

STUDY REPORT**Original: 1/2****STUDY TITLE****ACUTE ORAL TOXICITY STUDY OF BIO-X KLEANZE EC IN SPRAGUE
DAWLEY RATS****(As per OECD Guideline No. 423: Acute Oral Toxicity - Acute Toxic Class Method)****STUDY No.: BIO-ATX 2992****Study Completion Date: 24 March 2021****SPONSOR****OKADA ECOTECH PTE LTD
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QUALITY ASSURANCE STATEMENT

The Study No.: BIO-ATX 2992, entitled “Acute Oral Toxicity Study of Bio-X Kleanze EC in Sprague Dawley Rats” has been inspected according to the OECD Principles of Good Laboratory Practice [C(97)186/Final].

The dates of inspections and dates of reporting to the Study Director and the Management have been listed below:

Inspection Dates	Inspection Phases	Reporting Dates	
		Study Director	Management
Initiation Phase			
29 January 2021	Study plan verification	29 January 2021	29 January 2021
In-life Phase			
16 February 2021	Test item formulation preparation and administration - Step I	16 February 2021	16 February 2021
Reporting Phase			
19 March 2021	Draft report inspection	19 March 2021	19 March 2021
23 March 2021	Final report inspection	23 March 2021	23 March 2021

Inspections were performed according to the Standard Operating Procedures of the test facility’s Quality Assurance Unit. The study report was inspected against the approved study plan and pertinent raw data and accurately reflects the raw data.



(Signature)

Mr. PRAVEEN B.
Quality Assurance Unit

24 March 2021

(Date)

STATEMENT OF GLP COMPLIANCE

The Study No.: BIO-ATX 2992, entitled “Acute Oral Toxicity Study of Bio-X Kleanze EC in Sprague Dawley Rats” was performed in compliance with the OECD Principles of Good Laboratory Practice [C(97)186/Final].

DECLARATION

I hereby declare that the work was performed under my supervision and in accordance with the described procedures. It is assured that the reported results faithfully represent the raw data obtained during the experimental work. No circumstances have been left unreported which may have affected the quality or integrity of the data or which might have a potential bearing on the validity and reproducibility of this study.

I accept overall responsibility for the technical conduct of the study as well as the interpretation, analysis, documentation and reporting of the results.

D. Jhansi

(Signature)

Ms. D. JHANSI
Study Director

24 March 2021

(Date)

STATEMENT OF CONFIDENTIALITY

This report contains **CONFIDENTIAL** and **PROPRIETARY** information of **OKADA ECOTECH PTE LTD, SINGAPORE** and will not be disclosed to anyone without the expressed or written approval of sponsor, except to the employees of the test facility wherever necessary and to persons authorized by law or judicial judgement.



(Signature)

Ms. D. JHANSI
Study Director



(Date)



(Signature)

Dr. NITIN M. SHETTY
Deputy Test Facility Management



(Date)

ABBREVIATIONS OF COMMONLY USED UNITS AND SYMBOLS

AAALAC	-	Association for Assessment and Accreditation of Laboratory Animal Care
AM	-	Ante Meridiem
B	-	Breadth
CPCSEA	-	Committee for the Purpose of Control and Supervision of Experiments on Animals
IAEC	-	Institutional Animal Ethics Committee
GHS	-	Globally Harmonized System of Classification and Labelling of Chemicals
GLP	-	Good Laboratory Practice
OECD	-	Organization for Economic Co-operation and Development
F	-	Female
g	-	Gram
h/hr	-	Hour
H	-	Height
kg	-	Kilogram
L	-	Length
min	-	Minute
mg	-	Milligram
mL	-	Milliliter
mm	-	Millimeter
n	-	Number of animals
No.	-	Number
NAD	-	No Abnormality Detected
N	-	Normal
SD	-	Standard Deviation
TS	-	Terminal Sacrifice
w/w	-	Weight by weight
v/v	-	Volume by volume
°C	-	Degree Celsius
%	-	Percentage

1. STUDY DETAILS

- 1.1 Study Title** : Acute Oral Toxicity Study of Bio-X Kleanze EC in Sprague Dawley Rats
- 1.2 Study Number** : BIO-ATX 2992
- 1.3 Study Code** : AOR
- 1.4 Sponsor Details**
- Sponsor : Okada Ecotech Pte Ltd
24 Pioneer Crescent #04-08
628557 Singapore
- Sponsor's Representative : K. E. Tan
Okada Ecotech Pte Ltd
24 Pioneer Crescent #04-08
628557 Singapore
- Monitoring Scientist : A. Z. Tan
Okada Ecotech Pte Ltd
24 Pioneer Crescent #04-08
628557 Singapore
- 1.5 Test Facility** : Bionees India Private Limited
Devarahosahally,
Sompura Hobli, Nelamangala Taluk,
Bangalore Rural District, PIN - 562 111,
Karnataka, India
- 1.6 Study Responsibilities**
- Study Director : Ms. D. Jhansi., M.Sc
Bionees India Private Limited,
Devarahosahally,
Sompura Hobli, Nelamangala Taluk,
Bangalore Rural District, PIN - 562 111,
Karnataka, India
E-mail: bionees@bionees.in
- Study Co-ordinator : Ms. Amulya T. S., B. E. (Biotech)
- Study Personnel : Ms. Kowstubha G. D., M.Sc.
- Study Veterinarian : Dr. K. R. Sneha., M.V.Sc.
- Study Pathologists : Dr. Sowmya Bharath, M.V.Sc, DABT, DIBTP
Dr. Prajapati Ramdatt Khemabhai., M.V.Sc.

1.7 Study Schedule

Study Initiation Date	:	10 February 2021
Experimental Starting Date	:	11 February 2021
Acclimatization Date	:	Start: 11 February 2021 End: 24 February 2021
Treatment Dates	:	Step-I : 16 February 2021
		Step-I Confirmation : 19 February 2021
		Step-II : 22 February 2021
		Step-II Confirmation : 25 February 2021
Necropsy Dates	:	Step-I : 02 March 2021
		Step-I Confirmation : 05 March 2021
		Step-II : 08 March 2021
		Step-II Confirmation : 11 March 2021
Experimental Completion Date	:	11 March 2021
Draft Report Submission Date	:	20 March 2021
Study Completion Date	:	24 March 2021

2. SUMMARY

The test item, Bio-X Kleanze EC was evaluated for acute oral toxicity in Sprague Dawley rats.

A starting dose of 300 mg/kg body weight was selected from the fixed dose levels of 5, 50, 300 and 2000 mg/kg body weight, since the LD₅₀ of test item is not available.

A total of 12 females (3 females for each Step-I, Step-I confirmation, Step-II and Step-II confirmation) were used for the experiment. All the animals of Step-I and Step-I confirmation were administered with 300 mg/kg body weight and Step-II and Step-II confirmation were administered with 2000 mg/kg body weight by oral route.

