Annex 1 - Technical Bid Form

Tender Subject	**Equipment**
Tender No	**202507001**
Lot	**Single Lot**

No	Item	Specifications	Quantity	Unit of Mesure
1	Rotary Vacuum Evaporator (Rotovap),	**Technical Specifications** **I. Rotary Evaporator Unit:** Display: Digital display for set and actual bath temperature and rotation speed. Flask Capacity: Should accommodate a range of evaporation flask sizes, from 1 to 20L. Rotation Speed: Adjustable rotation speed, e.g., 10-280 rpm, with clear indication of the control mechanism (e.g., microprocessor control). Heating Bath: Type: Universal bath for oil and/or water, depending on your application. Temperature Range: Should cover a broad range, e.g., ambient to 210°C, with specified accuracy (e.g., ± 1°C). Capacity: Higher capacity to hold minimum 20L Flask. Safety Features: Overheat cut-off protection, insulated double wall for user safety. Condenser: Specify the type (e.g., vertical condenser) and cooling surface area (e.g., 1400 cm² or better). Safety: Separate ON/OFF switches for heating bath and rotation. Locking facility for bath temperature and rotation speed. Display of residual heat warning. Detachable operating panel for safety in a fume hood. Grease-free PTFE valves for vacuum release and solvent feeding. Condenser clamp for added safety. Automatic overheat cut-off protection. **II. Vacuum Pump:** Type: Two-stage diaphragm pump made from chemically resistant materials (e.g., PTFE coated). Suction Capacity: Minimum required suction capacity, e.g., 1.7 m³/h or better. Ultimate Vacuum: Specify the desired ultimate vacuum level (e.g., 7 mbar or better). Features: Gas ballast valve to handle vapor loads and prevent bumping. Chemical resistance to solvents, acidic, and basic vapors. Certification: CE certification. **III. Chiller:** Temperature Range: Define the operating temperature range (e.g., -10°C to +40°C or -10°C to +100°C). Temperature Accuracy: Specify the required accuracy (e.g., ±0.5°C or +/- 0.2°C). Cooling Capacity: State the required cooling capacity (e.g., 420 W or 800 watts @ 20°C). Features: Minimal bench space. Digital display for set and actual temperature. Audible and visual alarms for temperature and water level (if applicable). **IV. Accessories and Other Requirements:** Glassware: Include evaporating and receiving flasks of the standard sizes. Tubing: Tubing for connections between the rotavap, pump, and chiller should be included. Installation and Training: Should be provided free of cost, with installation testing and comprehensive training for personnel. Warranty: A minimum warranty period, for example, 3 years or a comprehensive one year warranty. Technical Support: Qualified technical service personnel. Compliance: Certifications such as CE and ISO.	2	Piece

