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LABORATORY LOCATION:
(PERMANENT LABORATORY)

BIO SYNERGY LABORATORIES SDN. BHD.
NO. 43, JALAN SS 22/23
DAMANSARA JAYA
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FIELDS OF TESTING: **CHEMICAL & MICROBIOLOGY**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products: • Non-alcoholic beverages • Fruits & Vegetables & Derived Products • Sauces, Herbs, Spices & Condiments • Flour and Confectionery • Fish products	Benzoic Acid Sorbic Acid	In-house method CCF-01, Rev B, based on Journal Chromatography A, 1073 (2005) 393-397
Food Products: • Juice • Jelly Products • Herbs spices • Coffee • Tea • Frozen Food • Seafood • Flour & Confectionaries • Food Additives Supplement • Feed product • Edible Fats, Oil & their products • Cocoa and Cocoa Products	Metals/Minerals Lead Cadmium Tin Calcium Magnesium Iron Zinc Copper Sodium Potassium Antimony Chromium Nickel	In-house method CCF-03, based on AOAC 999.11 and APHA 3120 B
	Mercury	In-house method CCF-04, based on AOAC 971.21 and APHA 3120 B
	Arsenic	In-house method CCF-05, based on AOAC 986.15 and APHA 3120 B

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products: • Coffee & Coffee products	Caffeine content Coffee content	MS 1360:1994 (Appendices A and G)
Food Products: • Juice • Sauces, Herbs, Spices & Condiments • Non Alcoholic Beverages • Flour and Confectionery • Meat, Poultry & Derived Products • Cocoa and Cocoa Products • Frozen Food	Moisture	In-house method CCF-07, based on MS ISO 6496 : 2003
	Protein / Nitrogen	In-house method CCF-06, based on AOAC 2001.11, ISO 1871 : 2009
	Ash	In-house method CCF-09, based on AOAC 942.05
	Crude Fiber	In-house method CCF-13, based on MS ISO 6865 : 2003
	Crude Fat	In-house method CCF-12, based on MS 1416 : 1997
	Total Fat	In-house method CCF-08, based On Pearson's Chemical Analysis of Food, 8th Ed, 1990, pg 20-23
	Total Carbohydrate	Method of analysis for nutrition labelling, Chapter 1, 1993
	Energy Content as Calories	Method of analysis for nutrition labelling, Chapter 1, 1993
	Total Sugar (As Invert)	In-house method CCF-21 based on AOAC 968.28
Food Products: • Edible oil, fats and derived products • Cereal, Flour & Confectionery • Sauces, Herbs, Spices & Condiments • Feed • Nuts	Aflatoxins B1, B2, G1, G2	In House method based on AOAC 2013.05(2013) and AOAC 994.08 (2000)
Raw meat and processed meat	Determination of fat (crude) or ether extract in meat	AOAC official method 960.39 (Part A)

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products: • Infant food and dairy products • Vegetable products with high protein and starch • Vegetable and pickled products • Spices and condiment • Poultry and aquatic products • Meat and meat products • Animal feed	Determination of sodium chloride (NaCl) in food and animal feed	In House Method CCF-32, based on GB 5009.44 - 2016 (Mohr method)
Food Products • Milk and milk products • Edible oil, fats and derived products • Egg & egg products • Frozen products (processed food) • Cereal, Flour & Confectionery • Food supplements • Meat, poultry & derived products • Nuts, fruit, vegetables & derived product • Non-alcoholic beverage • Juices • Cocoa & Cocoa products • Sauces, Herbs, Spices & Condiments	Vitamin A	In House Method CCF-38 based on ASEAN Manual of Food Analysis 2011 pg 81-87 & BS EN 12823-1:2000
	Vitamin C	In-House Method CCF-40 based on BS EN 14130:2003 and USP43 (2020)
	Vitamin D	AOAC Method 2002.05 (21st edition, 2019)
	Vitamin E	In-House Method CCF-39 based on ASEAN Manual of Food Analysis 2011, pg 81-87
	Cholesterol	In-House Method CCF-24 based on GB 5009.128-2016
	Sugar (Fructose, Glucose, Sucrose, Maltose, Lactose) Total Sugar (By Calculation)	In-House Method CCF-23 based on GB 5009.8-2016
	Total Dietary Fibre	AOAC Method 985.29
	Fatty Acid Composition Saturated Fat Monounsaturated Fat Polyunsaturated Fat Trans Fat	In-House Method CCF-26 based on AOAC 996.06 and MPOB p3.5 (AOAC 21st edition, 2019, MPOB 2005)

