

Equipment List of Chemistry Laboratory, Faculty of Mathematics and Natural Sciences, Bengkulu
University

No	Equipment	Specification	Brand
1	Hig Performance Liquid Chromatography (HPLC)		Knauer
2	Agilent Spectrophotometer Carry 60	Depth 567 mm, Height 196 mm, Light Source Xenon flash lamp (80 Hz), Maximum Scanning Speed 24,000 nm/min, Photometric System Double beam, Power Consumption Mains supply of 100 – 240 volts AC and frequency 50 – 60 Hz, Spectral Bandwidth 1.5 nm, Wavelength 190 – 1100 nm, Width 477 mm, Z-height 20 mm, with CPU and Monitor	Agilent Technology
3	Agilent Spectrophotometer Carry 300	Wavelength range: 190 to 900nm, Spectral bandwidth: 20–4.00 nm, 0.1 nm steps, Variable slit width Photometric Range: 6 Abs, 10mm Cell Holders (sample & reference), Maximum Scan Rate: 3000nm/min	Agilent Technology
4	Rotina 380R Centrifuge	MAX. CAPACITY: 4 x 290 ml; MAX. RCF: 24,400; MAX. RPM: 15,000 min ⁻¹ ; WEIGHT: 1pprox.. 51 kg 81 kg; REFRIGERATION: Yes; DIMENSIONS (W x D x H): 457 x 600 x 418 mm 457 x 750 x 418 mm	Hettich
5	MIKRO 120 centrifuge	Capacity: 24 x 1.5/2.0 mL; Max RPM/RCF: 14,000/17,350 (fixed angle); Dimensions (HxWxD): 199 mm (8.0 in.) x 231 mm (9.0 in.) x 292 mm (11.5 in.); 12, 18, or 24 place exchangeable rotors	Hettich
6	ROTANTA 460 centrifuge	MAX. CAPACITY: 4 x 1,000 ml; MAX. RCF: 24,400; MAX. RPM: 15,000 min ⁻¹ ; WEIGHT: 1pprox.. 101 kg 141 kg; REFRIGERATION: Yes; DIMENSIONS (W x D x H): 554 x 706 x 456 mm 770 x 706 x 456 mm	Hettich
7	LEICA DM500 Microscope	Pre-Centered and Pre-Focused Abbe condenser with slot for Phase and Darkfield Sliders and labels for matching objective magnifications, LED illumination, built in handle and cord wrap, Dust cover 30 degree Bino EZ	LEICA

		Tube 10X/20 Immersion oil, 7,4 ml Europe Continental power cord Objective Plan 4X/0.10NA, 26.2mm W.D. Plan 40X/0.65 NA, 0.31MM W.D. Plan 10X/0.22 NA, 7.8mm W.D. Plan 100x/1.25 NA, 0.10MM W.D.,	
8	ALPHA FTIR Spectrophotometer	Dimensions 22 x 33 x 26cm; Power Supply Plug into AC Power Supply; Spectral Range 400 – 4000 cm ⁻¹ ; Spectral Resolution 2 cm ⁻¹ ; Modules ATR, DRIFT, External Reflectance	Bruker
9	Impedance Analyzer IM3590	Model : LCR mode, Continuous measurement mode (LCR mode / Analyzer mode), Analyzer mode (Sweeps with measurement frequency and measurement level, temperature characteristics, equivalent circuit analysis) Range : 100 mΩ to 100 MΩ, 10 ranges (All parameters are determined according to Z)	HIOKI
10	OV-12 Vacuum Oven	Chamber volume (L / cu ft) 65 / 2.3; Vacuum range 0~0.1Mpa, Analog; Nozzle size (mm / inch) Vacuum Ø10 / 0.4, Vent Ø10 / 0.4 Temperature Range (°C / °F) Amb. +5 to 250 / Amb. +9 to 482; Fluctuation at 100°C (±°C / °F) 0.3 / 0.54; Variation at 100°C (±°C / °F) 3.7 / 6.66	OV-12
11	Gallenkamp Oven	220 V, 50 Hz, 5 A. Nominal temperature: 200°C. Including 2 shelves. Housing (D)x(H)x(W): 70 x 76,5 x 56,2 cm. Interior (D)x(H)x(W): 35 x 45,5 x 40 cm.	Gallenkamp
12	Memmert UNE 400 Drying oven	Temperature range: + 30 ° C to + 250 ° C Accuracy 0,5°C. Selectable forced air convection Capacity: 53 liters Programmable operation Working ramps and cycles. LED display Stainless steel. RS232 port Dimensions inside (W/ H / D): 40 x 40 x 33 cm	Memmert
13	Orbital Shaker SLL1	Shaking action : Orbital	STUART