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		References: A list of customers who have purchased similar equipment. Tender Submission Format: Standard International format with a two-cover system (technical and commercial). **V. Vendor Qualifications:** Experience: Please provide the vendor's experience in supplying similar equipment to research institutions or similar organizations. Service and Support: Specify the availability of qualified technical service personnel in your location. Documentation: Provide technical literature, brochures, and detailed specifications for all quoted items.		
2	High-Speed Centrifuge used for high-volume centrifugation	**I. Technical Specifications** Maximum Speed (RPM): Above 12,000 RPM. Maximum Relative Centrifugal Force (RCF / x g): Above 20,000 x g. Rotor Capacity: "Maximum Rotor Capacity: 4 x 1000 ml or 6x1000ml". Temperature Control: -11°C to +40°C with ±1°C accuracy. Acceleration and Deceleration Profiles: 9 or more acceleration/deceleration profiles. Timer: from 1 second to 99 minutes and 59 seconds. Speed Control Accuracy: ±100 rpm of set speed. **II. Rotors and Accessories:** Swing-bucket rotor: 4x1000ml, with adapters to accommodate tubes and bottles from 0.2 mL to 1,000 mL for with max. speed >3,400 × g (3,700 rpm) Fixed Angle Rotor: 6x250ml bottles, with adapters to accommodate tubes, bottles and vials of lower volumes from 0.5 mL to 250 mL > Max. speed 15,054 × g (10,100 rpm) Fixed Angle Rotor: 6x250ml bottles, with adapters to accommodate tubes, bottles and vials of lower volumes from 0.2 mL to 50 mL > Max. speed 20,000 × g (12,100 rpm) **III. Safety Features:** Lid Lock: Specify the presence of an electronic lock that ensures the lid is securely closed during operation. Aerosol-tight for safe centrifugation of hazardous samples Over-speed Detection mechanisms to prevent potential hazards. Imbalance Detection with a non-contact imbalance sensor to detect imbalances and automatically stop the run for safety. Emergency Lid Release with a mechanism for opening the lid in case of power failure. Automatic Rotor Identification: Automatic rotor detection for accurate operation and safety. Safety Certifications: Require relevant safety and standards certifications (e.g., CE, EN61010-1). **IV. Additional Features:** Control Interface: Mention the type of display and control interface (e.g., LCD touch screen) for ease of use. Programmability: Programmable functions, such as the ability to save multiple programs and user profiles. Data Communication: Availability of USB ports or other connectivity options for data transfer and logging. Noise Level: Low acceptable noise level for a comfortable working environment. Installation and Training: Should be provided free of cost, with installation testing and comprehensive training for personnel. Warranty: Specify a minimum warranty period, for example, 3 years or a comprehensive one year warranty. Technical Support: Requirement for qualified technical service personnel based in your region. Compliance: Certifications such as CE and ISO should be specified. References: Request a list of customers who have purchased similar equipment. Tender Submission Format: Define the required tender format, often a two-cover system (technical and commercial). **V. Vendor Qualifications:** Experience: Provide the vendor's experience in supplying similar equipment to research institutions or similar organizations. Service and Support: Specify the availability of qualified technical service personnel in your location. Documentation: Provide technical literature, brochures, and detailed specifications for all quoted items.	2	Piece

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3	Double Beam UV-Vis Spectrophotometer	**I. Technical Specifications:** Type: Double Beam UV-VIS Spectrophotometer Optical System: Double beam, Czerny-Turner or equivalent configuration Wavelength Range: 190 – 1100 nm Spectral Bandwidth: 1.0 nm (fixed or variable with optional bandwidth from 0.5 to 2.0 nm) Wavelength Accuracy: ± 0.3 nm or better / ± 0.005 A at 1A or better Wavelength Repeatability: ± 0.1 nm or better Reproducibility: ± 0.05 nm or better Photometric Range: -3.0 to +3.0 Abs / 8 Abs or better Photometric Accuracy: ± 0.002 Abs at 1.0 Abs Photometric Repeatability: ± 0.001 Abs at 1.0 Abs Stray Light: Less than 0.05%T at 220 nm and 340 nm Baseline Flatness: ± 0.001 Abs Detector: Silicon photodiode or equivalent Light Source: Tungsten-Halogen and Deuterium lamps with automatic switching Display: High-resolution 7-inch or larger color touchscreen display **II. Operational Specifications:** Data Output Ports: USB, Ethernet, RS232; compatible with printer and data storage Software: Windows-compatible software for quantitative analysis, kinetics, time-scan, DNA/protein analysis, wavelength scanning, photometric measurements and customizable report formatting. Sample Compartment: Should accommodate 10 mm standard cuvettes; adjustable cell holders preferred Cuvettes Provided: Minimum 4 Quartz and 4 Glass cuvettes (10 mm path length) PC Compatibility: Supplied with latest compatible desktop computer with pre-installed software. Compatibility with the latest operating systems Power Requirements: 220–240 V, 50/60 Hz Quantitation with calibration curves Accessories: Dust cover, power cable, operation manual, and maintenance toolkit. Cell holders (e.g., for 10mm and 100mm cells), film holders and integrating spheres. Quartz cuvettes and adapter quartz cuvettes for 1.0 to 5 ml. **III. Additional Considerations for the Tender:** Certification: CE/ISO 9001 certified instrument Compliance with Standards: Standards defined by USP. Calibration: Instrument calibration standards, traceable to relevant methods like NIST and ASTM. Installation and Training: Should be provided free of cost, with installation testing and comprehensive training for personnel. Warranty: Specify a minimum warranty period, for example, 3 years or a comprehensive one year warranty. Technical Support: Requirement for qualified technical service personnel based in your region. Compliance: Certifications such as CE and ISO should be specified. References: Request a list of customers who have purchased similar equipment. Tender Submission Format: Define the required tender format, often a two-cover system (technical and commercial). **IV. Vendor Qualifications:** Experience: Provide the vendor's experience in supplying similar equipment to research institutions or similar organizations. Service and Support: Specify the availability of qualified technical service personnel in your location. Documentation: Provide technic	1	Piece
4	Magnetic Stirrers	Purpose: Heavy-duty magnetic stirrers are designed for robust mixing applications in laboratory and industrial settings. **I. Technical specifications** Stirring Capacity: Heavy-duty stirrers that can handle significantly larger volumes up to 50 Liters (approx. 13.2 gallons) or more. Speed Range: 15 rpm up to 2000 rpm or more. Motor Type: Brushless DC motors Torque Compensation: Features like SpeedServo™ technology Heating Power: 180W to 500W or more. Maximum Temperature: Up to 380°C (716°F) or even higher.	1	Piece