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products Sugar and its product Birdnest and its product Meat and poultry products	Mercury	In-house method CCF-36 based on MethodsX 4 (2017) 513-523 and USEPA 3050B
	Arsenic	In-house method CCF-37 based on MethodsX 4 (2017) 513-523 and USEPA 3050B
Meat and Bird Nest	Nitrite and Nitrate	GB 5009.33-2010
Feed	Moisture	MS ISO 6496 : 2003
	Protein / Nitrogen	AOAC 2001.11
	Ash	AOAC 942.05
	Crude Fiber	MS ISO 6865 : 2003
	Crude Fat	MS 1416 : 1997
	Total Fat	In-House Method CCF-08, based On Pearson's Chemical Analysis of Food, 8th Ed, 1990, pg 20-23
	Total Carbohydrate	In-House Method CCF-10, based on Method of analysis for nutrition labelling, Chapter 1, 1993
	Energy Content as Calories	In-House Method CCF-11, based on Method of analysis for nutrition labelling, Chapter 1, 1993
	Total Volatile Basic Nitrogen (TVBN)	In-House Method CCF-22 based on Journal of J.Life Sci.Biomed. 2(5): 187-191, 2012
Feed and Seafood	Histamine	In House Method CCF-33 based on Journal of Instrumental Analysis, Vol25, No. 4 (2006) pg 59-62
Solid fertilizer and liquid fertilizer	Total Nitrogen	MS 417: Part 3: 1994
	Total Potassium (as K_2O)	In house method, CCFL-01 based on MS417 : Part 5 : 1994 and ICP OES
	Total Phosphorus (as P_2O_5)	In house method, CCFL-02 based on MS417 : Part 4 : 1994 and ICP OES
Edible Oil (Palm Oil and its Products)	Determination of Moisture and Volatile Matter	MPOB p2.1 Part 1
	Determination of Impurities	MPOB p2.2
	Determination of Peroxide Value	MPOB p2.3

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Edible Oil (Palm Oil and its Products)	Determination of Acidity	MPOB p2.5
	Determination of DOBI	MPOB p2.9
	Determination of Iodine Value	MPOB p3.2
	Determination of Total Fatty Matter (TFM)	MPOB p3.7
	Determination of Lovibond Colour	MPOB p4.1
	Determination of Slip Melting Point	MPOB p4.2
	Determination of Cloud Point	MPOB p4.3
Edible Oil and Fats	2-MCPD, 3MCPD Fatty Acid Esters and Glycidol Esters	AOCS Cd 29a-13 (revised 2017)
	<u>Trace Elements</u> Calcium Copper Iron Magnesium Nickel Silicon Lead Cadmium Sodium	In-House Method CCF-29 based on AOCS Ca 17-01 (7th edition, 2017)
	Phosphorus	In House Method CCF-30 based on AOCS Ca 20-99 (7th edition, 2017)
	Determination of solid fat content (SFC)	AOCS official method Cd 16b- 93, 1999 - The direct method (Method I and II) by Low-Resolution Nuclear Magnetic Resonance

