

Scientific Studies

Proven laboratory outcomes of enzymatic technology applied



Executive Summary - Solution

- We present a biotechnology platform developed over more than 20 years that aims to integrate proprietary microbial and enzymatic processes with livestock farming, automated management, agricultural resource recovery, and low-carbon liquid fuel production.
- The proposed approach is designed to move beyond conventional waste-management, environmental control, bio security and food security practices by using our own biotech processes, livestock production, and energy generation as interconnected components of a coordinated system, creating a circular economy.
- The technology's long-term ambition is to demonstrate that agricultural production can become substantially more resource-efficient while reducing environmental impacts and creating additional economic opportunities.
- A more innovative approach to achieve net zero.
- Less labor intensive (open-source robotic micro-management)
- Less complex farming system available to anyone through training modules. (Anyone can become a circular economy farmer)

Proven Biotechnology Platform

- **1.1 Microbial and enzymatic processes**
- Natural microorganisms and enzymes in this quantitively symbiosis technology participate in the breakdown of pollution, pathogens, disease and pests, transforming animal waste to high-end protein, thus value adding to conventional farming losses.
- This proven technology seeks to harness these biological mechanisms within an integrated farming environment.
- Its intended functions include:
- Improving the biological processing of selected organic materials.
- Supporting more efficient nutrient cycling.
- Reducing odor associated with livestock production and organic residues.
- Minimizing the accumulation of materials requiring disposal.
- Supporting biological approaches to pest management.
- Creating opportunities to recover useful products from agricultural by-products.



Proven Biotechnology Platform

- **2.2 Integration to create a circular economy framework**
- Appropriately characterized agricultural residues become suitable for further biological processing, nutrient recovery and or conversion into energy products. One animal can feed another in this complete proven symbiotic system, without faecal coliform, and without transferring disease.
- Major profit margin increases never seen before in conventional farming.
- Complete bio security and pest control using biological means instead of toxic chemicals.
- Higher production.
- Stress free animals due to increased immunity.
- Revitalising damaged soil (natural soil microbe technology)

High Quality Probiotic

Introducing High Quality Consumer Produce

- Soil Microbes with its enzymes, is produced by a very unique biotech incubation module which allows the farmer to produce 100% organic products, this includes a natural “Probiotic Egg, meat & crops, which tastes completely different and provide a much better tasting experience, combined with healthy eating. Our soil microbes form the core constituent of our solution, which offers 4 essential benefits:
- **Probiotic produce:** Normally the consumer cannot find natural probiotic eggs or natural probiotic meat or natural vegetables/grains unless chemically enhanced, the probiotic produce is not only healthy but super tasty & distinctly very tasty compared to normal produce, from our studies conducted on Pigs in Singapore & eggs in South Africa, Malaysia & Indonesia the consumer notices immediately the difference and would much rather continue to buy our products instead of the standard available products.
- **Soil/Human/Ocean/Environment Health Improvement:** The natural soil microbe solution fed to animals and plants removes all pollution including Odor, pests, faecal coliform (E. coli, Salmonella) Everything else in the ecosystem including rivers, soil, Ocean, will benefit from the soil microbes and enzymes in helping to improve & remove all imbalances created by chemicals. Our studies with various Government Universities have shown that our product helps improve Coral Bleaching so much so that the Coral grows 80 times faster/bigger & was able to reproduce in a Lab environment never recorded before.

High Quality Probiotic

- **Complete Sustainable Development Symbiotic farming module:** The soil microbe technology in combination with our closed symbiotic farming module generated above average revenue, this is achieved through a unique biological phenomenon where the waste of the animal is converted into a High-end protein source which feeds other animals in the chain & thus removing the need to buy feed, a 80% for every animal in the chain, this creates a major profit margin not able to be achieved in conventional farming methods, this module can be scaled to any size. All pests including flies, lice, ticks, fleas etc. are completely removed not through toxic chemicals but with nature's own defence mechanism known as "Bacteriocins" which makes the entire farming operation Chemical free & environmentally safe.

- **Clean Electricity known as Biotremology:** Happy animals, produce more, live longer & are stress free our soil microbe enzyme technology in combination with our closed symbiotic farming module generate clean green electricity known as Biotremology by utilising the unique vibration of 2 or more animals in a closed loop system "Foot drumming "there is no harm or stress to the animal & this is only possible when the animals are in a completely stress free & happy environment, this electricity is produced without any moving parts & is a 24/7 supply. This technology produce a feed source which in achieved through a unique biological phenomenon where the waste of the animal is converted into a High-end protein source which feeds other animals in the chain & thus removing the need to buy feed, a 80% for every animal in the chain, this creates a major profit margin not able to be achieved in conventional farming methods, this module can be scaled to any size. All pests including flies, lice, ticks, fleas etc. are completely removed not through toxic chemicals but with nature's own defence mechanism known as "Bacteriocins" which makes the entire farming operation Chemical free & environmentally safe, this High-end Profit generating system is currently in operation in South Africa & we are hoping to bring this to Australia, America, Europe especially in countries experiencing Pollution problems & a need to find new Electricity solutions



Christo Niemandt

Founder & Proprietary Enzyme Technology Owner

Technology entrepreneur and innovator with over 30 years of experience in industrial operations, chemistry, environmental management, pollution prevention and renewable energy.