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		Temperature Control: Digital temperature control with high accuracy, possibly down to ±0.1°C, and a safety circuit feature to prevent overheating. Stirring Mechanism: Strong magnetic coupling is essential to ensure consistent stirring, particularly for larger volumes and viscous solutions. **Construction and materials** Top Plate Material: Preferably ceramic: High-temperature resistance (up to 450°C). White with good visibility for color changes. Housing: Preferably epoxy-painted metal Stir Bar Compatibility: Should accommodate various sizes and shapes of stir bars for different vessel types. Control and safety features User Interface: Digital controls with clear displays for accurate temperature and speed settings. Timer Functions: Programmable timers allow for unsupervised operation, from minutes to hours. **Safety Features:** Overload Protection: To prevent damage in case of excessive load. Spill-resistant Design: To protect internal components from accidental spills. Hotplate Temperature Monitoring: Automatic shutdown if the hotplate exceeds a pre-set safety temperature or if the sensor fails. Temperature Probe: External probes like PT100 for precise sample temperature control and provide crucial safety features like automatic shutdown in case of vessel breakage or sample evaporation. Safety Lock: To prevent accidental alteration of settings during operation. Gentle Start: Gradually increase stirring speed to prevent splashing. Power Requirements: 220–240 V, 50/60 Hz		
5	Automated Liquid Bottle Filling Machine (Pilot Scale)	Purpose: To accurately fill liquid biopesticide formulations (like neem oil or azadirachtin extracts) into 500 mL to 1.0 L HDPE bottles. **I. General Specifications** Type: Automatic or semi-automatic volumetric liquid filling machine Application: Low-viscosity liquids (e.g., neem oil, emulsifiable concentrates, biopesticides) Filling Range: Adjustable from 100 mL to 1,000 mL Bottle Sizes: Compatible with round/flat HDPE bottles from 100 mL to 1.0 L Capacity: 8–12 bottles/min (depending on fill volume and product viscosity) No. of Filling Heads: 2 heads or more (expandable in modular machines) Filling Accuracy: ±1% or better Filling Method: Servo/gear pump based or pneumatic piston type Control System: PLC with touchscreen HMI (for programmable fill volumes, batch count, alarms) **II. Mechanical & Material Features** Frame Material: Stainless Steel (SS304 or SS316 for contact parts) Bottle Holding Conveyor: Stainless steel slat chain with adjustable guide rails Nozzle Design: Anti-drip, diving nozzle (optional for foamy or volatile formulations) Bottle Sensor: Photoelectric sensor for bottle presence detection (no bottle, no fill) Capping Integration: Optional capping unit for screw or press-fit caps **III. Power & Utilities** Power Requirement: 220V–240V single-phase (or 415V three-phase), 50/60 Hz Power Consumption: 1.5–2.0 kW Compressed Air: 6–8 bar (if pneumatic actuator used) Air Consumption: ~200 L/min **IV. Safety & Compliance** Explosion-Proofing: Optional for solvent-based EC formulations (flameproof motor, switches) Enclosures: Transparent acrylic safety guards with interlock Compliance: CE marking, ISO 9001, optionally GMP compatible Cleaning: Easy dismantling of contact parts; CIP (clean-in-place) option for hygiene **V. Dimensions & Weight (Indicative only)** Footprint: Approx. 1200 mm (L) × 900 mm (W) × 1500 mm (H) Weight: 200–300 kg depending on configuration **VI. Optional Attachments** Cap feeding and tightening unit (automatic or manual) Label applicator (manual/semi-auto) Batch coding printer (inkjet or thermal) Bottle unscrambler/turntable	1	Piece