		Platform dimensions (w x l) ; 335 x 335mm Speed range : 30 to 300rpm Orbit / amplitude : 16mm Maximum load : 10kg Overall dimensions (w x d x h) : 360 x 420 x 270mm Operational temperature range : +4 to +40°C Maximum permissible humidity : 80% Net weight : 11kg Electrical supply : Electrical supply	
14	1341 Plain Jacket Calorimeter	Static Jacket Calorimetry 2 Tests Per Hour Operator Time Per Test is 25 Minutes 0.3% Precision Class 6775 Digital Thermometer Manual Oxygen Fill Manual Bucket Fill Manual Bomb Wash Dimensions (in) 8.5w x 8.5d x 11.5h Dimensions (cm) 21w x 21d x 29h	PARR
15	Micro Kjeldahl	Dimensions (WxHxD): 470 x 290 x 370 mm Weight: 12 kg Adjustable time range: 0-240 minutes Adjustable temperature range: 10 - 600 ° C. Program: 9 methods Number of weeks: 6 Voltage: 220 - 240 V ± 10% Frequency: 50/60 Hz Power: 1200 W.	Buchi
16	Kemflo RO F5633/C	Max. Flow : 0.75 GPM; Max. Pressure : 125 Psi; Max. Temperature : 50 Celcius; Service Life : 2500 Gallon	Kemflo
17	Heidolph Rotary Evaporator, Laborota 4010	Rotation speed from 20 to 270 rpm, One heating bath for water and oil 20 °C - 180 °C, Digital bath temperature display as standard Set bath temperature on the display, accuracy +/- 1 °C Digital display for steam temperature +/- 0.1 °C	Heidolph
18	Furnace Heat 30 - 3000 °C	Temperature range (° C) (high): 1500 Temp control accuracy (° C): ±1 Temp uniformity (° C): ±1.5°C (at	Nabertherm

		150°C) Chamber size (" L): 27.5 Chamber size (L (mm)): 700 Power (VAC): 208/240 Overall dimensions (" W): 59 Overall dimensions (" H): 17 Overall dimensions (" D): 22-7/8 Power (Hz): 50/60 Power (watts): 1600 Shipping weight (lbs): 198 Shipping weight (kg): 90 Product Type: Tube Furnace	
19	Siemens Evoqua Labostar DI 2 Reinstwasseranlage 1,5 l/min Water Purification	Delivery flow rate: 1.5 l/min Conductivity: 0.055 µS/cm Resistivity: 18.2 MO-cm TOC: 5 - 10 ppb Particles > 0.2 µm: < 1 per ml	Siemens Evoqua
20	Bandelin Sonorex Digitec, DT 1028, Ultrasonic Bath	Ultrasonic bath, 230 V~(± 10%) 50/60 Hz, ID 500x300x200 mm; 28,0 l, s/s; digital display; timer 1, 2, 3, 4, 5, 10, 15,30 min and continuous, ultrasonic peak output 1200 W, HF output 300 Weff., SweepTec and DEGAS, drain: ball valve G 1/2	Bandelin
21	Coolstore Incubator	Net volume 1260 liters Dimensions : externals (H x W x D) internals (H x W x D) 2130 x 1430 x 910 mm 1550 x 1265 x 660 mm Construction : external /internal Stainless steel AISI304 Net weight 210 kg Standard construction 2 full doors 5 casters (3 with breaks) ø 35mm cable entry port (right side) Enclosure keylock 1 power cord (1.5m) Shelves (W x D : 530 x 655 mm) 4*2 shelves as standard (max weight / shelf: 50 kg)	Froilabo
22	Normal Incubator	Net volume 1260 liters Dimensions : externals (H x W x D) internals (H x W x D) 2130 x 1430 x 910 mm 1550 x 1265 x 660 mm Construction : external /internal Stainless steel AISI304	Froilabo

