DHAANYAGANGA KRISHI VIGYAN KENDRA

(ICAR-KVK MURSHIDABAD ADDITIONAL)

Ramakrishna Mission Vivekananda Educational & Research Institute, Belur Math, Howrah

(Deemed-to-be-University as declared by the Government of India under Section 3 of UGC Act, 1956)

RAMAKRISHNA MISSION ASHRAMA, SARGACHHI

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Memo No: DGKVK/ 785 **Date:** 15/02/24.

Sealed quotations are invited from reliable concernes for supplying laboratory instruments and machineries for "Honey and other beehive products mini testing laboratory" as furnished hereunder. The sealed quotaions will be received under the following terms and conditions:

Terms & Conditions:

1. Bidders have to submit sealed quotation within ~~15~~ 10 days from the date of notification.
2. The quotations will be received only through speed post/ registered post/ representative of the company
3. The bidders must have a legal register entity registered in India (Attach document).
4. The bidder must produce with their bid PAN, Goods & Services Tax identification no. (GSTIN).
5. Documents of supplying these kind of instrument to any Govt. /Govt. sponsored Institution should have to annexed with quotation.
6. The warranty/guarantee period should be depicted clearly for each instrument
7. The authority has every right to change or postpone the date of opening bid.
8. The items must be supplied within 30 days of issue of supply order.
9. The payment will be made only after successful installation and demonstration.

(Sr. Scientist & Head)
Dhaanyaganga KVK
Sargachhi, Murshidabad

Senior Scientist & Head
Dhaanyaganga KVK, RKMVERI
RKMA, Sargachhi, Murshidabad

Honey Testing Laboratory Instruments Specifications

1. SEMI- MICRO ANALYTICAL BALANCE WITH INTERNAL CALIBRATION OF WEIGHT:	
Capacity	210g/41g
Least count	0.01mg/ 0.01mg

2. MICROPROCESSOR AUTOMATIC BOMB CALORIMETER	
Specifications:	
Fully Automatic Bomb Calorimeter for rapid determination of Gross Calorific Value of food items & Water equivalent.	
Temperature resolution	$0.01^{0}C$
Unit of measurement	CAL and KJ
Memory	1000 test or Higher
Bomb Type	Removal bomb and bucket type
Bomb standards	Comply with ISI350 / ASTM E144
Network Interface	Suitable interfaces for PC, Printer & Balance with USB type port.
Accessories	• Ignition wire • Cotton thread • Combustion crucible • Bomb

3. DIGITAL pH METER	
Specifications:	
Unit	Consisting of Tri-combination pH/ATC electrode with an electrode holder/arm with smooth movement and protection cover
Working pH Range	0–14pH
pH resolution	± 0.01pH
Mv	Range0 -±1999 Accuracy±1mV Resolution1mV
Temperature Compensation	0to100°C with ATC
Calibration Points	• Should have 3 stage calibration of pH 4,7 & 9
Temperature Compensation	Automatic
Display	Digital display
Accessories	• Un-breakable Electrode (Imported) • Standard buffer solution (pH4.0,7.0,9.0x 500mlfor each bottle) • Standard electrode holder • AC/DC Adaptor.
Power	9VDC
Data storage & Output	Data storage facility and record maximum and minimum value. RS.232Coutput and supplies Data connector cable.