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		Nitrogen flushing unit (for oxygen-sensitive bioformulations)		
6	Seed Cleaner and Grader	Purpose: To remove dust, leaves, immature seeds, and other foreign materials before decortication. Capacity: 200–300 kg/h Cleaning mechanism: Vibratory sieves and aspiration blower Number of screens: 2–3 (interchangeable based on seed size) Power requirement: 1–2 HP electric motor Construction: Mild steel frame with stainless steel sieves and contact parts Output: Clean, graded neem seeds	1	Piece
7	Neem Seed Decorticator	Purpose: To separate neem seed kernels from the outer shells (hulls). Capacity: 150–300 kg/h Shelling efficiency: ≥90% Feeding mechanism: Manual or hopper-fed Separation system: Blower and sieve unit to separate shells and kernels Power requirement: 5 HP electric motor Construction: Mild steel frame with hardened steel rollers or impact plates Output: Kernels, hulls, and minimal un-decorticated seed	1	Piece
8	Kernel Separator and Aspirator	Purpose: To separate unbroken kernels from shell debris using airflow. Capacity: 200 kg/h Mechanism: Air suction and vibratory separator Power requirement: 1.5 HP blower Construction: Stainless steel contact parts Output: Clean kernel fraction for oil extraction	1	Piece
9	Cold Press Oil Extraction Machine (Screw Press)	Purpose: To extract oil from neem seed kernels while preserving bioactive compounds. Capacity: 50–100 kg/h Pressing temperature: Maintained below 50°C Oil yield: 20–25% of kernel weight Residue: Pressed seed cake with residual azadirachtin Power requirement: 7.5–10 HP electric motor Construction: Stainless steel pressing chamber and screw shaft Cooling mechanism: Optional water jacket to regulate temperature Output: Crude neem oil and deoiled seed cake	1	Piece
10	Oil Filter Unit	Purpose: To clarify crude neem oil by removing particulates. Type: Plate and frame filter press or cartridge filter Capacity: 50–100 liters/h Filter media: Food-grade filter cloth or paper Power requirement: 0.5–1 HP motor for pump Construction: Stainless steel (contact parts) Output: Clear, filtered neem oil	1	Piece
11	Grinding Mill (Hammer or Disc Mill)	Purpose: To pulverize pressed seed cake for solvent extraction of azadirachtin. Capacity: 100–200 kg/h Grinding fineness: 40–60 mesh (adjustable) Feed size: <15 mm cake chunks Power requirement: 5–7.5 HP motor Dust collection: Cyclone separator or dust hood Construction: Stainless steel contact surfaces Output: Fine powder suitable for solvent extraction	1	Piece
12	Solvent Extraction Unit (Batch Type)	Purpose: To extract azadirachtin from the neem cake powder using ethanol, methanol, or other safe solvents. Capacity: 50–100 kg/batch Type: Jacketed stainless steel extractor with reflux condenser Solvent recovery: Condenser with solvent storage tank Filtration: Gravity or vacuum-assisted Power requirement: 3–5 HP (for agitation and pumping) Safety: Explosion-proof electricals and flameproof fittings Output: Azadirachtin-rich extract	1	Piece
13	Solvent Recovery and Concentration Unit	Purpose: To recover solvent and concentrate the azadirachtin extract. Type: Rotary vacuum evaporator or falling film evaporator Capacity: 10–50 liters per batch Vacuum pump: 1–2 HP Cooling system: Recirculating chiller or condenser coil Construction: Borosilicate glass or stainless steel Output: Concentrated azadirachtin extract for formulation	1	Piece
14	Auxiliary	Weighing scales: For raw material and product measurements Drying trays or cabinet dryer: For drying neem seeds or cake (electric or solar-assisted)	1	Piece