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical products / Traditional products / Food Supplement	Sodium Hyaluronate	European Pharmacopoeia 5.0 (2005)
	Sodium Hyaluronate/ Hyaluronic Acid	In House Method CCP-11 based on Journal of Pharmaceutical Analysis, 2013;3(5):324-329 and United States Patent Brown et al (HPLC)
	Lovastatin	QB/T 2847-2007
	L-Glutathione	In-house method CCP-03 based on USP41 using HPLC
	Astaxanthin	In-house method CCP-05 based on USP40- NF 35 2017 using UV-VIS Spectrophotometer
Pharmaceutical • Powder • Tablet • Hard Gel Capsule • Soft Gel Capsule	Cadmium Lead Arsenic Mercury	In-House Method CCP-10 based on BP 2019, Vol V
Cosmetics & Essential oils: • Cosmetics and Toileteries **Pharmaceutical Products/Traditional Medicine:** • Powder • Capsule (Hard/Soft) • Oil & Cream • Pill	Metals/Minerals • Lead • Cadmium • Copper Mercury Arsenic	In house method CCP-01, based on BP 2013, Vol. IV, Appendix VII and APHA 3120

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products Sugar and its product Birdnest and its product Meat and poultry products	Cadmium Lead Zinc Calcium Iron Sodium Antimony Magnesium Potassium Copper Tin Chromium Nickel	In-house method CCF-35 based on Uddin et al. Journal of Analytical Science and Technology (2016) 7:6 and USEPA 3050 B by ICP-OES
Food Products • Alcohol& Non-alcoholic Beverages • Juice • Sauces, Herbs, Spices & Condiments • Dried Fruits, Nut & Derived Products • Flour & Confectionaries • Sugar and Sugar Products	Sulphur Dioxide	GB 5009.34:2016
Petroleum and Petroleum Products Fatty Acid Methyl Ester Biodiesel	Phosphorus	EN 14107:2003
	Calcium Potassium Magnesium Sodium	EN 14538:2006
	Iodine Value	EN 14111:2022
	Acid Value	EN 14104:2003
	Sulphated Ash	ISO 3987:2010
	Total Contamination	EN 12662:2014
	Water Content	ISO 12937:2000 (Coulometric Karl Fisher Titration)

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Solid waste and liquid waste	Aluminium Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chromium Copper Cobalt Iron Lead Lithium Magnesium Manganese Nickel Phosphorus Potassium Selenium Silicon Silver Sodium Strontium Titanium Tin Zinc Molybdenum Vanadium Thallium	USEPA 6010 D (ICP OES) USEPA 3050 B (Acid Digestion) USEPA 3010 A (Acid Digestion)
Solid Waste	Corrosivity (pH)	USEPA 9045 D (pH meter), 2004
Liquid Waste	Corrosivity (pH)	APHA 4500-H+ B (pH meter), 2017

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Palm Oil Mill Effluent (POME), Rubber Effluent, Water and Waste Water	Mixed Liquor Suspended Solid (MLSS)	APHA 2540 D
	Mixed Liquor Volatile Suspended Solid (MLVSS)	In-house method CCW-21 based on APHA 2540 E
	Total Dissolved Solid (TDS)	APHA 2540 C
	Total Solid (TS)	APHA 2540 B
Water: • Potable and Domestic water • Industrial water • Distilled Demineralized water • Reverse Osmosis water • Ultrapure water • Swimming Pool water • Cooling Tower water • Boiler water • Surface water • Mineral water • Treated water • River water	Color PtCo	APHA 2120 C
	Conductivity	APHA 2510 B
	Turbidity	APHA 2130 B
Industrial Effluent	Temperature	APHA 2550 B
	pH	APHA 4500 +H
	Chemical Oxygen Demand	APHA 5220 C
	Biological Oxygen Demand	APHA 5210 B, APHA 4500 OG
	Total Suspended Solid	APHA 2540 D
	Oil and Grease	APHA 5520 B