4. DOUBLE – BEAM UV-VISIBLE SPECTROPHOTOMETER WITH LO- RAY-LIGHT (IMPORTED)	
Specifications:	
System	A fully automated PC Controlled spectrophotometer with double beam optics with pre-programmed applications using Conventional quartz/glass cuvettes with all the required accessories.
Optical Design	• Double Beam with sample and reference cuvette positions; Czerny-Turner equivalent Monochromatic • /Holographic OR equivalent grating with sealed optics • Reference Compartment Should accommodate cells up to 10 mm path length as standard feature
Light Source	• Halogen lamp for Visible range • Deuterium Lamp for UV range, light source should be auto automatically selected as per wavelength required.
Detector	Silicon Photodiode dual detector/PMT
Scan Ordinate Modes	Absorbance, %Transmittance,% Reflectance
Resolution	0.1nmorbetter.
Wavelength Range	190–1100nm
Wavelength Accuracy	± 0.1 nm at D2 peak 656.1nm
Wavelength Repeatability	± 0.1nmorbetter
Scanning Speed	Selectable Variable wavelength scan rate3.00 to 2 nm/ min, 29000nm/Min when survey scanning.
Spectral Bandwidth	1 nm (190 to 1,100 nm)
Photometric Range	Absorbance = .4 to 4 Abs. Transmittance : 0% to 400%
Photometric Accuracy	± 0.002 Abs at 0.5 Abs ± 0.004 Abs at 1.0 Abs ± 0.006 Abs at 2.0 Abs
Stray Light	Max. 0.02% (220nm NaI) or better, or better Max. 1% (198 nm KCI) or better
Noise	0.00005Abs RMS (500nm) or better
Baseline stability	<0.0003 A/hr (500nm, 1-hour warm-up)
Baseline flatness	±0.0006 Abs or better
Application Software	Compatible Software should be user friendly & simple for data handling with feature like easy to use report publisher, online help and answer wizard, GLP & audit trail and fully compatible with Windows. System built in features such as real time display of concentration, time scan, photometric mode, single/multi-wavelength, capability for event recording (e.g., addition of reagents)

5. ELISA READER WITH PLATEWASHER	
Specifications:	
Light Source	Tungstan-halogen lamp 6V/10W
Wavelength	Absorbance 400-750nm-, Accuracy±1nm Fluorescence Ex 230– 850 nm, Em 280–850 nm Accuracy < ± 2 nm

Filters	8-positionfilterwheel,theinstrumentisdeliveredwiththe following standard filters installed: 405nm, 450nm, 620nm and 650nm
Resolution	0.0001Abs
Display	High contrast display
Communication	USB for computer connection USB for memory stick position for data export USB for external printer
Capability	Capability to read flat-,U-, or V- bottom micro plates, 6/12/24 /48 /96 wells and cuvettes
Power Supply	210-240V/50-60Hz
Calibration plate	96-well calibration plate must be calibrated for the wavelength (e.g., 630 nm, 650 nm, 420 nm, 450 nm).
ELISA Micro plate Washer	
Function	Fully automatic plate washer.
Compatible	With ELISA reader supplied.
Capability	Washing of 96 well micro plates and strips, with flat, round, or "V" bottom well
Residual volume	<2µl
Dispensing volume	50- 900 µl for 96 well plate.
Data Transfer	USB Port Number of wash protocols up to 99

6. ABBE'S DIGITAL REFRACTOMETER	
Specifications:	
Eyepiece with digital display Measurement of liquid and viscous samples, regardless of their turbidity, viscosity, transparency and absorption.	
Measurement prism	Optical glass
Light source	LCD(Approximating to wavelength of D-Line)
Scale	Refractive Index Brix
Measurement Range	Brix: 0.00 to 95.00%
Resolution	Refractive index (nD):0.0001Brix:0.01% Temperature: 0.01°C

7. AUTOMATIC DIGITAL POLARIMETER	
Specifications:	
Measuring Mode	Optical Rotation, Specific Rotation, Specific Rotation Plus
Display	On screen LED (touch screen)and/ or on personal Computer via USB ports (if operating on PC, PC requirement should be mentioned). Touch-screen will be preferred
Accuracy	0.01deg Arc or better
Reproducibility	0.002 deg Arc optical rotation

Measuring Range	± 45 deg Arc Optical Rotation, ± 120° 3 (Sugar)
Optical Wavelength	589nm Na and Tungsten-halogen or Hg-Lamp (for 633mm /578mm/ 546mm/ 436mm/405mm
Light Source	Sodium/ Tungsten-halogen/ LED with lifetime100,000hof operation