All the animals were observed for clinical signs of toxicity and mortality at 20 to 30 mins, 1 hr (± 10 mins), 2 hrs (± 10 mins), 3 hrs (± 10 mins) and 4 hrs (± 10 mins) post dosing on day 1 and once daily thereafter for clinical signs of toxicity and twice daily for mortality during the 14 days observation period. Body weights were recorded at receipt, on day 1 before test item administration, on days 8 and 15 during the observation period. At the end of observation period, all the surviving animals were humanely sacrificed by carbon dioxide asphyxiation, subjected to necropsy and gross pathological examination.

No clinical signs of toxicity and mortality was observed in any of the dosed animals at 300 mg/kg and 2000 mg/kg body weight.

No changes were observed in body weight and percent change in body weight with respect to day 1 at 300 mg/kg body weight and 2000 mg/kg body weight. All the surviving animals revealed physiologically normal increase in the body weight.

No gross pathological changes were observed in any of the animals at 300 mg/kg body weight and 2000 mg/kg body weight.

Conclusion

Based on the results of the experiment, it is concluded that the LD₅₀ cut off value for the test item Bio-X Kleanze EC is 5000 mg/kg body weight when administered as a single dose by oral gavage to female Sprague Dawley rat as per OECD Guidelines for Testing of Chemicals (No. 423, Section 4: Health Effects) on conduct of “Acute Oral Toxicity - Acute Toxic Class Method” and classified as “Category 5 or unclassified (2000 < ATE \leq 5000 mg/kg body weight)” as per the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

3. STUDY COMPLIANCE

3.1 GLP Compliance

The study was performed:

- a. In compliance with the OECD Principles of Good Laboratory Practice [C(97)186/Final].
- b. In accordance with the Standard Operating Procedures at Bionees India Private Limited and as per the mutually agreed study plan with the sponsor.

3.2 Regulatory Guidelines

The study was performed in accordance with the OECD Guidelines for Testing of Chemicals No. 423, (Section 4: Health Effects) on conduct of “Acute Oral Toxicity - Acute Toxic Class Method” adopted on 17 December 2001.

3.3 Animal Welfare

The study was performed in an AAALAC accredited facility:

- a. In accordance with the recommendation of the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines for laboratory animal facility published in the Gazette of India, 2018.
- b. In accordance with the protocol approved by Institutional Animal Ethics Committee (IAEC) (Protocol No.: BIO-IAEC-4100 and Approval Date: 01/12/2020).

4. SAFETY PRECAUTIONS

Gloves, head cap, face mask and goggles were used in addition to protective body garments and slippers/shoes to ensure adequate personnel health and safety and to avoid ingestion, inhalation, skin and eye contact with the test item.

5. OBJECTIVE

The objective of this study was to assess the toxic potential of the test item Bio-X Kleanze EC when administered by oral gavage as a single dose to female Sprague Dawley rats at one or more defined doses.

This also gives details on classification and labelling of chemical for safety and risk assessment and LD₅₀ cut-off value.

6. MATERIALS AND METHODS

6.1 Test Item Information

The test item information provided by the sponsor as per Test Item Data Sheet and is presented below:

Name of Test Item	: Bio-X Kleanze EC
CAS No.	: Not applicable
Physical appearance (with color)	: Clear Brown liquid
Batch No.	: 2020061201

Date of Manufacture	: 12 June 2020
Date of Expiry	: 12 June 2023
Storage Conditions	: Ambient (21 to 29°C)
Batch Produced by (Name and address)	: Okada Ecotech Pte Ltd, Singapore
Test Item Code by Test Facility	: D1155-001

The responsibility for the correct identity and stability of the test item rests with the sponsor. The Certificate of Analysis of test item provided by sponsor is presented as Annexure 2

6.2 Selection of Vehicle and Justification for Selection

The test item was found miscible in distilled water as evidenced by the in-house miscibility test. Hence, distilled water selected for the test item formulation preparation.

Distilled water is universally accepted and routinely used vehicle in oral toxicity studies.

The details of Distilled water used is as follows:

Batch No.	: 393 & 423
Manufacture Date	: 04/02/2021 & 16/02/2021
Expiry Date	: 03/02/2022 & 15/02/2022
Manufactured By	: Mysore Research Chemical Laboratories

6.3 Test System

Animal Species	: Rat (<i>Rattus norvegicus</i>)
Strain	: Sprague Dawley
Justification for Selection of Species	: Rat is one of the recommended species by regulatory agencies for conducting pre-clinical toxicological studies among rodents.
Source of Supply	: In-house bred animals
Body Weight Range at Receipt	: 162.14 g to 176.14 g
No. of Animals / Step and Sex	: 3 animals per Step Total of 12 females were received. (Females used were nulliparous and non-pregnant)
Age at Treatment	: 8-10 weeks

Animal Identification : Acclimatization period: All the animals were identified by tail marking using a black permanent marker pen. Additionally, a cage card was displayed which included study no., cage no., sex, animal no.(temporary), start date and end date of acclimatization period.

Treatment period: The animals were identified by writing 4 digits of the animal number on tail using a red marker pen. Additionally, a cage card was displayed which included study no., cage no., sex, animal no. (Permanent), treatment date and date of necropsy.

Animal No's.: Rf2834 to Rf2845

6.4 Husbandary

a. Environmental Conditions : Animals were housed under standard laboratory conditions, in an environmentally monitored air-conditioned room with adequate fresh air supply (12 to 15 air changes per hour), room temperature 19.4°C to 22.9°C and relative humidity 47% to 64% with 12 hours fluorescent light and 12 hours dark cycle. The temperature and relative humidity were recorded once daily.

b. Housing : Three animals were housed in standard polypropylene cage (Size: L 430 x B 285 x H 150 mm) with stainless steel mesh top grill having facilities for holding pelleted feed and drinking water in water bottle fitted with stainless steel sipper tube. Clean sterilized paddy husk was provided as bedding material.

c. Feed : Altromin Maintenance diet for rats and mice (manufactured by Altromin Spezialfutter GmbH & Co. KG) was provided *ad libitum* to the animals throughout the experimental period. The contaminant analysis test report of feed is presented as Annexure 3.

d. Water : Water was provided *ad libitum* throughout the acclimatization and experimental period. Deep bore-well water passed through reverse osmosis unit was provided in plastic water bottles with stainless steel sipper tubes.

The contaminant analysis test reports of the water and bedding material nearest to the experimental period are included as Annexure 4 and 5 respectively.

6.5 Acclimatization

Healthy young adult animals used for Step-I, Step-I confirmation, Step-II and Step-II confirmation were acclimatized for five, eight, eleven and fourteen days respectively to laboratory condition prior to treatment and were observed for clinical signs once daily. Veterinary examination of all the animals was performed on the day of receipt.