Founder of **Space Tech Agri International** and
Founder and Director of **Life Science and Energy Australia.**

Technology owner of the specialised enzyme technology at the heart of the Space Tech Agri agricultural model.

His Vision

To transform agricultural waste challenges into valuable resources, reduce operating costs and build more efficient, sustainable and economically viable farming systems through a circular economy.

Inventor of the Technology and Owner

- **Christo Niemandt**
- **Technology Owner – Enzyme Technology | Space Tech Agri**
- Christo Niemandt is an experienced technology entrepreneur and innovator with more than three decades of professional experience spanning industrial operations, chemistry, environmental management, pollution prevention and renewable energy technologies.
- As the Founder of Space Tech Agri International and Founder and Director of Life Science and Energy Australia, Christo brings together extensive technical knowledge, practical industry experience and a commitment to developing sustainable biological solutions.
- Christo is presented as the technology owner of the specialised enzyme technology at the heart of the Space Tech Agri agricultural model. His expertise supports the integration of microbial and enzymatic processes into agricultural production, resource recovery and circular economy systems.
- His vision is to transform traditional agricultural waste challenges into opportunities for greater resource efficiency, reduced operating costs and environmentally responsible production.
- Through Space Tech Agri, Christo aims to demonstrate how biotechnology and agricultural innovation can work together to create more efficient, sustainable and economically viable farming systems.
- **His contribution provides an important technological foundation for Space Tech Agri's vision of transforming agricultural waste into valuable resources and building the next generation of circular farming solutions.**

Transforming Agricultural Waste into High-Value Animal Feed

Advanced Enzyme and Beneficial Microbial Technology

Space Tech Agri's innovative biotechnology combines specialised enzymes with beneficial microorganisms (soil microbes) to transform animal manure and agricultural organic waste into potentially valuable, protein-rich feed ingredients.

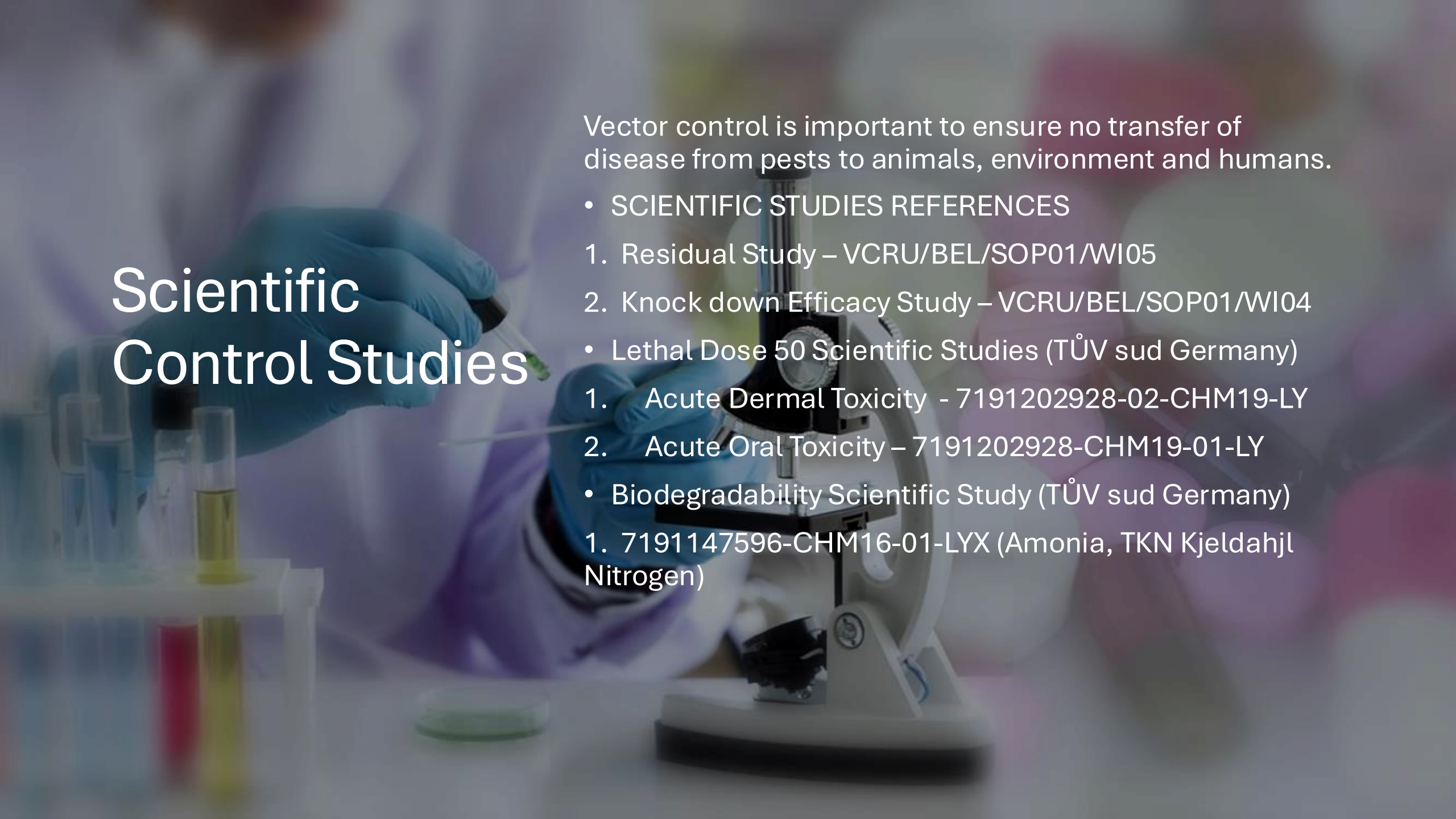
The technology is designed to accelerate organic matter breakdown, support beneficial microbial activity and reduce harmful substances through controlled biological processes.