8. VISCOMETER	
Specifications:	
Measurement method	Sine- wave Vibro Viscometer using Tuning Fork Vibration Method
Vibration Frequency	30Hz
Viscosity Measurement Unit	Pa-s , P
Viscosity Measurement Range	1 – 100 (Pa-s (1,000 – 100,000 mpa-s)
Accuracy	1% of repeatability (S.D., 20 - 30°C, no condensation)
Operating Temperature	10 - 40°C (50 - 104°F)
Minimum sample Amount	Standard Sample Cup (35ml – 45ml), Optional Small Sample Cup (10ml), Optional Glass ample Cup (13ml)
Temperature Measurement	0 - 160°C / 0.1°C (32 - 320°F/ 0.1°F)
Display	Vacuum Fluorescent Display (VFD)
Interface	Rs – 232C
Power Supply	AC Adaptor
Power Consumption	Approx. 14VA
Physical Dimension	Main unit : 332 (W) X 314 (D) X 536 (H) mm / Approx 5.0 kg Display Unit : 238 (W) X 132 (D) X 170 (H) mm / Approx 1.3 kg
Connection Cable Length	1.5m (Between the Main Unit and the Display Unit)
Standard Accessories	Manual, Ac Adaptor, CD-ROM (WinCT-Viscosity) Sample Cups, Rs-232C cable (25 pins – 9 pins)

9. LAMINAR AIR FLOW (HORIZONTAL)	
Specifications:	
Working area	Minimum 4ft (w) x 2ft (h) x 2ft
Work table made of	• SS 304 grade Stainless Steel • 5 mm thick clear Acrylic Sheet-Vertical sliding Door
Floor standing stand	• Will Have leveling feet with locking casters
Blower Assembly	• Will have one set blower system, consists of balanced aluminium centrifugal impeller driven by 1/4 HP, single phase,1200- 1400RPM motor,
HEPA Filters	• Type: Separator less type, Mini-Pleats HEPA Media • Media: Ultra clean glass fiber paper • Retention: 0.3 Micron • Efficiency:99.997% or better

Pre-Filters	• Media: Synthetic, non-woven polyester • Retention: 10 Micron & above • Efficiency: 90%
Particle Retention	• 0.3 Micron
Noise level	<60dBA±5
Power Supply	• Power supply 220-230V, 50Hz. And all
Illumination	• Externally mounted illuminating lamp with separate switch to illuminate the work area.
UV lamp	• Pre-mounted UV lamp (30W) with separate switch with UV light.
	• One gas outlet in the working area. • Leveling Screws & Castor Wheels • Easily changeable pre-filters • Fitted with UV Germicidal lamp for sterilization.

10. VERTICAL AUTOCLAVE	
Specifications:	
Chamber	Vertical loading type chamber with service basket equipped with • Steam collection system to remove most of the steam during operation • Ware inlet and outlet valve • Drain valve for cleaning or changing with fresh water • Constructed with stainless steel with superior corrosion resistance to water and steam • High temperature and pressure resistant silicon gasket • Built-in analog pressure gauge • Manual pressure release valve • Wheels/ casters for easy transport.
Chamber size/ Capacity	• Approx.80-120 lit (22" X 30")
Gauges	• Will have a water level gauge • Will have an inner temperature indicator.
Display	• Fully Automatic PID Control ± 0.1°C • LED display for temperature and remaining time
Operating Temperature and accuracy	• Maximum123°C • Temperature Accuracy: ± 0.5°Cat121° C
Operating pressure and gauge	• 15 -20 psi
Safety warning with Auto Cutout System and alarms	• Over-Pressure Cut-Off with audio visual alarm • Over Current Cut-off with audio visual alarm. • Low Water Level heater cut-off and ALARMS
Accessories	• Perforated corrosion free baskets made up of SS304(3-4 Nos.) that are stackable two high or even more levels, • Silicone gasket

11. (A) INCUBATORS BACTERIOLOGICAL:	
Specifications:	
Material of construction	• Double walled construction with complete inner chamber made of Corrosion resistant stainless steel (AISI 340) • Outer chamber should be of steel sheet finished with powder coated point Insulation to maintain desired temperature • Inner glass door • Inner chamber should be fabricated with ribs for adjusting shelves to convenient height and shelves to be supplied • Shelves should be made of polished stainless-steel sheet as per chamber (304 grade).
Capacity	• 225Ltr (8 cft), 75 cm (H) X 60 cm (W) X 50 cm (D)
Temperature range	• Temperature should be thermostatically controlled with range: From Ambient to 70°C ± 1°C
Unit	• Air ventilators to be provided on both side • The equipment should be provided with microprocessor controlled digital display • Temperature homogeneity between top and bottom with 2 NOS of shelves and should be maintained by forced circulation Blower.
(B) INCUBATOR – B.O.D. TEMPERATURE: 5°C TO 50°C:	
Inbuilt Refrigerated Compressor and Microprocessor based PID – Controller etc.	
Capacity	6 CFT with trays.