6.6 Study Design

The animals were dosed in a stepwise procedure with three female animals per step. A starting dose of 300 mg/kg body weight was selected from the fixed dose levels of 5, 50, 300 and 2000 mg/kg body weight, since the LD₅₀ of Bio-X Kleanze is not available.

The test item was administered by oral gavage as a single dose of 300 mg/kg body weight to three female rats in Step-I. No clinical signs of toxicity and mortality was observed at 300 mg/kg body weight in Step-I. Hence, as per the decision rules governing the sequential procedure presented in the OECD 423 test guideline Annexure 2c, Step-I confirmation was conducted using three more female rats approximately 72 hours of observation by administering a single dose of 300 mg/kg body weight of the test item. No clinical signs of toxicity and mortality was observed at 300 mg/kg body weight in Step-I confirmation. Hence, Step-II was conducted using three more female rats approximately 72 hours of observation by administering a single dose of 2000 mg/kg body weight. No clinical signs of toxicity and mortality was observed at 2000 mg/kg body weight in Step-II. Hence, Step-II confirmation was conducted using three more female rats approximately 72 hours of observation by administering a single dose of 2000 mg/kg body weight of the test item. No clinical signs of toxicity and mortality was observed at 2000 mg/kg body weight in Step-II confirmation.

The details of the stepwise test procedure with 300 mg/kg body weight as starting dose according to the OECD 423 guideline is presented as Annexure 1.

Dose levels higher than 2000 mg/kg body weight were not tested.

6.7 Route of Administration and Justification for Selection of Route

The test item was administered through oral route. The oral route is the probable route of exposure to humans and indicates a concern for human health. Hence, the oral route was selected.

6.8 Preparation of Test item

As per sponsor communication, test item was prepared for 80 dilutions.

80 dilutions: 0.13 mL of test item was taken and 10 mL of distilled water was added.

6.9 Dose Formulation

Required quantity of formulated test item was weighed as per the dose. The weighed formulated test item was mixed well using glass rod by adding a small quantity of vehicle and then transferred to a measuring cylinder. Again, a small quantity of vehicle was added and transferred to the measuring cylinder. The procedure was repeated until the complete transfer of the test item into the measuring cylinder. Finally, the vehicle was added to the required mark to get a desired concentration.

The freshly prepared test item formulation was used for administration.

The dose formulation preparation is as indicated in the table below:

Step	Dose (mg/kg body weight)	Concentration (mg/mL)	Dose volume (mL/kg body weight)	Quantity of Test Item (mg)	Volume made up with vehicle (mL)

Step-I	300	30	10	300.2	10
Step-I confirmation	300	30	10	300.0	10
Step-II	2000	200	10	2000.1	10
Step-II confirmation	2000	200	10	2000.0	10

6.10 Administration of Test Item

Three animals per step were fasted overnight (16 to 18 hours) prior to dosing. Water was provided *ad libitum* during fasting period. The freshly prepared test item formulation was administered by oral gavage to each rat as a single dose using intubation cannula. The dose volume administered to individual rat was adjusted according to its body weight recorded on the day of dosing. The dose volume was 10 mL/kg body weight. Feed was offered 3 to 4 hours after dosing.

6.11 Observations

The following observations were made during the experimental period.

6.11.1 Clinical Signs of Toxicity and Mortality

All the animals were observed for clinical signs of toxicity and mortality at 20 to 30 mins, 1 hr (± 10 mins), 2 hrs (± 10 mins), 3 hrs (± 10 mins) and 4 hrs (± 10 mins) post dosing on day 1 and once daily thereafter for clinical signs of toxicity and twice daily for mortality during the 14 days observation period. Observations included changes in skin, fur, eyes and mucous membranes and also respiratory, circulatory, autonomic and central nervous systems and somatomotor activity and behaviour pattern.

6.11.2 Body Weight

Individual animal body weights were recorded at receipt, on day 1 (before test item administration), on days 8 and 15 during the observation period.

6.11.3 Pathology

a. Necropsy

At the end of observation period (on day 15), all the animals were humanely sacrificed by carbon dioxide asphyxiation, subjected to necropsy and a complete gross pathological examination and the observations were recorded.

b. Histopathology

Histopathological examination was not carried out as there were no gross pathological change.

7. INTERPRETATION OF RESULTS

The test item was classified according to the Globally Harmonized System of Classification and Labelling of Chemicals (Refer Annexure 6).

LD₅₀ cut-off value was determined as per Annexure 1.

8. STUDY REPORT PREPARATION AND RESULTS

Individual animal data is summarized and presented as tables. All findings are presented in the study report as per the standard reporting procedure of the test facility.

9. AMENDMENTS AND DEVIATIONS

No amendment was raised and no deviation occurred during the conduct of the study.

10. STUDY REPORT DISTRIBUTION

Original: 1/2 - Sponsor

Original: 2/2 - Archives, Bionees India Private Limited.

11. ARCHIVING

All materials and data generated in the study will be stored in the archives of the test facility. The study plan, raw data and study report will be maintained in the archives of Bionees India Private Limited for 9 years from the date of completion of the study. At the end of archiving period, the sponsor's instructions will be sought either to extend the archiving period or to return the archived material to the sponsor or for the disposal.

12. REFERENCE

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 8th edition, 2019 (ST/SG/AC.10/30/REV. 8).

13. RESULTS AND DISCUSSION

13.1 Clinical Signs of Toxicity and Mortality

No clinical signs of toxicity were observed in both any of the animals dosed at 300 mg/kg body weight and 2000 mg/kg body weight.

Refer Table 1

13.2 Body Weight

No changes were observed in body weight and percent change in body weight with respect to day 1 at 300 mg/kg body weight in Step-I and Step-I confirmation and 2000 mg/kg body weight in Step-II and Step-II confirmation. All the surviving animals revealed physiological normal increase in body weight.

Refer Table 2

13.3 Pathology

No gross pathological changes were observed in any of the animals dosed at 300 mg/kg body weight in Step-I and Step-I confirmation and 2000 mg/kg body weight in Step-II and Step-II confirmation.