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Water Industrial Effluent	Ammonical Nitrogen	APHA 4500-NH_3 B&C
	Color ADMI	APHA 2120 F
	Sulphide	APHA 4500-S^{2-} F
	Chromium Hexavalent	APHA 3500-Cr B
	Chromium Trivalent	In-house method CCW-16 based on APHA 3500-Cr B & 3120 B
	Phenol	APHA 5530 D
	Free Chlorine	APHA 4500-Cl G
	Formaldehyde	In-house method CCW-11 based on Hach Method 8110
	Fluoride	APHA 4500-F D
	Cyanide	In-house method CCW-15 based on APHA 4500- CN C and HACH Method 8027
Water • Potable and Domestic water • Industrial water • Distilled Demineralized water • Reverse Osmosis water • Ultrapure water • Swimming Pool water • Cooling Tower water • Boiler water • Surface water • Mineral water • Treated water • River water	Anions Fluoride, Chloride, Nitrate, Bromide, Nitrite, Sulphate, Phosphate	APHA 4110 B (22nd edition, 2012)

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Water • Potable and Domestic water • Industrial water • Distilled Demineralized water • Reverse Osmosis water • Ultrapure water • Swimming Pool water • Cooling Tower water • Boiler water • Surface water • Mineral water • Industrial effluent	Lead Cadmium Tin Calcium Magnesium Iron Zinc Copper Sodium Potassium Antimony Chromium Aluminium Arsenic Barium Beryllium Boron Cobalt Lithium Manganese Molybdenum Nickel Selenium Silicon Silver	APHA 3120 B
	Mercury	In-house method CCW-19 based on APHA 3112 B by MPAES
	Sample Pre-treatment for metals analysis	APHA 3030 F

APHA 22nd edition, 2012
APHA 21st edition, 2005

SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food and Feed Products: • Coffee • Tea • Cereal Food • Frozen Food • Seafood • Sauces • Fruit Drink & Juice • Flour & Confectionery • Dairy Products • Edible oils, fats and their products • Egg and egg products • Fruits and vegetables • Nuts and nut products • Ready to eat savouries • Meat and poultry products • Fish and fish products • Herbs and spices • Animal feed	Aerobic Plate Counts	AOAC Official Method 990.12 (3M Petrifilm) FDA BAM Chapter 3, 2001
	Yeast and Mould Counts	AOAC Official Method 2014.05 (3M Petrifilm) FDA BAM Chapter 18, 2001
	E. coli / Coliform Count	AOAC Official Method 998.08 & 991.14 (3M Petrifilm) FDA BAM Chapter 4, 2020
	Staphylococcus *aureus* counts	AOAC Official Method 2003.11, 2003.07, 2003.08 (3M Petrifilm) FDA BAM Chapter 12, 2016
	Salmonella spp.	AOAC Official Method 2014.01 (3M Petrifilm) FDA BAM Chapter 5, 2023
	Escherichia coli O157:H7	FDA BAM Chapter 4A, 2020
Food and Feed Products • Meat and poultry products • Fish/crustaceans and molluscs • Fruit and vegetables • Flour, cereal and mile products • Feed products • Beverages products • Ready to eat products	Vibrio parahaemolyticus	ISO/TS 21872-1:2007 (E)
	Vibrio cholerae detection	ISO/TS 21872-1:2007 (E)
	Bacillus cereus count	BS EN ISO 7932:2004
	Clostridium perfringens count	ISO 7937:2004 (E)
Food and Feed Products • Meat and poultry products • Fish/crustaceans and molluscs • Fruit and vegetables • Flour, cereal and mile products • Feed products • Beverages products • Ready to eat products • Edible Oils, Fats and their products	*Shigella Spp.*	ISO 21567:2004

SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical products/Traditional Medicines: • Powder • Capsule (Hard/Soft) • Tablet • Oil & Cream • Pill	Total Microbial Aerobic Count	BP 2019, Appendix XVI B
	Total Combines Yeast & Mould Count	BP 2019, Appendix XVI B
	Bile-tolerant Gram Negative Bacteria i) Qualitative ii) Quantitative	BP 2019, Appendix XVI B
	Escherichia coli detection	BP 2019, Appendix XVI B
	Salmonella detection	BP 2019, Appendix XVI B
	Staphylococcus aureus detection	BP 2019, Appendix XVI B
	Pseudomonas aeruginosa detection	BP 2019, Appendix XVI B
	Candida albicans detection	BP 2019, Appendix XVI B
	Burkholderia cepacia detection	In-house method CMP-09 based on BP 2019, appendix XVI B and Himedia Manual
	Bile-tolerant Gram Negative Bacteria – Semi quantitave	BP 2019, Appendix XVI F
	Salmonella detection	BP 2019, Appendix XVI F
	Escherichia coli detection and semi quantitative	BP 2019, Appendix XVI F
Environmental Testing: • Swab	Salmonella spp.	In-House method Detection of Salmonella spp. Based on BS EN ISO 6579:2002 using NEOGEN ANSR
	Listeria monocytogenes	In-House method Detection of Listeria monocytogenes based on ISO 11290-1:1996 using NEOGEN ANSR

SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental testing • Enumeration of Microbial Count in the Air Using an Open Plate (Sedimentation method) • Enumeration/Detection of Microbial count on Surface Area, Equipment and Hand Using Swab Contact Method	• Total Plate Count • Yeast • Mould • Aerobic Plate Count • Yeast • Mould • *Staphylococcus aureus* • Coliform • *E. Coli* • Salmonella	Compendium of Methods for the Microbiological Examination of Foods, Chapter 3, 4th Edition (2001)
Water • Potable and Domestic water • Industrial water • Distilled Demineralized water • Reverse Osmosis water • Ultrapure water • Swimming Pool water • Cooling Tower water • Boiler water • Surface water • Mineral water • Industrial effluent • Treated water	Heterotropic plate count (Membrane filtration) Heterotropic plate count (Pour plate) Standard total coliform (Membrane filtration) Standard total coliform (MPN) *Escherichia coli* (Membrane filtration) *Escherichia coli* (MPN) Fecal streptococci (MPN) Fecal streptococci (Membrane Filtration) Pseudomonas aeruginosa (MPN) Pseudomonas aeruginosa (Membrane Filtration) Sulphite Reducing Anaerobe Clostridium perfringens	APHA 9215 D APHA 9215 B APHA 9222 B APHA 9221 B APHA 9222 I APHA 9221 F APHA 9230 B APHA 9230 C APHA 9213 F APHA 9213 E AS/NZS 4276.17.1:2000 AS/NZS 4276.17.1:2000

SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food	*Salmonella*	In-house method Detection of *Salmonella spp.* Based on BS EN ISO 6579:2002 using NEOGEN ANSR
	Escherichia coli 0157	In-house method Detection of *E. coli 0157:H7* based on BS EN ISO 16654:2001 using NEOGEN ANSR
	Listeria monocytogenes	In-house method Detection of *Listeria monocytogenes* based on ISO 11290-1:1996 using NEOGEN ANSR
Cosmetic Products	*Pseudomonas aeruginosa* detection	BP 2019, Appendix XVI B
	Candida albicans detection	BP 2019, Appendix XVI B
	Burkholderia cepacia detection	In-house method CMP-09 based on BP 2019, Appendix XVI B and Himedia Manual
Food and Feed Products Coffee Tea Cereal Food Frozen Food Seafood Sauces Fruit Drink & Juice Flour & Confectionery, Dairy Products, Edible oils, fats and their products Egg and egg products Fruits and vegetables Nuts and nut products Ready to eat savouries Meat and poultry products Fish and fish products Herbs and spices Animal feed	Enterobacteria counts	ISO 21528-2:2017

SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food and Feed Products Meat and poultry products Fish/crustaceans and molluscs Fruit and vegetables Flour, cereal and mile products Feed products Beverages products Ready to eat products, Edible Oils, Fats and their product	Clostridium botulinum	FDA BAM Chapter 17, 2001
	Listeria monocytogenes and Listeria spp.	ISO 11290-1:2017
	Campylobacter spp. (inclusive campylobacter jejuni and C. coli)	ISO 10272-1:2017