		Net weight 210 kg Standard construction 2 full doors 5 casters (3 with breaks) ø 35mm cable entry port (right side) Enclosure keylock 1 power cord (1.5m) Shelves (W x D : 530 x 655 mm) 4*2 shelves as standard (max weight / shelf: 50 kg)	
23	Spectronic 20D+	0-100%T, 0-1.95A and 0-1999C (with a factor value of 0.1-1000)	Milton Roy
24	Centrifuge 5430 R incl. Rotor FA-45- 30-11.	Max. rotor capacity 48 x 1.5/2.0 mL tubes, 16 x 5.0 mL tubes, 6 x 50 mL or 2 x MTP Max. 30,130 x g (17,500 rpm in 100 rpm increments) - Acceleration time to max. rpm : 14 s Braking time from max. rpm : 15 s Noise level : : <54 dB(A) Timer : 30 s to 99:59 h, with continuous run Function Temperature range from -11°C to +40°C	Eppendorf
25	Manual Mechanical Rotary Microtome	Section thickness: 1 to 60 µm Section thickness increments: 1 µm increments to 10 µm 2 µm increments from 10 to 20 µm 5 µm increments from 20 to 60 µm Horizontal feed range: 24 +/-1 mm/ 0.94 inches Vertical stroke length: 70 mm +/-1 mm Trimming function with 2 settings: 10/30 µm, can be activated at any time Lateral coarse feed system – user selectable turn direction - Silent specimen retraction: approx. 40 µm, can be switched ON/OFF at any time Precision specimen orientation with horizontal and vertical rotation of +/-	Leica

		8° and quick clamping system Admissions: CE; IVD	
26	WPA S800+ Spectrophotometer	Stray Light : <0.1%T at 340 nm Source Lamp : Tungsten-Halogen Beam Type : Single Bandwidth : <7 nm Wavelength : 325nm - 1100nm Wavelength Accuracy : 2 nm Photometric Range : -0.300 to 2.500A, 0 to 200%T Photometric Accuracy : $\pm 0.003A$ at 0- 0.5A at 546nm Detector : CMOS Array	Biochrom
27	Micropipette	Fix 10 microliter, fix 100-1000 microliter, fix 2 ml, fix 5-50 microliter, fix 500-5000 microliter	Eppendorf
28	Polarimeter P1000-LED	SCALE Optical rotation [°] MEASUREMENT RANGE 2 graduated circles (0–180°) SCALE DIVISION 1° READING ACCURACY 0.05° (with nonius) LIGHT SOURCE 1 LED with filter WAVELENGTH 589 nm	Kruss
29	Polarimeter P3000	SCALES Optical rotation [°] Int. sugar scale [°Z] MEASUREMENT RANGES $\pm 90^\circ \pm 259^\circ Z$ MEASUREMENT ACCURACY $\pm 0.01^\circ$ $\pm 0.01^\circ Z$ RESOLUTION $0.01^\circ 0.01^\circ Z$	Kruss
30	LAMOTTE CON 6 - Conductivity Meter	Test Factor: Conductivity Range: 0.0 to 20.00, 200, 2,000.0 μS ; 0 to 20.00, 200.0 mS Resolution: 0.01, 0.1, 1 μS ; 0.01, 0.1 mS Accuracy: $\pm 1\%$ full scale or ± 1 digit Calibration: up to 5 points (1 per range) for multi-point calibration; or 1 point for single point for entire range Temperature Automatic Temperature Compensation (ATC) fixed 2% Compensation: per $^\circ C$ factor, adjustable 73%	Lamotte

		Power: Four AA alkaline batteries (supplied) >100 hours continuous use Display: Single Custom LCD	
31	pH meter PHM 201	Measuring ranges: pH :-9.00 to 23.00mV:-1999 to +1999°C :0 to +99.9 Resolution: pH :0.01mV:1 on the display°C :1 with no temp. sensor0.1 with temp. sensor Accuracy: pH :±0.02 pH after calibrationmV: typical value: ±0.1% of reading or±1 mV (whichever is greater)*°C :±0.5°C	Meter Lab
32	HI98107 HANNA Instruments - Pocket pH Tester	Range : 0.0 to 14.0 pH pH Resolution : 0.1 pH pH Accuracy : ± 0.1 pH Calibration : Automatic, 2 points Battery Type / Life : CR2032 3V Li-ion/approximately 1000 hours of continuous use Environment : 0 to 50°C (32 to 122°F); RH max 100% Dimensions : 160 x 40 x 17 mm (6.3 x 1.6 x 0.7")	Hanna
33	HANNA HI-99301 CONDUCTIVITY/TDS/Temperature Meter Portable	Range EC 0.00 to 20.00 mS/cm Range TDS 0.00 to 10.00 ppt (g/L) Range Temperature 0.0 to 60.0C / 32.0 to 140.0F Resolution EC 0.01 mS/cm Resolution TDS 0.01 ppt (g/L) Resolution Temperature 0.1C / 0.1F Accuracy EC 2% F.S. Accuracy TDS 2% F.S. Accuracy Temperature 0.5C / 1F TDS Factor adjustable, from 0.45 to 1.00 with 0.01 step (default 0.50) Calibration automatic, 1 point at 6.44 ppt (CONV 0.5) or at 9.02 ppt (CONV 0.7)	Hanna
34	GMK 701AC - Digital Refractometer	Operation Refraction of Light Display Digital LCD Guarantee 1, Year Power Source 1 x 9v Battery Power Type Batteries Width 108mm Height 43mm Length 154mm	GMK