Key Technological Benefits and Laboratory Results

- **Removal of harmful bacteria:** Laboratory testing has reportedly demonstrated the elimination of detectable faecal coliform bacteria in treated manure samples.
- **Pathogen and virus reduction:** Scientific testing conducted by an accredited international laboratory is reported to demonstrate significant reductions in the tested viral groups.
- **Beneficial microbial activity:** Government laboratory testing reportedly indicates the presence of beneficial bacteria following enzymatic treatment.
- **Ammonia and methane removal:** Laboratory results to be provided are reported to demonstrate the removal of ammonia and methane through the technology's biological treatment process, supporting improved waste management and reduced environmental impact.
- **High-value resource recovery:** Through controlled enzymatic and microbial conversion, agricultural waste may be transformed into protein-rich materials with potential applications in animal nutrition and other agricultural industries.

Creating Value Through the Circular Economy

By integrating enzyme technology into agricultural operations, Space Tech Agri aims to convert waste streams into valuable resources, reduce waste-management costs and develop alternative feed ingredients.



Scientific Control Studies

Vector control is important to ensure no transfer of disease from pests to animals, environment and humans.

- SCIENTIFIC STUDIES REFERENCES

1. Residual Study – VCRU/BEL/SOP01/WI05
2. Knock down Efficacy Study – VCRU/BEL/SOP01/WI04

- Lethal Dose 50 Scientific Studies (TŮV sud Germany)

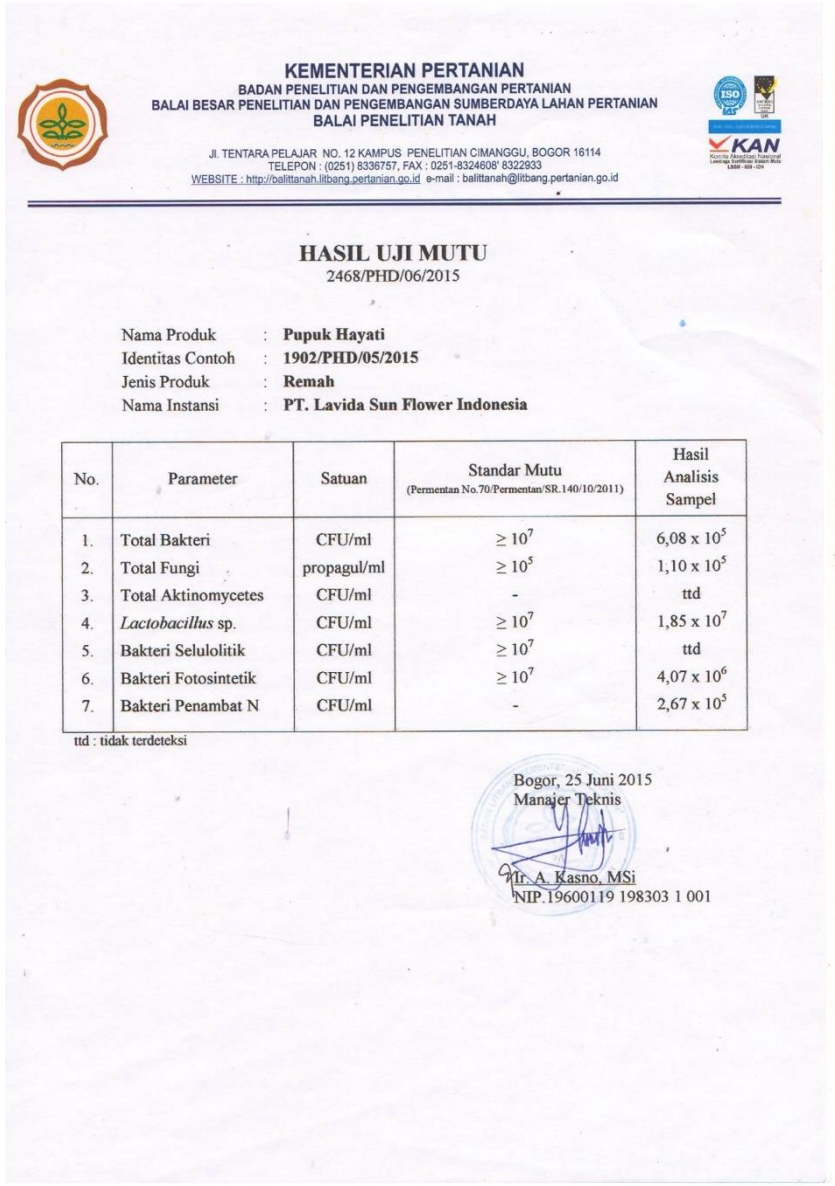
1. Acute Dermal Toxicity - 7191202928-02-CHM19-LY
2. Acute Oral Toxicity – 7191202928-CHM19-01-LY