Refer Table 3

14. CONCLUSION

Based on the results of the experiment, it is concluded that the LD₅₀ cut off value for the test item Bio-X Kleanze EC is 5000 mg/kg body weight when administered as a single dose by oral gavage to female Sprague Dawley rat as per OECD Guidelines for Testing of Chemicals (No. 423, Section 4: Health Effects) on conduct of “Acute Oral Toxicity - Acute Toxic Class Method” and classified as “Category 5 or unclassified (2000 < ATE ≤ 5000 mg/kg body weight)” as per the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

15. TABLES

TABLE 2. INDIVIDUAL ANIMAL BODY WEIGHT (g) AND PERCENT CHANGE IN BODY WEIGHT WITH RESPECT TO DAY 1

Study Steps & Dose (mg/kg body weight)	Animal No.	Sex	Volume Administered (mL)	Body Weight (g) on Day			Percent Change in Body Weight with Respect to Day	
				1	8	15	1 to 8	1 to 15
Step-I & 300	Rf2834	F	1.7	167.25	182.58	196.30	9.17	17.37
	Rf2835	F	1.6	164.40	180.49	194.17	9.79	18.11
	Rf2836	F	1.8	176.63	187.93	200.98	6.40	13.79
			Mean	169.43	183.67	197.15	8.45	16.42
			±SD	6.40	3.84	3.48	1.80	2.31
Step-I Confirmation & 300	Rf2837	F	1.8	176.31	190.18	206.17	7.87	16.94
	Rf2838	F	1.8	178.64	192.01	208.73	7.48	16.84
	Rf2839	F	1.8	175.82	188.99	203.66	7.49	15.83
			Mean	176.92	190.39	206.19	7.61	16.54
			±SD	1.51	1.52	2.54	0.22	0.61
Step-II & 2000	Rf2840	F	1.9	188.21	202.19	218.13	7.43	15.90
	Rf2841	F	1.9	187.22	201.40	216.04	7.57	15.39
	Rf2842	F	2.0	200.23	214.67	228.19	7.21	13.96
			Mean	191.89	206.09	220.79	7.40	15.08
			±SD	7.24	7.44	6.50	0.18	1.00
Step-II Confirmation & 2000	Rf2843	F	1.7	172.87	186.19	198.32	7.71	14.72
	Rf2844	F	1.7	172.11	186.28	199.46	8.23	15.89
	Rf2845	F	1.8	183.10	197.20	210.82	7.70	15.14
			Mean	176.03	189.89	202.87	7.88	15.25
			±SD	6.14	6.33	6.91	0.31	0.59

F: Female; SD: Standard Deviation

TABLE 3. INDIVIDUAL ANIMAL GROSS PATHOLOGY FINDINGS

Study Steps & Dose (mg/kg body weight)	Animal No.	Sex	Fate	Gross Pathology Findings	
				External	Internal
Step-I & 300	Rf2834	F	TS	NAD	NAD
	Rf2835	F	TS	NAD	NAD
	Rf2836	F	TS	NAD	NAD
Step-I Confirmation & 300	Rf2837	F	TS	NAD	NAD
	Rf2838	F	TS	NAD	NAD
	Rf2839	F	TS	NAD	NAD
Step-II & 2000	Rf2840	F	TS	NAD	NAD
	Rf2841	F	TS	NAD	NAD
	Rf2842	F	TS	NAD	NAD
Step-II Confirmation & 2000	Rf2843	F	TS	NAD	NAD
	Rf2844	F	TS	NAD	NAD
	Rf2845	F	TS	NAD	NAD

NAD: No Abnormality Detected; F: Female; TS: Terminal Sacrifice

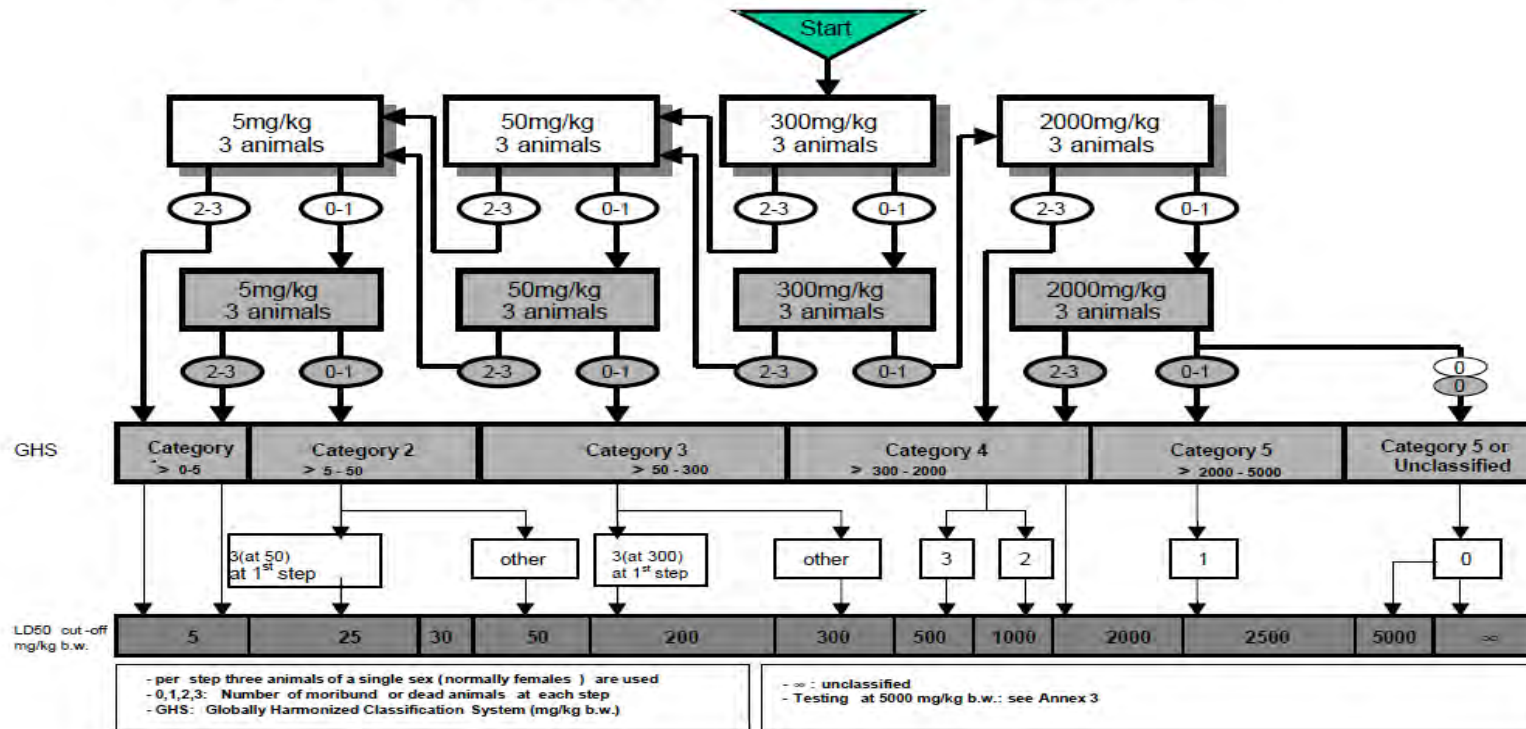
16. ANNEXURES

ANNEXURE 1. FLOW CHART FOR THE STEPWISE PROCEDURE WITH A STARTING DOSE OF 300 mg/kg BODY WEIGHT

423

OECD/OCDE

ANNEX 2c: TEST PROCEDURE WITH A STARTING DOSE OF 300 MG/KG BODY WEIGHT



12/14

ANNEXURE 2. CERTIFICATE OF ANALYSIS OF BIO-X KLEANZE EC



OKADA ECOTECH PTE LTD (REG NO 199805584M)
 24 Pioneer Crescent, #04-08, West Park Bizcentral, Singapore 628557
 Tel: (65) 6872 3515 Fax: (65) 6872 6558
 Website: www.okada-ecotech.com