12. DIGITAL COLONY COUNTER (MICROPROCESSOR BASED)	
Specifications:	
Display and counting	• Digital display up to 4 digits LED Display, Range: 0 – 9999, with -125 memory hold & count correction facility data restored etc.

13. CENTRIFUGE (REFRIGERATED)	
Multi-functional, general purpose High speed refrigerated bench top centrifuge.	
Specifications:	
Base Unit	• CFC free refrigerant • LCD Digital Display of time, speed and Temperature and run conditions • Compatible with all fixed angle and swinging bucket rotors • Should be programmable with easy preset programs for fast temperature for pre-cooling and short spin. • Should have motorized lid lock system
Temperature Range	0°C to 30°C
Speed	Maximum speed: 20000 RPM (with no load)

Rotors	• **Fixed Angle Rotor** for
	  • 50mlbottles
	  • 15mlFalcon tube
	  • 1.5-2.0mLEppendorftubesandadaptorsfor0.2-and0.5- mL tubes/ Eppendorf
	• **Rotorfor2.0mL**Eppendorftubes(12placesorbetter)with RPM 20000
	• **Deep-wellmicroplatesrotor**Two96wellplatesforswingout
	• **Swing out rotor:**

Accessories	Bottles, falcon tubes, adapters etc One set of Other items (rotors/adapters)required for improving the applicability/system performance should to be quoted as optional
Power Requirement	220v to 240v- 50Hz If a voltage stabilizer is required, it should be supplied along with the unit
Voltage stabilizer	Suitable Servo Type voltage stabilizer to be provided

14. DEEP FREEZER (UPRIGHT) -20° C to -30° C.	
Specifications:	
Type	Vertical
Position of Door	Front
Type of Insulation	PUF
Frost Free	Yes
Type of Cooling	Direct
Castor	Heavy Duty Lockable
Capacity	285 Ltr (48" (H) X 15" (D) X 27" (W)
Shelves/Drawers	Sealed5-7pulloutdrawers/shelves of different sizes that can be adjusted for storage flexibility
Material Of Chamber Interior	Stainless steel, preferably 304 grades
Material of Chamber Exterior	Stainless steel, preferably 304 grades
Door Material	Stainless steel, preferably 304 grades
Temperature Uniformity in Degree Celsius	± 3°C or less
Lockable Outer and Inner Lids	Yes
Control	Fully programmable microprocessor controlled with membrane keypad and eye level control panel
Display	**Easy to read**, LED control panel and alarm status
Should Have Battery Back Up for The Display and Security Lock for The Display Refrigerants	CFC-Free, HCFC-Free. A suitable servo voltage stabilizer for voltage back up.

15. FUMEHOOD **(Heavy Duty High Suction)**
Application: It is a safety equipment used in all chemical laboratories to limit human exposure to hazardous or toxic fumes, vapours or dusts. Fume Hoods with floor mounted system.

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Specifications:	
Coupling	Direct
Balancing	Dynamically
Over all Dimensions/ Working Size	Over all Dimensions: • Overall Length of FumeHood:1500-1550mm • Overall Width of FumeHood:750-1500mm • Overall Height of FumeHood:1500–2500mm • Length of Base Cabinet:1000–1500mm • Height of Base Cabinet:700 -800mm
Body Features	• Double Wall Construction • Bodythickness:10mm(Min.) • Completely made from GI sheet with Highly corrosion resistant epoxy powder coating • Inner Chamber - Chemical & Heat Resistance, Fire retardant, smooth finish, easily cleanable, made out of durable PRL sheets of thickness 5mm (Min.)/ SS 304 of 18- 20 gauge thickness.
Working Table Top	• Granite/M.S Powder Coated Sheet Covered with P.P Sheet/ SS 304 • Thickness of granite 18 mm(Min.)
Outer Covering (MoC)	CRC,18G, Epoxy Powder Coated
Exhaust Duct	• Chemically Resistant, PVC/ PP duct pipe • Provided with bends, dampers, transitions and clamps up to blower
Sink & Tap	• Size:100 – 200mm • Shall made of chemically resistant material • Shall be provided with Single way /Three-way swan neck tap
Baffle Arrangement:	Removable, Chemically Resistant PVC Back Baffle to