- Biodegradability Scientific Study (TŮV sud Germany)

1. 7191147596-CHM16-01-LYX (Amonia, TKN Kjeldahjl Nitrogen)

- **Laboratory Results – Probiotic Activity and Conversion of Chicken Manure into Animal Feed**
- Oral administration of beneficial lactic acid bacteria (probiotics) supports the development of a favourable microbial environment within the animals' digestive systems.
- Laboratory analysis of the resulting chicken manure reportedly demonstrates the presence of beneficial bacteria, with no detectable faecal coliforms or tested pathogens.
- **When evaluated alongside the additional laboratory studies**, including enzymatic treatment, pathogen reduction, ammonia and methane removal, and biological conversion, these findings provide supporting evidence for the transformation of chicken manure into a potentially valuable, protein-rich animal feed ingredient.
- The combined results support the proposition that the treated material has undergone a significant biological transformation, potentially allowing it to be developed and assessed as a processed feed ingredient rather than simply an agricultural waste product.
- **This represents a significant opportunity for Space Tech Agri to convert agricultural waste into a high-value resource through proprietary enzyme technology and beneficial microorganisms, supporting a sustainable circular economy.**

Chicken Manure Results after application of Enzyme



KEMENTERIAN PERTANIAN
BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN
BALAI BESAR PENELITIAN DAN PENGEMBANGAN SUMBERDAYA LAHAN PERTANIAN
BALAI PENELITIAN TANAH

Jl. TENTARA PELAJAR NO. 12 KAMPUS PENELITIAN CIMANGGU, BOGOR 16114
TELEPON : (0251) 8336757, FAX : 0251-8324608' 8322933
WEBSITE : http://balittanah.litbang.pertanian.go.id e-mail : balittanah@litbang.pertanian.go.id

HASIL UJI MUTU
2468/PHD/06/2015

Nama Produk : **Pupuk Hayati**
Identitas Contoh : **1902/PHD/05/2015**
Jenis Produk : **Remah**
Nama Instansi : **PT. Lavida Sun Flower Indonesia**

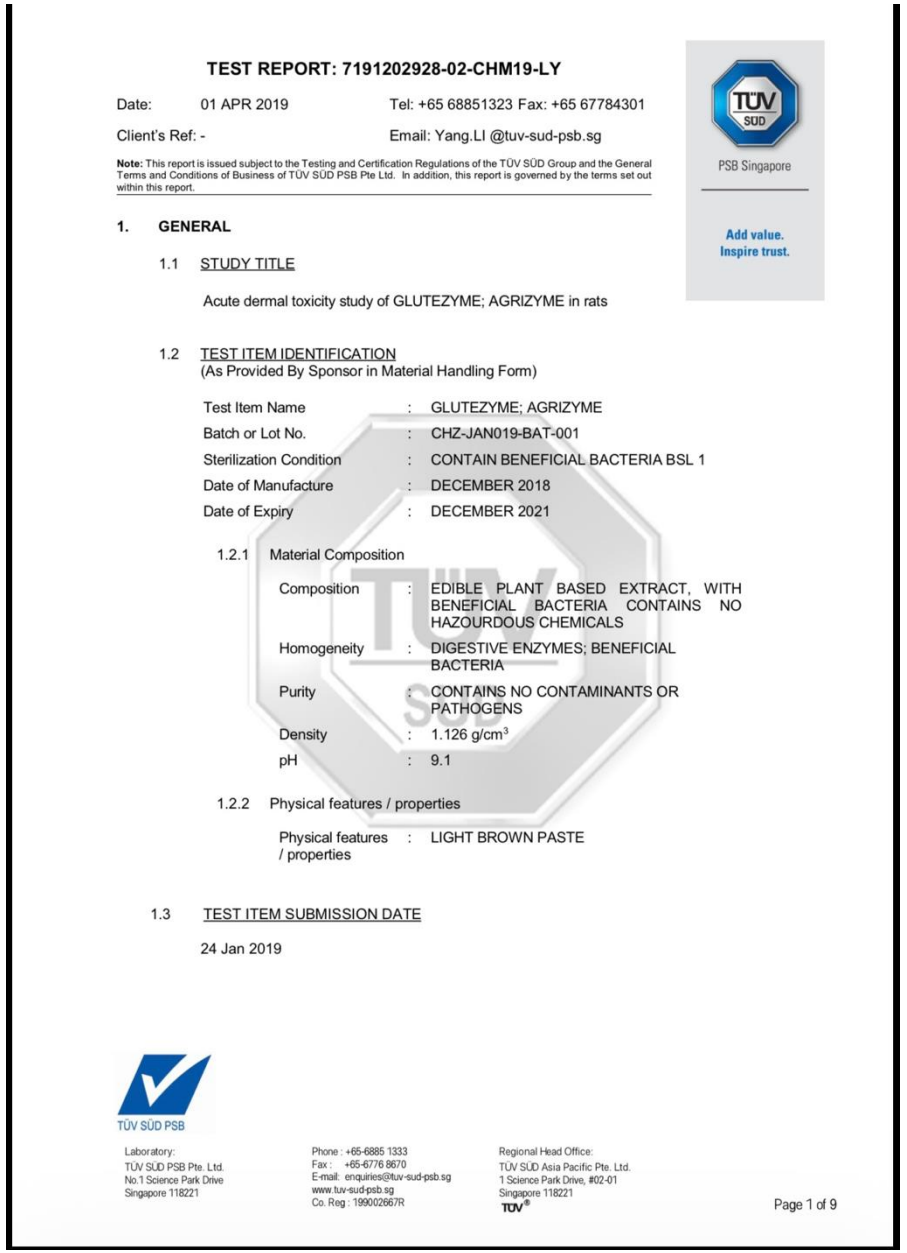
No.	Parameter	Satuan	Standar Mutu (Permentan No.70/Permentan/SR.140/10/2011)	Hasil Analisis Sampel
1.	Total Bakteri	CFU/ml	$\geq 10^7$	$6{,}08 \times 10^5$
2.	Total Fungi	propagul/ml	$\geq 10^5$	$1{,}10 \times 10^5$
3.	Total Aktinomycetes	CFU/ml	-	ttd
4.	*Lactobacillus* sp.	CFU/ml	$\geq 10^7$	$1{,}85 \times 10^7$
5.	Bakteri Selulolitik	CFU/ml	$\geq 10^7$	ttd
6.	Bakteri Fotosintetik	CFU/ml	$\geq 10^7$	$4{,}07 \times 10^6$
7.	Bakteri Penambat N	CFU/ml	-	$2{,}67 \times 10^5$