CERTIFICATE OF ANALYSIS

Attention : **To whom it may concern**
 Product Name : **Bio-X® Kleanze EC**
 Batch Number : 2020061201
 Date of Test : 1 December 2020

TEST	SPECIFICATIONS	RESULT
Appearance	Clear brown	OK
Odor	Pleasant	OK
Viscosity (cP) (BF DVII #1/100RPM/30Deg C)	20 ± 5 cps	20.0
Specific Gravity	0.95 ± 0.10	0.96
Dispersibility in Water	All proportion dispersible	OK


 Tan Aik Zen
 (Chemical Engineer)

ANNEXURE 3 (Contd...). CONTAMINANT ANALYSIS TEST REPORT OF FEED

Nr / QA - 72-1
 /altrominprodukt
 15 Jahre nach Erstellen

Altromin Spezialfutter GmbH & Co. KG
 Im Seelkamp 20
 D-32791 Lage
 Tel +49 (0)5232 / 6088-0
 Fax +49 (0)5232 / 6088-20



Producer Certificate

Description	1324 Maintenance diet for rats and mice
Customer	ATNT Laboratories, India
Batch no. / Lot no.	202010200420
Production date	20.10.2020
Expiry date	20.10.2021

Guaranteed diet status:

Aflatoxins

Aflatoxin B1	< 2.5 µg/kg
Aflatoxin B2	< 0.6 µg/kg
Aflatoxin G1	< 2.5 µg/kg
Aflatoxin G2	< 0.6 µg/kg
Sum B1, B2, G1, G2	below detection limit

Heavy metals

Lead (Pb)	< 1.00 mg/kg
Cadmium (Cd)	< 0.20 mg/kg
Mercury (Hg)	< 0.05 mg/kg
Arsenic (As)	< 1.00 mg/kg

Polychlorinated Biphenyls

PCB	below detection limit
-----	-----------------------

Pesticides and residuals

Chlorpyrifos-methyl	< 0.100 mg/kg
Ethoxyquin	< 5.000 mg/kg
Piperonylbutoxid	< 0.500 mg/kg
Pirimiphos-methyl	< 0.500 mg/kg

all screened substances not mentioned are usually below detection limit (see attached list)

Microbiological status

Total aerobic count	< 10 ⁵ cfu/g
Yeasts	< 10 ² cfu/g
Moulds	< 10 ² cfu/g
E. coli	< 10 ¹ cfu/g
Salmonella in 25 g	not detectable

Accepted and released during Hans-Leopold Altrogge
 20/10/2020 (Quality Manager)

Date: November 05th 2020

Das ist ein freigegebener Dokumententwurf. Liquid umschichten bitte!

ANNEXURE 4. CONTAMINANT ANALYSIS TEST REPORT OF WATER



INSTITUTE FOR ANALYSIS OF DAIRY, FOOD & CULTURES.
 #8, Siddhi Vinayaka Complex, Nagarabhavi 2nd Stage, 2nd Block
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 Mail: accounts@iadfac.com/bd@iadfac.com/qa@iadfac.com


CERTIFICATE OF ANALYSIS

BOOKING NO. : 0010
 CERTIFICATE NO. : 0010/2020-2021

NAME OF MANUFACTURER/PARTY :		BIONEEDS INDIA PRIVATE LIMITED	
		Devarahosahalli, Sompura Hobali, Nelamangla Taluk, Bangalore Rural Dist, BANGALORE - 562111 KARNATAKA	
1. MFG. LIC. NO.	: NM	3. DATE	: 06/05/2020
2. REFERENCE NO.	: NM	5. NAME OF SAMPLE	: Drinking Water (R O Water)
4. DATE OF RECEIPT	: 06/05/2020		
6. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) MANUFACTURER NAME	: NM	(B) BATCH NO.	: NM
(C) BATCH SIZE	: NM	(D) DATE OF MFG.	: NM
(E) SAMPLE QUANTITY	: 5Lx1 Can	(F) DATE OF EXPIRY	: NM
(G) PACKING	: Plastic Bottle	(H) STARTING DATE	: 08/05/2020
(I) SEALED	: Sealed	(J) ENDING DATE	: 19/05/2020
(K) BRAND NAME	: NM	(L) SAMPLING PROTOCOL	: NA
(M) DATE OF SAMPLING/SAMPLE COLLECTION	: 06/05/2020	(N) REPORT GEN. DATE	: 19/05/2020

Specification as per IS 10500:2012

SR	TEST NAME	UNIT	RESULT	ACCEPTABLE LIMIT	PERMISSIBLE LIMIT	METHOD OF TEST
1	CHEMICAL TESTING					
	Water, Residues in Water					
1	Colour	CU	<1	5 Max	15 Max	IS 3025 (Part-4) : 1983
2	Odour	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part-5) : 2018
3	pH Value	-	6.6	6.5-8.5	No Relaxation	IS 3025 (Part-11) : 1983
4	Taste	-	Agreeable	Agreeable	Agreeable	IS 3025 (Part-7&Part-8) : 2017
5	Turbidity (as NTU)	-	<1	1 Max	5 Max	IS 3025 (Part-10) : 1984
6	Total Dissolved Solids	mg/l	23	500 Max	2000 Max	IS 3025 (Part-16) : 1984
7	Aluminium (as Al)	mg/l	<0.02	0.03 Max	0.2 Max	IS 3025 (Part-55) : 2003
8	Boron (as B)	mg/l	<0.1	0.5 Max	2.4 Max	IS 3025 (Part-57) : 2005
9	Calcium (as Ca)	mg/l	1	75 Max	200 Max	IS 3025 (Part-40) : 1991
10	Chloride (as Cl)	mg/l	2	250 Max	1000 Max	IS 3025 (Part-32) : 1988
11	Copper (as Cu)	mg/l	<0.05	0.05 Max	1.5 Max	IS 3025 (Part-42) : 1992
12	Fluoride (as F)	mg/l	<0.1	1.0 Max	1.5 Max	IS 3025 (Part-60) : 2013
13	Free residual Chlorine	mg/l	<0.1	0.2 Min	1.0 Max	IS 3025 (Part-26) : 1986
14	Iron (as Fe)	mg/l	<0.05	1.0 Max	No Relaxation	IS 3025 (Part-53) : 2003
15	Magnesium (as Mg)	mg/l	<1	30 Max	100 Max	IS 3025 (Part-46) : 1994
16	Manganese (as Mn)	mg/l	<0.1	0.1 Max	0.3 Max	IS 3025 (Part-59) : 2006

Remarks : Accepted and released for use @ 21/05/2020	For IADFAC Laboratories Pvt. Ltd.  Authorised Signatory Karunakara A.C. (ID No-132) Senior Manager-Chemical	CONTD. ON NEXT PAGE..... AUTHORISED SIGNATORY
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Note :

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- Analysed Food samples are destroyed within one month. Analysed Packaged Drinking Water samples destroyed after 3 months.