Exhaust Blower & Motor	• Motor: Centrifugal Type, Motor • Blower:1.0 HP motor (3phase, 50Hz, AC Supply)with phase MCB. Direct Driven, totally enclosed fan-cooled (TEFC), Squirrel Cage Induction Motor • Chemical & heat resistance heavy-duty epoxy coated
Door	• Thickness–4 mm(min.) • Material-Toughened Glass
Illumination	Florescent Lights–2nos. (Min.), 40Watt
Electrical Arrangements	• Min.2 Nos.15/5amps3 pin electric socket • Switch for blower; • Switch for Lightings
Power Requirement	220/230Volts

16. MOTORISED HOMOGENIZER	
Specifications:	
Motor	Powerful1500 rpm single phase motor
Bowl	It Should have 3.5 L or better, stainless steel bowl.
Sample capacity	0.1–1.5kgsample capacity for homogenization
Blades	Blades should be multi-purpose stainless steel micro teeth blades as per standard SS316.
Power supply	230V/50Hz, single phase AC

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17. VACUUM OVEN	
Specifications:	
27 L or more	
Construction	High quality fabrication of S.S body with double wall Arrangement and M.S panel board with neat powder coat painting
Door	Specially designed SS door and inner door
Insulation	Alumina fiber insulation / Rockwool
Number of trays	Two SS Trays (Min.)
Heating elements	Heater provided around the chamber
	Maximum Temperature: 200ºC Temperature control: PID programmable temperature indicator Accuracy: ± 1ºC Vacuum Indication: Analog / Digital gauge Vacuum pump: Rotary vane oil Frees Timer.

18. MUFFLEFURNACE	
Specifications:	
Inside Chamber Volume	a. 7 L or better b. With lift door with hot surface facing away from the operator and swing aside door at the front
Standard Working Temperature	900 - 1000° C
Temperature Control	• PID automatic and programmable power control with necessary safety features

19. HOT AIR OVEN (FORCED AIR CONVECTION OVEN)	
Specifications:	
Size (internal:)	24" x 24" X 36"
External Body	Mild Steel with powder coated
Internal Chamber	Stainless Steel 304 Grade
Insulation	Mineral Wool
Door	• Inner:StainlessSteel304 Grade • Outer: Powder coated Mild Steel. • Self- closing magnetic lock having door sealing material suitable to high temp
Adjustable Shelf	3 – 4 Perforated Stainless-Steel shelves (Removable) 304 Grade
Temperature Range	40^{0}C to 300^{0}C
Least Count	0.1^{0}C
Temperature Accuracy	± 0.5^{0}C or better
Temperature Uniformity	± 2^{0}C or better
Heating Element	Nichrome wire / Kanthal A1/SS tube/ pipe heater
Control Panel	Digital display for set temperature, attained temperature, set time, heating ON/OFF
Circulation Method	Blower
Power Source	220-240V, Single phase, Ac.