ttd : tidak terdeteksi

Bogor, 25 Juni 2015
Manajer Teknis

Ir. A. Kasno, MSi
NIP.19600119 198303 1 001

Enzyme proven as food grade safe (LD50) Dermal



TEST REPORT: 7191202928-02-CHM19-LY

Date: 01 APR 2019 Tel: +65 68851323 Fax: +65 67784301

Client's Ref: - Email: Yang.LI @tuv-sud-psb.sg

Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.

PSB Singapore

Add value. Inspire trust.

1. GENERAL

1.1 STUDY TITLE

Acute dermal toxicity study of GLUTEZYME; AGRIZYME in rats

1.2 TEST ITEM IDENTIFICATION
(As Provided By Sponsor in Material Handling Form)

Test Item Name	:	GLUTEZYME; AGRIZYME
Batch or Lot No.	:	CHZ-JAN019-BAT-001
Sterilization Condition	:	CONTAIN BENEFICIAL BACTERIA BSL 1
Date of Manufacture	:	DECEMBER 2018
Date of Expiry	:	DECEMBER 2021

1.2.1 Material Composition

Composition	:	EDIBLE PLANT BASED EXTRACT, WITH BENEFICIAL BACTERIA CONTAINS NO HAZOURDOUS CHEMICALS
Homogeneity	:	DIGESTIVE ENZYMES; BENEFICIAL BACTERIA
Purity	:	CONTAINS NO CONTAMINANTS OR PATHOGENS
Density	:	1.126 g/cm^3
pH	:	9.1

1.2.2 Physical features / properties

Physical features / properties	:	LIGHT BROWN PASTE

1.3 TEST ITEM SUBMISSION DATE

24 Jan 2019

TÜV SÜD PSB

Laboratory:
TÜV SÜD PSB Pte. Ltd.
No.1 Science Park Drive
Singapore 118221

Phone : +65-6885 1333
Fax : +65-6776 8670
E-mail: enquiries@tuv-sud-psb.sg
www.tuv-sud-psb.sg
Co. Reg : 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte. Ltd.
1 Science Park Drive, #02-01
Singapore 118221

Enzyme proven as food grade safe (LD50) Oral

TEST REPORT: 7191202928-CHM19-01-LY

Date: 01 APR 2019 Tel: +65 68851323 Fax: +65 67784301

Client's Ref: - Email: Yang.LI@tuv-sud-psb.sg

PSB Singapore

Choose certainty. Add value.

Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.

1. GENERAL

1.1 STUDY TITLE

Acute oral toxicity study of GLUTEZYME; AGRIZYME in rats

1.2 TEST ITEM IDENTIFICATION
(As Provided By Sponsor in Material Handling Form)

Test Item Name	:	GLUTEZYME; AGRIZYME
Batch or Lot No.	:	CHZ-JAN019-BAT-001
Sterilization Condition	:	CONTAIN BENEFICIAL BACTERIA BSL 1
Date of Manufacture	:	DECEMBER 2018
Date of Expiry	:	DECEMBER 2021

1.2.1 Material Composition

Composition	:	EDIBLE PLANT BASED EXTRACT, WITH BENEFICIAL BACTERIA CONTAINS NO HAZOURDOUS CHEMICALS
Homogeneity	:	DIGESTIVE ENZYMES; BENEFICIAL BACTERIA
Purity	:	CONTAINS NO CONTAMINANTS OR PATHOGENS
Density	:	1.126 g/cm^3
pH	:	9.1

1.2.2 Physical features / properties

Physical features / properties	:	LIGHT BROWN PASTE

1.3 TEST ITEM SUBMISSION DATE

24 Jan 2019

TÜV SÜD PSB

Laboratory:
TÜV SÜD PSB Pte. Ltd.
Testing Services
No.1 Science Park Drive
Singapore 118221

Phone : +65-6885 1333
Fax : +65-6776 8670
E-mail: enquiries@tuv-sud-psb.sg
www.tuv-sud-psb.sg
Co. Reg : 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte. Ltd.
1 Science Park Drive, #02-01,
Singapore 118221

Vector Residual Study

5.0 RESULT

TABLE 1

Discharge rate (gm/sec) and dosage used for CnO Remover Solution product samples received from **E-Organic Solution Pte Ltd** tested against *Periplaneta americana male* cockroaches using the Residual method.