ANNEXURE 4 (Contd...). CONTAMINANT ANALYSIS TEST REPORT OF WATER



INSTITUTE FOR ANALYSIS OF DAIRY, FOOD & CULTURES.
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CERTIFICATE OF ANALYSIS

BOOKING NO. : 0010
 CERTIFICATE NO. : 0010/2020-2021

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1. MFG. LIC. NO.	: NM	3. DATE	: 06/05/2020
2. REFERENCE NO.	: NM	5. NAME OF SAMPLE	: Drinking Water (R O Water)
4. DATE OF RECEIPT	: 06/05/2020		
6. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) MANUFACTURER NAME	: NM	(B) BATCH NO.	: NM
(C) BATCH SIZE	: NM	(D) DATE OF MFG.	: NM
(E) SAMPLE QUANTITY	: 5Lx1 Can	(F) DATE OF EXPIRY	: NM
(G) PACKING	: Plastic Bottle	(H) STARTING DATE	: 06/05/2020
(I) SEALED	: Sealed	(J) ENDING DATE	: 19/05/2020
(K) BRAND NAME	: NM	(L) SAMPLING PROTOCOL	: NA
(M) DATE OF SAMPLING /SAMPLE COLLECTION	: 06/05/2020	(N) REPORT GEN. DATE	: 19/05/2020

Specification as per IS 10500:2012

SR	TEST NAME	UNIT	RESULT	ACCEPTABLE LIMIT	PERMISSIBLE LIMIT	METHOD OF TEST
17	Nitrate (as NO ₃)	mg/l	1.16	45 Max	No Relaxation	IS 3025 (Part-34) : 1988
18	Selenium (as Se)	mg/l	<0.01	0.01 Max	No Relaxation	IS 3025 (Part-56) : 2003
19	Sulphate (as SO ₄)	mg/l	<1	200 Max	400 Max	IS 3025 (Part-24) : 1986
20	Total Alkalinity as calcium carbonate	mg/l	8.0	200 Max	600 Max	IS 3025 (Part-23) : 1986
21	Total Hardness (as CaCO ₃)	mg/l	4	200 Max	600 Max	IS 3025 (Part-21) : 2009
22	Cadmium (as Cd)	mg/l	<0.003	0.003 Max	No Relaxation	IS 3025 (Part-41) : 1992
23	Lead (as Pb)	mg/l	<0.01	0.01 Max	No Relaxation	IS 3025 (Part-47) : 1994
24	Mercury (as Hg)	mg/l	<0.001	0.001 Max	No Relaxation	IS 3025 (Part-48) : 1994
25	Total Arsenic (as As)	mg/l	<0.01	0.01 Max	No Relaxation	IS 3025 (Part-37) : 1988
26	Total Chromium (as Cr)	mg/l	<0.05	0.05 Max	No Relaxation	Annexure- J of IS 13428 : 2005
Pesticide residues						
1	Endosulfan					
a	Alpha Endosulfan	µg/l	<0.01	0.4 Max	No Relaxation	FSSAI Manual of water 2016
b	Beta Endosulfan	µg/l	<0.01	0.4 Max	No Relaxation	FSSAI Manual of water 2016
c	Endosulfan sulphate	µg/l	<0.01	0.4 Max	No Relaxation	FSSAI Manual of water 2016
2	Ethion	µg/l	<0.01	3 Max	No Relaxation	FSSAI Manual of water 2016

Remarks : *Accepted and released for use 21/05/2020* For IADFAC Laboratories Pvt. Ltd.
 Authorized Signatory: *Karan*
 Karunakara A.C. (ID No-132)
 Senior Manager-Chemical

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ANNEXURE 4 (Contd...). CONTAMINANT ANALYSIS TEST REPORT OF WATER



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CERTIFICATE OF ANALYSIS

BOOKING NO. : 0010

CERTIFICATE NO. : 0010/2020-2021

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		Devarahosahalli, Sompura Hobali, Nelamangla Taluk, Bangalore Rural Dist, BANGALORE - 562111 KARNATAKA	
1. MFG. LIC. NO.	: NM	3. DATE	: 06/05/2020
2. REFERENCE NO.	: NM	5. NAME OF SAMPLE	: Drinking Water (R O Water)
4. DATE OF RECEIPT	: 06/05/2020		
6. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) MANUFACTURER NAME	: NM	(B) BATCH NO.	: NM
(C) BATCH SIZE	: NM	(D) DATE OF MFG.	: NM
(E) SAMPLE QUANTITY	: 5Lx1 Can	(F) DATE OF EXPIRY	: NM
(G) PACKING	: Plastic Bottle	(H) STARTING DATE	: 08/05/2020
(I) SEALED	: Sealed	(J) ENDING DATE :	: 19/05/2020
(K) BRAND NAME	: NM	(L) SAMPLING PROTOCOL	: NA
(M) DATE OF SAMPLING /SAMPLE COLLECTION	: 06/05/2020	(N) REPORT GEN. DATE	: 19/05/2020

Specification as per IS 10500:2012

SR	TEST NAME	UNIT	RESULT	ACCEPTABLE LIMIT	PERMISSIBLE LIMIT	METHOD OF TEST
3	Monocrotophos	µg/l	<0.01	1 Max	No Relaxation	FSSAI Manual of water 2016
--	--	--	-- End of Report --	--	--	--

Remarks :

Accepted & released for use @ 21/05/2020

For IADFAC Laboratories Pvt. Ltd.