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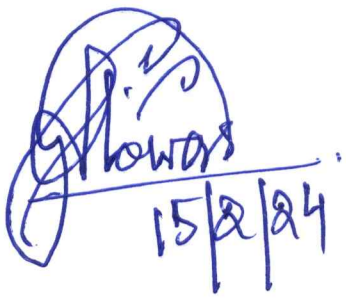
20. Sample Grinder	Heavy duty motorized grinder, suitable for grain, straw of all crops, and Soil samples
21. Single water Distillation unit	Barosilicate grade or equivalent, horizontal / vertical type cap: 4 / 5 Ltr. Auto cut devise at low water level
22. Controlled BOD Shaker Incubator	Temperature Range & Accuracy: 4°C to 50°C, ± 0.5°C., Shaking Capacity (Volume x No. of conical flasks : **50ml x 42, 100ml x 28, 250ml x 12, 500ml x 11,1000ml x 8, 2000ml x 4,** Shaking Speed range (RPM): 20 to 150, Shaking Amplitude: 20mm, Resolution: 0.1°C, Timer: 0 to 999 Minutes, Temperature control: Microprocessor, Display : Large size LCD Display, Stainless-steel chamber and platform. Auto controller of fan speed to prevent damage to the samples, Safety door switch, auto pause operation when it is opened, Electrical: 220-240 volts, 50Hz, Single Phase AC.
23. Dehumidifier	Complete with humidistat, Fitted with hermetically sealed compressor, Heated exchange, water condensing coils. Work on 220/230V A.C. Digital humidity controller cum indicator. 1.0V Ton. Frequency: 50Hz. Air flow rate: 5kg.
24. Laboratory Crusher	Jaw mouth dimensions: 150*100 mm. Input Size: 150*100 mm can be fed, Output grain size: 0-10 mm, Body: Reinforced steel construction, Capacity: 200-500 kg/hr. Noise emission level: Max 80 dB, Dimensions (W*L*H):800*900*980 mm. Compact and rugged for laboratory and small pilot productions units. Manganese steel jaws adjustable up to 6mm opening. Discharging opening adjustment range: 6- 20 mm.
25. Color Meter (Analyzer)	SERIES Color Analyzer COLOR ANALYZER, prob + meter, RS232 • Measuring sample: no lighting sample (textiles, paper, leathers..) • Measurement value: RGB value, HSL value (Hue / Saturation / Luminance.) • R (Red) value: 0 to 1023. • G (Green) value: 0 to 1023. • B (Blue) value: 0 to 1023. • 45o / 0o color measuring geometry. • Used the spectral analysis method to determined the color of the sample. • Complete set included the color probe and the meter, show RGB or HSL value at same time. • RS232 computer interface. • Power: 006P DC 9V battery. • Meter size: 203 X 76 X 38 mm.
26. Anemometer (DIGITAL)	Temperature range: -0° to 50°C (± 1°C); Humidity range: 0%-99% (±3% at 20%-90%), Air velocity range: 0.4 to 30m/s (±5%);LCD Liquid Crystal Display, °C/ °F selection; Air velocity unit: M/s, Ft/min, Knots, Km/hr, Mph; Resolution: 0.1m/s, 1%, 0.1°C, Max/ Min reading function, hold function, calibrate function, Operation temperature: 0 to 50°C (32 to 122°F), Operation humidity: 10 to 90%RH, Storage temperature: -10 to 60°C (14 to 140 °F), Storage humidity: 10 to 75%RH, Air Velocity, temperature, humidity, atmospheric pressure and altitude Measurement, Wind-chill Indication, Low Batter Function, Heat index Function, Auto Power Off (with override function), Calibration function.

27. Laboratory Vacuum pump	Simple and rugged construction, Trouble free operations, easily handled dust laded gases, built in anti-suck facility to prevent back of oil. Body Material:CastIron,Voltage:440V,FreeAirDisplacementCFM:26,Free Air Displacement 75 Ltr. per Min. Ultimate Vacuum mm Of Hg: 28", Pressure PSIG: 10, Motor Reqd HP: 1, Motor Rotation: 1450 RPM.
28. Environment control chamber	***PLANT GROWTH CHAMBER*** INNER CHAMBER: Made of **Stainless Steel Sheet (304), 22 gauge.** OUTER CHAMBER: Made of **Mild Steel Sheet** 22 gauge finished with **Powder coating** paint. INSULATION: By high quality insulating materials (**PUF), 75 mm.** DOOR SYSTEM: Double door system. **One Plexiglas door** makes it possible to inspect the specimen without disturbing the inner temperature and outer insulated metal door complete with latch and key. REFRIGERATION SYS: By means of hermetically sealed compressor with copper cooling coil and **C.F.C. FREE REFRIGERANT**. TEMP. RANGE: **0°C to 60°C ±0.5°C.** AIR CIRCULATION: Forced air circulation system for maintaining temperature uniformity. HUMIDITY SYS: By means of motorized water circulator for creating humidity inside the chamber. HUMI. & TEMP. : CONTROL Controlled by **Microprocessor based Digital Temp. Indicator cum Controller, PID with LED display & sensor failure Alarm through direct humidity controller.** HUMIDITY: **Up to 90% RH ± 3% RH.** HEATING SYSTEM: Heating system made of Nickel-Chromium Resistance Wire. ILLUMINATION: Provided Photosynthesis Active Radiation Lamp (PAR) controlled by Photoperiodic Timer. TRAYS : Perforated Ball punching 3 nos. Stainless Steel (304) Trays. POWER: 220/230 V, single phase, A.C. mains. **CAPACITY: 280 Ltrs. (10 Cft.) or Bigger.**
29. Moisture Analyser	Measurement Method: 400W straight halogen lamp heating system with SRA filter and SHC weighing technology. Max sample weight capacity: 51gm, Weight resolution: 0.001g. Moisture content accuracy: over 0.10%. (Standard deviation) over5g: 0.02%. Heating technology: Halogen lamp (Straight type, 400Wattmax,5000hours.DryingTemp: 50-200°C. Moisture mode: Standard mode/automatic mode/quick mode/ timer mode/manual mode. Measurement mode: Moisture content