Samples	Discharge rate (gm/sec)	Spraying time (sec)	Total Discharge Per Test (gm)
CnO Remover Solution product	-	-	39.16 g
Malaysian Standard (CIK) Aerosol	3.00	0.83	2.34

TABLE 2

Time-response values (KT50 and KT95) of CnO Remover Solution product product and Malaysian Standard CIK received from **E-Organic Solution Pte Ltd**, tested against **American cockroach, *Periplaneta americana*** male cockroaches. Knockdown values from Plague Residual method. A minimum of 180 cockroaches were used for the test and six replicates were conducted.

Samples	KT50 Confidence limit (min)	KT95 Confidence limit (min)	Regression coefficient ± Std Errors	24h mortality (%) Mean ± SE	48h mortality (%) Mean ± SE	72h mortality (%) Mean ± SE
American Cockroach *(Periplaneta americana)*						
CMO Remover Solution product						
Day 1	NC	NC	NC	100.00±0.00	100.00±0.00	100.00±0.00
Day 7	NC	NC	NC	100.00±0.00	100.00±0.00	100.00±0.00
Day 14	NC	NC	NC	100.00±0.00	100.00±0.00	100.00±0.00
Day 21	NC	NC	NC	100.00±0.00	100.00±0.00	100.00±0.00
Day 28	NC	NC	NC	100.00±0.00	100.00±0.00	100.00±0.00
Malaysian Standard (CIK) Aerosol						
Day 1	7.33 6.73-8.02	16.69 13.75-22.85	4.60±0.61	38.89±9.29	91.67±3.72	100.00±0.00
Day 7	11.01 10.00-12.02	30.30 25.32-39.48	3.74±0.40	52.78±7.95	94.44±3.51	100.00±0.00
Day 14	14.95 12.19-17.49	122.08 88.59-198.59	1.80±0.20	69.44±9.04	97.22±2.78	100.00±0.00
Day 21	25.92 22.78-29.09	132.31 99.55-201.85	2.32±0.25	44.44±5.57	91.67±3.73	97.22±2.78
Day 28	65.99 58.03-77.18	364.32 238.17-765.79	2.22±0.32	27.78±3.51	72.22±3.51	88.89±3.51

NC – Not computable (cannot run SPSS probit analysis) as no knockdown or lower knock down was recorded during 2 hours exposure period.

Knock Down Bio Efficacy

Aerosol (CIK). No knockdown was recorded for CnO Remover Solution product but it gave 100% mortality at 24 hours. While for MS Aerosol (CIK) it shows the KT50 value of 2.50 minutes and KT95 values of 9.03 minutes. MS Aerosol (CIK) also gave 100% mortality at 24 hours.

TABLE 1

Concentration-response values (LC50 and LC99) of CnO Remover Solution product sample received from E-Organic Solutions Pte. Ltd. tested against *Periplaneta americana* cockroaches. Mortality values from Glass Cylinder method. A minimum of 36 cockroaches were used for the test and six replicates were conducted.

Samples	LC50 & Confidence limit (g)	LC99 & Confidence limit (g)	Regression coefficient ± Std Errors
CnO Remover Solution product	18.09 17.02-19.26	38.53 33.22-48.24	7.09±0.79

TABLE 2

Time-response values (KT50 and KT95) of CnO Remover Solution product sample received from E-Organic Solutions Pte. Ltd. In comparison with MS aerosol (CIK) tested against *Periplaneta americana* cockroaches. Mortality values from Glass Cylinder method. A minimum of 36 cockroaches were used for the test and six replicates were conducted.

Samples	KT50 & Confidence limit (g)	KT95 & Confidence limit (g)	Regression coefficient ± Std Errors	24 hour mortality
CnO Remover Solution product	NC	NC	NC	100.00±0.00
MS Aerosol	2.50 2.20-2.80	9.03 6.97-13.64	2.95±0.37	100.00±0.00

NC – Not computable since there are no knockdowns recorded during exposure period

6.0 COMMENT

The concentration of CnO Remover Solution product that kill 99% of the test insect was 38.53 g of formulation (dilution rate 1:3). At this concentration 38.53

Prestigious Green Label Award issued for 100 % Organic Product used to kill Pests from Singapore Government



GreenLabel SINGAPORE

The Singapore Green Labelling Scheme Secretariat hereby grant

E-Organic Solutions Pte Ltd

51 Bukit Batok Crescent #08-20 Unity Centre Singapore 658077

the right to use the Singapore Green Label for

CnO REMOVER
044-011-2827
"Biodegradable Product"

Validity: 23 December 2017 to 22 December 2018

LAM JOON KHOI
EXCO Chairman
Singapore Environment Council

Singapore Environment Council

Printed on 9Lives Offset, an FSC™ certified and 100% recycled paper from Spicers

Before and After treatment of wastewater with Enzyme Solution

TEST REPORT: 7191148507-CHM16-04-LLH
09 NOV 2016

RESULTS

Tests		Blk 824 (31/10/16)
Total Dissolved Solids,	mg/L	69,200
Biochemical Oxygen Demand (5 days at 20°C),	mg/L	2,400
Chemical Oxygen Demand,	mg/L	319,950
TKN	mg/L	53
pH value @ 25°C		9.7