Karan
 Authorised Signatory
 Karunakara A.C. (ID No-132)
 Senior Manager-Chemical

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ANNEXURE 5. CONTAMINANT ANALYSIS TEST REPORT OF BEDDING MATERIAL



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CERTIFICATE OF ANALYSIS

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		Devarahosahalli ,Sompura Hobali, Nelamangla Taluk, Bangalore Rural Dist, BANGALORE - 562111 KARNATAKA	
1.MFG. LIC. NO.	NM	4. OTHER REFERENCE NO	NM
2. REFERENCE NO.	NM	5. DATE OF RECEIPT	06/05/2020
3. DATE	06/05/2020	6. NAME OF SAMPLE	Paddy husk
7. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) BATCH NO.	NM	(H) SEALED	Sealed
(B) BATCH SIZE	NM	(I) STARTING DATE	06/05/2020
(C) DATE OF MFG.	NM	(J) ENDING DATE :	19/05/2020
(D) DATE OF EXPIRY	NM	(K) BRAND NAME	NM
(E) SAMPLE QUANTITY	1 kg	(L) SAMPLING PROTOCOL	NA
(F) MFG NAME	NM	(M) DATE OF SAMPLING /SAMPLE COLLECTION	06/05/2020
(G) PACKING	Zip lock cover	(N) REPORT GEN. DATE	19/05/2020

SR	TEST NAME	UNIT	RESULT	SPECIFICATIONS	METHOD OF TEST
1	CHEMICAL TESTING				
	Animal Food & Feed				
	Heavy Metals				
1	Arsenic	mg/kg	<0.1	-	AOAC 20th Edition 2016
2	Lead	mg/kg	<0.1	-	AOAC 20th Edition 2016
3	Cadmium	mg/kg	<0.1	-	AOAC 20th Edition 2016
4	Mercury	mg/kg	<0.1	-	AOAC 20th Edition 2016
	Chlorinated Hydrocarbons				
1	Hexachlorobenzene (HCB)	mg/kg	Not detected	-	AOAC 20th Edition 2016
2	Hexachlorocyclohexane (HCH)	mg/kg	Not detected	-	AOAC 20th Edition 2016
3	HCH (Lindane)	mg/kg	Not detected	-	AOAC 20th Edition 2016
4	Heptachlor & epoxide	mg/kg	Not detected	-	AOAC 20th Edition 2016
5	Chlordane	mg/kg	Not detected	-	AOAC 20th Edition 2016
6	Aldrin	mg/kg	Not detected	-	AOAC 20th Edition 2016
7	Dieldrin	mg/kg	Not detected	-	AOAC 20th Edition 2016
8	Endrin	mg/kg	Not detected	-	AOAC 20th Edition 2016
9	DDE	mg/kg	Not detected	-	AOAC 20th Edition 2016
10	DDD	mg/kg	Not detected	-	AOAC 20th Edition 2016

Remarks : <i>Accepted and released for use</i> <i>05/21/2020</i>	For IADFAC Laboratories Pvt. Ltd. <i>Karan</i> Authorised Signatory Karunakara A.C. (ID No-132) Senior Manager-Chemical AUTHORISED SIGNATORY
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4. Sample drawn and submitted by the party for Analysis unless otherwise stated.
5. Analysed Food sample destroyed within one month. Analysed Packaged Drinking Water sample destroyed after 3 months.

ANNEXURE 5 (Contd...), CONTAMINANT ANALYSIS TEST REPORT OF BEDDING MATERIAL



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BOOKING NO. 0011

CERTIFICATE NO. : 0011/2020-2021

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1. MFG. LIC. NO.	NM	4. OTHER REFERENCE NO	NM
2. REFERENCE NO.	NM	5. DATE OF RECEIPT	06/05/2020
3. DATE	06/05/2020	6. NAME OF SAMPLE	Paddy husk
7. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) BATCH NO.	NM	(H) SEALED	Sealed
(B) BATCH SIZE	NM	(I) STARTING DATE	08/05/2020
(C) DATE OF MFG.	NM	(J) ENDING DATE :	19/05/2020
(D) DATE OF EXPIRY	NM	(K) BRAND NAME	NM
(E) SAMPLE QUANTITY	1 kg	(L) SAMPLING PROTOCOL	NA
(F) MFG NAME	NM	(M) DATE OF SAMPLING /SAMPLE COLLECTION	06/05/2020
(G) PACKING	Zip lock cover	(N) REPORT GEN. DATE	19/05/2020

SR	TEST NAME	UNIT	RESULT	SPECIFICATIONS	METHOD OF TEST
11	DDT	mg/kg	Not detected	-	AOAC 20th Edition 2016
12	Endosulfan	mg/kg	Not detected	-	AOAC 20th Edition 2016
13	Endosulfan Sulphate	mg/kg	Not detected	-	AOAC 20th Edition 2016
14	Phosphoric Acid Esters	mg/kg	Not detected	-	AOAC 20th Edition 2016
15	Malathion	mg/kg	Not detected	-	AOAC 20th Edition 2016
16	Fenitrothion	mg/kg	Not detected	-	AOAC 20th Edition 2016
17	Pirimiphos(-methyl)	mg/kg	Not detected	-	AOAC 20th Edition 2016
18	Chlorpyrifos (-methyl)	mg/kg	Not detected	-	AOAC 20th Edition 2016
19	All other Phosphates	mg/kg	Not detected	-	AOAC 20th Edition 2016
20	Polychlorinated Biphenyls (PCB)	mg/kg	Not detected	-	AOAC 20th Edition 2016
Mycotoxins					
1	Aflatoxin B1	µg/kg	Not detected	-	AOAC 20th Edition 2016
2	Aflatoxin B2	µg/kg	Not detected	-	AOAC 20th Edition 2016
3	Aflatoxin G1	µg/kg	Not detected	-	AOAC 20th Edition 2016
4	Aflatoxin G2	µg/kg	Not detected	-	AOAC 20th Edition 2016
5	Zearalenone	µg/kg	Not detected	-	AOAC 20th Edition 2016
6	Ochratoxin A	µg/kg	Not detected	-	AOAC 20th Edition 2016
Nitrosamines					
1	Nitrosodiethylamine	µg/kg	Not detected	-	AOAC 20th Edition 2016

<p>Remarks :</p> <p style="font-size: 1.2em; font-family: cursive;">Accepted and released for use on 21/05/2020</p>	<p>For IADFAC Laboratories Pvt. Ltd.</p> <p><i>Karunakara</i></p> <p>Authorised Signatory Karunakara A.C. (ID No-132) Senior Manager-Chemical</p> <p>AUTHORISED SIGNATORY</p>
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--

ANNEXURE 5 (Contd...), CONTAMINANT ANALYSIS TEST REPORT OF BEDDING MATERIAL

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1.MFG. LIC. NO.	NM	4. OTHER REFERENCE NO	NM
2. REFERENCE NO.	NM	5. DATE OF RECEIPT	06/05/2020
3. DATE	06/05/2020	6. NAME OF SAMPLE	Paddy husk
7. DETAILS OF RAW MATERIAL / FINAL PRODUCTS (In Bulk/Finished Pack)			
(A) BATCH NO.	NM	(H) SEALED	Sealed
(B) BATCH SIZE	NM	(I) STARTING DATE	08/05/2020
(C) DATE OF MFG.	NM	(J) ENDING DATE :	19/05/2020
(D) DATE OF EXPIRY	NM	(K) BRAND NAME	NM
(E) SAMPLE QUANTITY	1 kg	(L) SAMPLING PROTOCOL	NA
(F) MFG NAME	NM	(M) DATE OF SAMPLING /SAMPLE COLLECTION	06/05/2020
(G) PACKING	Zip lock cover	(N) REPORT GEN. DATE	19/05/2020

