need to consider SupremeAG™ as a mere product.

SupremeAG™ is believed to be a natural technological breakthrough...a technology potentially mirroring Mother Nature. And, in doing so, SupremeAG™ enables Humic Substances to naturally develop along with other key substances, and to optimally function as Nature designed these to do (as per an example offered in "Figure 7: Schematic representation of impact of humic substances on plant biology.")



Source: Sara Trevisan, Ornella Francioso, Silvia Quaggiotti, Department of Agricultural Biotechnology, University of Padua, Agripolis, Viale dell'Università; Padova, Italy, "Humic substances biological activity at the plant-soil interface," From environmental aspects to molecular factors, Pages 635-643 | Received 14 Jan 2010, Accepted 14 Jan 2010, Published online: 01 Jun 2010 (Cite this article <https://doi.org/10.4161/psb.5.6.11211>)

Hence, if processes like the aforementioned are to be fully optimized and realized, a formulation must attempt to mirror "Mother Nature" in both substance and form...in "Her" actions, interaction, and relationships...and NOT isolated "fixes" (a magic bullet or pill of sort) that gives temporary, unsustainable boasts in performance vs. a shift to solutions that focus not just on symptom, but "Root Cause" (or source) of the actual problem. This includes integrated sources of water, ionic minerals, phytochemicals and more.

Per, "ECOFARMING DAILY" in discussing "Soil Testing", it is stated: "We know there are over 20 minerals needed to grow plants. We know there is a certain level of minerals needed in the soil (a sufficiency level), and that there is a balance or a ratio between them. **We also know soil with "perfect" soil testing results does not always grow perfect crops.**"

Soil testing is not looking for perfection in numbers. It is a tool to identify limiting factors: nutrients that are deficient or in excess. It hopefully doesn't matter which soil testing lab you use; they all use extraction methods that give clues as to mineral levels and what type of soil it is based on CEC, pH and organic matter."

How does one begin to measure the integrated nature of a product/technology like SupremeAG™ that appears to mirror in an accelerated fashion the formation of Humic Substances:

- 1) from four main ingredients (Sugarcane Bagasse, Chios Mastic Gum, Naturally Sourced Ionic Minerals, Water),
- 2) processed so as to transform 145-degree SB into 2000-lb compressed bales at 94-degrees F of SGP+™ (which continued to cool when stacked in a warehouse to roughly 84-degrees F,
- 3) which when allowed to age allows for the bales to lose structural integrity, produce an effluent (water rich in Iron) with NO smell of H2S (and a smell of either fresh earth or a coffee shop),
- 4) to physically transform in structure, coloration, form, and feel from a highly-abrasive fibrous material into grey-powdered dust,
- 5) in less than 1 year,
- 6) that when applied with Best Gardening Practices results in:
 - a) Water Production
 - b) Cost-savings
 - c) Healthier Plants and Produce
 - d) Reduced Pests
 - e) Reduced Fertilizers
 - f) Reduced Herbicides and Weed Management
 - g) Improved Growth
 - h) Improved Yield
 - i) Improved Quality
 - j) Utilization of an Annually Renewable and Available Biomass Material
 - k) Reduction in Greenhouse gases

How can IFUS, even for a moment, propose such contentions?

The inputs

The outputs

The plausible science

A deeper dive into these contentions can be found in subsequent IFUS White Papers, the next to be offered Part D-2.