LEE LENG HIANG
TECHNICAL EXECUTIVE

DR XIAO MAN
ASSISTANT PRODUCT MANAGER
ENVIRONMENTAL MONITORING
CHEMICAL & MATERIALS

TEST REPORT: 7191148507-CHM16-02-LLH
08 NOV 2016

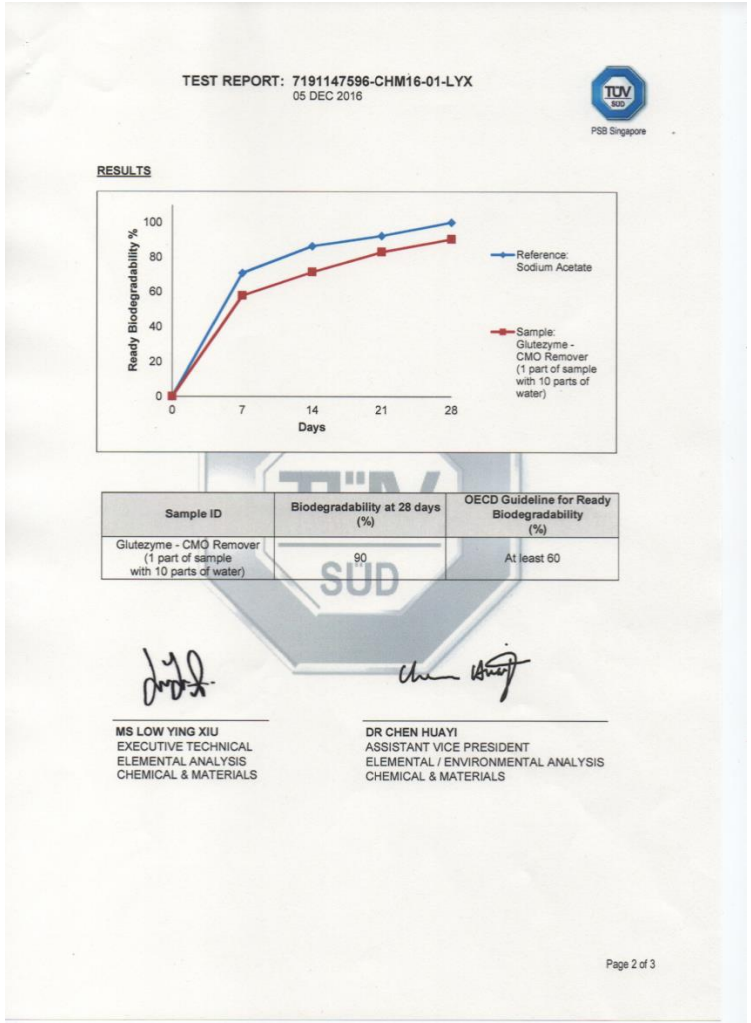
RESULTS

Tests		Blk 824 #10-12
Total Dissolved Solids,	mg/L	93,500
Biochemical Oxygen Demand (5 days at 20°C),	mg/L	6,450
Chemical Oxygen Demand,	mg/L	373,410
TKN	mg/L	70
pH value @ 25°C		9.8

LEE LENG HIANG
TECHNICAL EXECUTIVE

DR XIAO MAN
ASSISTANT PRODUCT MANAGER
ENVIRONMENTAL MONITORING
CHEMICAL & MATERIALS

Enzyme is 100 % environmentally safe and fully biodegradable



TEST REPORT: 7191147596-CHM16-01-LYX
05 DEC 2016

PSB Singapore

RESULTS

Sample ID	Biodegradability at 28 days (%)	OECD Guideline for Ready Biodegradability (%)
Glutezyme - CMO Remover (1 part of sample with 10 parts of water)	90	At least 60

MS LOW YING XIU
EXECUTIVE TECHNICAL
ELEMENTAL ANALYSIS
CHEMICAL & MATERIALS

DR CHEN HUAYI
ASSISTANT VICE PRESIDENT
ELEMENTAL / ENVIRONMENTAL ANALYSIS
CHEMICAL & MATERIALS

Page 2 of 3

Effectiveness to neutralize Viruses

Acronyms from the document are:	WSSV - White Spot Disease	IHHNV - Infectious Hypodermal	TSV - Tobacco Streak Virus	YHV - Yellow Head Virus
IMNV - Infectious Myonecrosis Virus	MBV - Epstein Barr virus (herpes family)	HPV - Human Papillomavirus (wart family)	EMS Toxin 1 - Early Mortality	EHP - Enterocytozoon hepatopenaei
CMNV - Cytomegalovirus (herpes family	KHV - Cyvirus Cyprinidallo3	SVCV - Rhabdovirus Carpio	VNN - Betanodavrius	Megalicytivirus

LAB - IND RESOURCE SDN BHD (498836-W)
No 57-59, Jalan Adenium 2G/6,
Pusat Perniagaan Adenium,
48300 Bandar Bukit Beruntung,
Selangor Darul Ehsan, Malaysia.