SR	TEST NAME	UNIT	RESULT	SPECIFICATIONS	METHOD OF TEST
2	Nitrosodimethylamine	µg/kg	Not detected	-	AOAC 20th Edition 2016
--	--	--	-- End of Report --	--	--

Remarks : For IADFAC Laboratories Pvt Ltd.
Accepted and released for use
Kanna
 Authorised Signatory
 Karunakara A.C. (ID No-132)
 Senior Manager-Chemical
AUTHORISED SIGNATORY
21/05/2020

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ANNEXURE 6. GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

Acute Oral Toxicity Classifications

Route	Category 1	Category 2	Category 3	Category 4	Category 5
Oral (mg/kg body weight)	$ATE \leq 5$	$5 < ATE \leq 50$	$50 < ATE \leq 300$	$300 < ATE \leq 2000$	$2000 < ATE \leq 5000$ Refer: Note (a)

ATE: Acute Toxicity Estimate values

Note:

- a) Criteria for Category 5 are intended to enable the identification of substances which are of relatively low acute toxicity hazard but which under certain circumstances may present a danger to vulnerable populations. These test items are anticipated to have on oral or dermal LD₅₀ in the range of 2000-5000 mg/kg body weight and equivalent doses for inhalation. The specific criteria for Category 5 are:
 - i) The substance is classified in this category if reliable evidence is already available that indicates the LD₅₀ to be in the range of Category 5 values or other animal studies or toxic effects in humans indicate a concern for human health of an acute nature.
 - ii) The substance is classified in this category, through extrapolation, estimation or measurement of data, if assignment to a more hazardous category is not warranted, and:
 - Reliable information is available indicating significant toxic effects in humans; or
 - Any mortality is observed when tested up to Category 4 values by the oral, inhalation or dermal routes; or
 - Where expert judgment confirms significant clinical signs of toxicity, when tested up to Category 4 values, except for diarrhoea, piloerection or an undgroomed appearance; or
 - Where expert judgment confirms reliable information indicating the potential for significant acute effects from other animal studies.

ANNEXURE 7. GLP CERTIFICATE



सत्यमेव जयते

National Good Laboratory Practice (GLP) Compliance Monitoring Authority (NGCMA)
Department of Science and Technology
GOVERNMENT OF INDIA

Certificate of GLP Compliance

This is to certify that

Bionees India Private Limited
Devarahosahally, Sompura Hobli, Nelamangala Taluk
Bengaluru Rural District - 562111, Karnataka (India)

is a GLP certified test facility in compliance with the NGCMA's Document No. GLP-101 "Terms & Conditions of NGCMA for obtaining and maintaining GLP certification by a test facility" and OECD Principles of GLP.

The test facility conducts the below-mentioned tests/ studies:

- **Physical-chemical Testing (Including Five Batch Analysis)**
- **Toxicity Studies**
- **Mutagenicity Studies**
- **Environmental Toxicity Studies on Aquatic and Terrestrial Organisms**
- **Studies on Behaviour in Water, Soil and Air; Bioaccumulation**
- **Residue Studies**
- **Analytical and Clinical Chemistry Testing**
- **Others**

The specific areas of expertise, test items and test systems are listed in the annexure overleaf.

Validity: September 23, 2020 – September 22, 2023

Certificate No. : GLP/C-153/2020
 Issue Date : 13-10-2020



(Signature)
(Dr. Neeraj Sharma)
 Head, NGCMA

ANNEXURE 7 (Contd...). GLP CERTIFICATE

National GLP Compliance Monitoring Authority (NGCMA)

Annexure to Certificate of GLP Compliance No. GLP/C-153/2020

Areas of Expertise:

- **Physical-chemical Testing (Including Five Batch Analysis)**
- **Toxicity Studies**
 - o Acute Toxicity
 - o Developmental and Reproductive Toxicity
 - o Eye Irritation/ Corrosion (*in vitro* and *in vivo*)
 - o Guinea Pig Maximization
 - o Immunogenicity
 - o Inhalation Toxicity
 - o Local Lymph Node Assay (LLNA)
 - o Local Tolerance
 - o Neurotoxicity
 - o Phototoxicity
 - o Pyrogen Test
 - o Repeated Dose Toxicity
 - o Skin Irritation/ Corrosion (*in vitro* and *in vivo*)
 - o Skin Sensitization (*in vitro* and *in vivo*)
- **Mutagenicity Studies**
 - o 3T3 NRU Assay (*in vitro*)
 - o Bacterial Reverse Mutation (AMES) Test
 - o Cell Gene Mutation Test (*in vitro* and *in vivo*)
 - o Chromosomal Aberration Test (*in vitro* and *in vivo*)
 - o Comet Assay
 - o Cytotoxicity (*in vitro*)
 - o Micronucleus Test (*in vitro* and *in vivo*)
 - o Mouse Lymphoma Assay (MLA)
 - o MTT Assay
- **Environmental Toxicity Studies on Aquatic and Terrestrial Organisms**
- **Studies on Behaviour in Water, Soil and Air; bioaccumulation**
- **Residue Studies**
- **Analytical and Clinical Chemistry Testing**
- **Others**
 - o ADME Studies
 - o Bioanalysis
 - o Biocompatibility Studies
 - o Drug Metabolism & Pharmacokinetic (DMPK)
 - o Hemocompatibility Studies
 - o Implantation Studies
 - o In chemico Skin Sensitization: Direct Peptide Reactivity Assay
 - o Maximum Tolerated Dose (MTD) Studies
 - o Method Development
 - o Method Validation
 - o Skin Absorption (*in vitro*)

Test Item(s): Agrochemicals, Cosmetics Products, Feed Additives, Food Additives, Industrial chemicals, Medical Devices (*Applicable only for Bio-compatibility, not applicable for Batch Release parameters required as per MDR, 2017*) and Pharmaceuticals (Human and Veterinary)

Test System(s): Algae, Bovine, Cell lines, Chicken, Collembolan, Crop plant seeds, Cyanobacteria, Daphnia, Diatoms, Earthworm, *E-Coli*, Fish, Guinea Pigs, Hamsters, Honeybees, Human Cavader Skin, Human Lymphocytes, Japanese quail, Lemna, Mallard duck, Mice, Pigeon, Predatory Mites, Rabbit, Rat, *Salmonella typhimurium*, Silkworm and Tissue Culture.



(Signature)
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