35	Jenway 605078 6051 Colorimeter, 120V	Wavelength range 400 to 710nm Wavelength selection 8 in-built gelatin filters: 430, 470, 490, 520, 540, 580, 600 and 710nm Measurement ranges 0-100%T, 0-1.50Abs, 0.1 to 1000 Concentration Resolution 1%T, 0.01Abs, 0.1 to 1 Concentration Bandwidth Typically 40nm Blank drift 2%/hr after 15 minute warm-up Photometric linearity 1%T Light source Tungsten filament lamp Output Analogue, 10mV per digit Power 230V, 50Hz Size (l x w x d) 300 x 355 x 120mm Weight 3kg	Jenway
36	NanoPhotometer type 5070	down to 0.3 µl while providing the widest spectrophotometrical dynamic range starting from 2 ng/µl – 18,750 ng/µl for dsDNA	Implen
37	MELTING POINT APPARATUS SMP11	Temperature range 50 to 250C Heating rate 1 to 10 Cmin Dimensions (w x d x h) 370 x 140 x 110 mm Net weight 1.7kg Electrical supply 230V, 50Hz, 50W	Stuart
38	Hotplate Stirrer	Hotplate, hotplate stirrer	
39	COD reactor	Read Out: 4 digital LED of set temperature, set time, process temperature, residual time display Timer: 0~999 minutes with audible alarm and automatic shutoff or continuous operation Accuracy: ±2°C (at 150°C) Temperature Range: Fixed 150°C (COD program) 60°C~200°C, adjustable Safety: Hot top indicator (flashing when block temperature is over 70°C). Automatic shutoff when block temperature is over 210°C	Hach
40	COD reactor TECHNE, DB-3	Temperature Setting : Rotary dial Working range : Ambient +5°C to 100°C Temperature Scale : 2°C graduation	TECHNE

		Set point accuracy : $\pm 2^{\circ}\text{C}$ Stability @ 40°C : $\pm 0.05^{\circ}\text{C}$ Stability @ 100°C : $\pm 0.1^{\circ}\text{C}$ Max variation between blocks : 0.2°C at 40°C Heat up $30-37^{\circ}\text{C}$: 8 minutes Heat up $30-56^{\circ}\text{C}$: 18 minutes Dimensions (WDH) : 279 x 260 x 105mm Electrical supply : 230V or 115V 50-60Hz Power : 450W	
41	Analitical Ballance	220 g x 0,0001 g, 115 VAC, 220 g x 0,0001 g, 115 VAC,	Cole Parmer
42	Laminar Airflow Heal Force AlphaClean 1300	Nominal Size 1.3 meters External Dimensions with Base Stand (WxDxH) 1500x760x1630mm Internal Work Area, Dimensions (WxDxH) 1380x650x510mm Internal WorkSpace (Area) 0.90M2(9.69 sq.ft) HEPA filter size (WxDxH) 1320x580x50mm Prefilter size (WxDxH) 400*380*3mm (2PCs) Airflow - Vertical Velocity * 0.2~0.5m/s Vertical Volumem ³ /hr (cfm) Supply Filter - Type HEPA Material Glass fibre fleece Separability in MPPS 100.00% Separability at 0.3um particle size100.00% Cleanliness in Work Area ISO Class 5, Class 100 (Fed 209E) No. of Sedimentated Bacteria Colony?0.5CFU*0.5h Sound Emission (Typical)* ?62 dB Fluorescent Light Intensity450LUX Excellent light distribution Yes Fluorescent Light Power and Number 11W,2PCs UV Lamp Power and Number 8W,2PCs	Heal Force
43	Autoclave GEA LS-B75 L	Average Heat d C : Pressure Temperature Controller : 105 - 134 C, 0.04 X 0.22 Mpa Power: 4.5 Kw / 220 v, 50 Hz	GEA

		Weight : 80 Kg (G.W), 60 Kg (N.W) Packing Dimensions: 65 x 63 x 115 cm (L x W x H) Volume Weight: 95 Kg	
44	Showcase	Type: Regular Showcase Capacity: 140 Liter Number of Rack: 3 Power Source: 220V/50Hz Power Consumption: 180 Watt Dimension (WxDxH): 540x582x1335 mm Weight: 42 Kg Refrigerant: R134a Handle + Bottle Opener: No Digital Display Control: No LED Lighting: Yes Anti Fogging Glass Door: Yes Energy Saving: Yes Adjustable Rack: Yes No Frost: No Rust Free: No Wheel: Yes	Polytron