Tel: +6.03.6021 6880
Fax: +6.03.6021 7880
E-mail: info@mylabind.com
website: mylabind.com

MS ISO/IEC 17025
TESTING
SAMM NO. 738

■ Molecular and Immunoassay Diagnostics ■ PCR Services and Consultancy ■ Bio and Life Science Products

LIR/LIRL/F/002
COA17280

CERTIFICATE OF ANALYSIS: PCR TEST RESULT

Samples Received : 1 bottle of enzyme
Customer Name : Timcare Biotech Sdn. Bhd.
Customer Address : No.46, Jalan Apollo U5/189,Bandar Pinggiran Subang 2, 40150 Shah Alam.
Sample Size : Random sampling of 100 µL samples were taken.
Test Perform/Lot no :

LIRL/LWI/005	Real - time PCR – WSSV	Lot 010317 (exp Jan 2018)
LIRL/LWI/009	Real - time PCR – IHHNV	Lot 032017 (exp Mar 2018)
LIRL/LWI/006	Real - time PCR – TSV	Lot 032017 (exp Mar 2018)
LIRL/LWI/007	Real - time PCR – YHV	Lot 010317 (exp Jan 2018)
LIRL/LWI/008	Real - time PCR – IMNV	Lot 032017 (exp Mar 2018)
LIRL/LWI/012	Single step PCR – MBV	Lot 042017 (exp Apr 2018)
LIRL/LWI/013	Single step PCR – HPV	Lot 030717 (exp Mar 2018)
	*Conventional PCR – AP4(EMS Toxin 1)	
	*Conventional PCR – EHP	
	*Conventional PCR – CMNV	
	*Conventional PCR – KHV	
	*Conventional PCR – SVCV	
	*Conventional PCR – VNN	
	*Conventional PCR – Megalocytivirus	

Date/Time received : Jun 7, 2017 – 11.00 am
Date/Time Test Date/time : Jun 7, 2017 – 2.00 pm
Results generated : Jun 9, 2017 – 4.40 pm

Samples	Testing	Results
S1 = TIMCARE NANO SHIELD	WSSV	-Neg
	IHHNV	-Neg
	TSV	-Neg
	YHV	-Neg
	IMNV	-Neg
	MBV	-Neg
	HPV	-Neg
	*EMS Toxin 1	-Neg
	*EHP	-Neg
	*CMNV	-Neg
	*KHV	-Neg
	*SVCV	-Neg
	*VNN	-Neg
	*Megalocytivirus	-Neg

P/S: N.C (non conclusive); +Pos (Positive); -Neg (Negative);
Detection limit of WSSV,IHHNV,TSV,YHV,IMNV= 10 copies/µl DNA ;
Detection limit of MBV,HPV,EMS,EHP,CMNV,KHV,SVCV,VNN,Megalocytivirus=100 copies/µl DNA

Scientific Study

- Conducted to assess the effectiveness of the Space Tech Agri EM product (Enzyme Liquid) versus a) the leading international EM product (Enzyme Powder), and b) Chlorine (Control) in its effectiveness in cleaning water (removing faecal coliform bacteria - E.coli, Salmonella, etc).
- Space Tech Agri EM outperformed competitor Enzyme Powder (Peco Industries) and Chlorine

VETERINARY LABORATORY
BULAN ISLAND

WATER ANALYSIS REPORT

Sample from : Enzym Trial
Sampling Purpose : Total Coliform, Total Plate Count, pH
Tested Date : 26/03/2018
Result :

No.	Sample	Total Coliform Group		Total Plate Count of Bacteria		pH
		MPN/100 ml	Remark	Bacteria	Remark	
1	Enzym Cair 20ml + Aquadest 500ml + Air Sumur 250ml	900	Poor	8	Good	9,45
2	Enzym Cair 25ml + Aquadest 500ml + Air Sumur 250ml	700	Not Good	1	Good	9,45
3	**Enzym Cair 50ml + Aquadest 500ml + Air Sumur 250ml**	**<300**	**Good**	**0**	**Good**	**9,45**
4	Enzym Serbuk 50mg + Aquadest 100ml + Air Sumur 500ml	>25000	Poor	>250	Poor	6,25
5	Enzym Serbuk 100mg + Aquadest 100ml + Air Sumur 500ml	>25000	Poor	>250	Poor	6,46
6	Kontrol 1 (Air Sumur)	<300	Good	11	Good	6,51
7	Kontrol 2 (Air WTP)	400	Not Good	50	Good	6,10

Explanation

Total Coliform	Result
0- <300	Good
300 - 700	Not Good
> 700	Poor

Total Bacteria	Result
0 - <100	Good
100 - 250	Not Good
> 250	Poor

Kesimpulan dan Saran :
1. Penilaian sampel air yang baik dilihat dari minimnya kedua aspek cemarannya (Total Coliform group dan Total Plate Count). Hasil test air sumur dengan Enzym cair 50ml yang digunakan menunjukkan hasil Total coliform dan TPC sangat rendah pada uji tersebut. Namun pada hasil test air sumur dengan Enzym serbuk 50mg & 100mg sama-sama menunjukkan hasil Total Coliform dan TPC yang sangat tinggi.
2. Dari hasil isolasi bakteri yang dilakukan ditemukan bakteri *E. coli, Klebsiella sp.,Salmonella sp, Bacillus sp.*

All test are completed.