	(wet or dry basic) /Dry content/ Ratio/ weight. Heating mode: Standard/ Quick/ Step/ Ramp. Display type: Large VFD. Sample pan size: Ø85 mm. Power: AC200V to 240V (1.5A), 50Hz, Approx 400W. Physical dimension weight: 215(W)×320(D)×173(H)/ Approx. 6 kg. Standard accessories: Sample pans- 20, Pan handles- 2,Spoon, Glass Fiber sheet, Display cover, dust cover, Instrument manual, Power cable.



30. Liquid Chromatography High Resolution Mass Spectrometer for the analysis food matrices

Descriptions	Required Technical Specifications
Mass Analyzer	The HRMS should be suitable hybrid analyzer, High Resolution accurate Mass Spectrometry with a combination of Quadrupole with Ultrahigh resolution MS with UHPLC. The complete workstation with all the required Software's and all pre-requisites for operation of the system.
Ion Source	The system should be supplied with API source hosing with ESI probe compatible with flow rate from 1ul/min to2ml/min with desolation temperature up to 500^{0}C. APCI probe compatible with flow rate from 50ul/min to2ml/min with desolation temperature up to 500^{0}C. System should have Nano ESI source compatibility with flow rate from 50nl/mi to 1000nl/min without flow splitting. Direct infusion Syringe with syringe pump and divert valve for calibration and direct infusion of sample. Ion Sources: The instrument should have at least ESI/APCI, APCI, Polarity switching options for detecting both molecular mass ions (positive/negative).
Quadrupole Mass Range	Shall have mass range from 50m/z to 3000m/z or better. Segmented mass filter, providing variable and step-less precursor isolation width selection from 0.4 Da to full mass range
Mass Resolution	Quadruple Mass range: 50-3000 Da or better to work with different molecules. Minimum resolution at m/z 900 (approximately) should be greater than 1,00,000 FWHM
Mass Accuracy	Should have excellent mass accuracy less than 1 ppm without frequent calibration for 5-7 days.
Sensitivity	Sensitivity Full MS: MS/MS: 200 fg reserpine on column S/N 100:1 tSIM: 200 fg reserpine on column S/N 250:1 Should and scan speed of 20hz or higher. System must have Advance collision cell for effective fragmentation of analytes like EAD/HCD etc. specially for the low mass region of
Acquisition speed	Acquisition speed: High speed, with very high response time, and efficient fragmentation is expected. ≥ 12 Hz or better.
Scan Functions	Full Scan, SIM Scan, Data dependent MSn, DIA with variable quadrupole isolation window from 10Da to 100Da or better, Parallel reaction monitoring etc. Should have Data Dependent Acquisition (DDA), MS2 scan by DDA with Top N experiments. in targeted SIM manner based upon a sample dependent, Triggered MS2 by exclusion mass list .M2 Scan by Data Independent Analysis. The mass spectrometer must be capable of fast polarity switching acquiring one spectrum in positive and one in negative with <1.4hz cycle time or better or one full cycle in <1 sec (one full positive mode scan and one full negative mode scan On-the-fly charge state deconvolution for intelligent ddMS2 on intact proteins applying Smart HCD.
Dynamic Range	The system should have in-spectrum dynamic range of 5000:1or 4order of linear dynamic range

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Fast and High-Resolution LC System	Fully biocompatible Quaternary gradient system with Vacuum Degasser, Auto sampler and Column Oven for Ultrafast separations. Flow accuracy of ±0.1% or better Injection volume accuracy of +/- .0.5% or better. Gradient precision 0.15% RSD or +/- 0.04 min SD, whichever is greater. Auto sampler should be available with capacity of at least 80 vials of 1.8 ml/2 ml and should be capable of accommodating 96 well plate with injection volume. The system should have sample temperature control from 4 –40 Deg C programmable in 1 Deg C increments (ambient temp: 20 Deg C). System should have max: Pressure equal or more than 15000PSI or better. Both the HPLC systems should be from same manufacturer & have single point software-based control with MassSpectrometer. Suitable mechanisms for the degassing of solvents. LC maintenance kit and tool kit should be provided. System should come with required quantity of strong ion exchange columns, C18 columns.
Workstation and Software	Suitable workstations and all interfacing hardware and software for instrument (s) control, data acquisition and data processing must be provided. The latest model of computer necessary to handle, analysis and store such data should be provided. For each of the mass spectrometers a minimum of 2 workstations (One for acquisition & one for processing) should be provided, one for controlling the mass spectrometer, the LC and auto-sampler the others for data analysis and storage. All workstations should be having a network enabled laser color printer. All hardware and software including drivers, monitor, device interface cards / network card must be preinstalled and preconfigured on the computer provided. Complete software for protein identification, quantification and characterization, peptide mass fingerprinting, data base search and biomarker studies. Complete advanced software for proteomics, and metabolomics analysis, database searches, quantification, well as all relevant metabolite databases should be provided including relative & absolute Quantitation. List of software with their application details should be provided. All the software must be original and with perpetual license. Software updates including newer versions should be provided free of cost during warranty period. Software should allow discrimination of false discovery and allow grouping of proteins to reduce complexity in results. Processing software for unattended batch processing of data files for protein identification and expression analysis from LC / MS-MS, gel- based experiments. Output of the data analysis/processing software should meet the data required to submit for publication in major journals. Advanced software for data analysis and publication like scaffold and peaks studio software etc. should be included.
Columns:	Sub 2-micron particle size C18 column -2 Qty Suitable MS Columns for HILIC Application -2 Qty
Nitrogen Generator	A suitable imported Nitrogen Generator with inbuilt compressor. A suitable imported gas generator with compressor capable of providing nitrogen gas at the required 99% purity, pressure and flow rate for the Mass Spectrometer must be quoted. The compressor should be noise-free. UHP Grade N2 Cylinders 2Nos N2 Regulators (S.S.) 2 Nos Moisture / hydrocarbon trap 1 Nos must be supplied.
UPS	15 KVA UPS with 1 hr Battery back and isolation transformation inbuilt.
Gases	If any additional gasses required should be quoted with regulator
References	Should provide at least 4 references from reputed institutes where itis being Installed and working well.
Warranty	Comprehensive one year of warranty
Installation and training	Details should be clearly given for the installation, performance verification, operation manual and on-site training part necessary forthe system (as free of cost) Note: Necessary items or chemicals required for the installation, demonstration and calibration of the system should be arranged bythe supplier
Other condition on service/maintenanceand user list	a. Please provide address of your local service office with availability of number of trained engineers to attend any service issue in HRMS. b. Also mention the anticipated down-time of the machine, if there is any service call from us (in minimum days) c. A user list containing minimum of 5 installations of HRMS (in reputed government research institutes).

15/2/24

ANNEXURE- 1

1. Details of Project wise Expenditure Statement up to 31.01.2024

Name of the KVK	Name of the Project	Actual Expenditure up to 31.01.2024	Expenditure Likely to incurred up to 28.03.2024	Total requirement in 2023-24
Dhaanyaganga Krishi Vigyan Kendra (Murshidabad Additional)	NICRA-TDC	7,77,630.00	3,36,000.00	11,13,630.00
	ARYA	N/A	N/A	N/A
	CFLD Oilseed	3,60,000.00	96,000.00	4,56,000.00
	CFLD Pulses	4,50,000.00	Nil	4,50,000.00
	Natural Farming	1,60,584.00	1,83,416.00	3,44,000.00
	TOTAL::	**17,48,214.00**	**6,15,416.00**	**29,79,046.00**

Senior Scientist & Head
Dhaanyaganga KVK, RKMVERI
RKMA, Sargachhi, Murshidabad