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	Equipment	Storage bins: For seeds, kernels, oil, cake, and solvent Personal protective equipment (PPE): Gloves, goggles, aprons, solvent masks Fire safety gear: Extinguishers and explosion-proof switches near solvent ones		
15	Vacuum Packaging Machine – 1 to 5 kg Rectangular Packs (Pilot Scale)	Purpose: To vacuum-seal rectangular plastic pouches containing 1 to 5 kg of dry or semi-moist product (e.g., neem cake powder, granules, or seed formulations) in air-tight packaging for extended shelf life and protection. **I. General Specifications** Type: Chamber-type single or double vacuum packaging machine Vacuum Capacity: Suitable for 1–5 kg pouch sizes Sealing Type: Heat sealing with vacuum and optional gas flushing Vacuum Pressure: ≤ –0.1 MPa (adjustable, deep vacuum) Sealing Width: 10 mm (double line or flat), with heat sealing bar Sealing Length: 400–800 mm (customizable based on bag width) Vacuum Cycle Time: 15–30 seconds per cycle (adjustable based on pack size and material) Chamber Size: Approx. 600 mm × 500 mm × 120 mm (minimum) to fit 5 kg rectangular pack Chamber Type: Flat rectangular stainless steel vacuum chamber Control System: Digital panel or PLC-based control with vacuum, sealing time, and cooling adjustment **II. Material & Construction** Body Material: Full Stainless Steel (SS304 grade) Lid Type: Transparent acrylic or stainless steel dome lid Contact Surface: Food-grade smooth stainless steel Packaging Material Supported: Multi-layer vacuum bags (nylon/poly, PE, laminated pouches, etc.) **III. Power & Utilities** Power Requirement: 220–240 V, 50 Hz single-phase or 380–415 V, 3-phase (depending on capacity) Power Consumption: 1.5 to 3.0 kW (for medium-sized chamber machines) Vacuum Pump: Oil-lubricated rotary vane vacuum pump (20–60 m³/h capacity) **IV. Performance Features** Adjustable sealing and vacuum time Overheat protection and auto-cutoff system Optional: Gas flushing system (for MAP – Modified Atmosphere Packaging) Multi-batch run capability with programmable memory Heavy-duty casters for mobility and lock for stability **V. Machine Dimensions & Weight (Indicative Only)** Footprint: 900 mm (L) × 700 mm (W) × 1000 mm (H) Chamber Depth: ≥120 mm (customizable) Weight: 120–180 kg (depending on pump and chamber size) **VI. Recommended Applications** Neem cake or seed kernel packaging Powdered or granular botanical formulations Biopesticide formulations in bulk Organic fertilizers in small packs Any agro-product requiring moisture, oxygen, or pest protection **VII. Optional Features** Double chamber model for higher throughput Nitrogen or inert gas flushing Date coding or thermal printer attachment Pneumatic lid lifting for ease of operation MAP-compatible sealing (for longer shelf life)	1	Piece

Remarks :

1. Catalogues or technical datasheets are requested for all items, and request for samples/project side visit is one of the options that might be asked
2. The prices include Providing, installation, supplying and transportation, with all other GIZ requirements.
3. The supplier is responsible for the unloading at the final place of destination. The supplier shall provide all necessary tools for unloading
4. ICAC expecting bidders to have delivery from 45 days to 60 days
5. Payment of goods will be done within 30 working days after taking over the goods/services at the address as

stated in the purchase order
6. The offer must be valid 90 days
7. The bid form should be completed fully signed & stamped.
8. The Bidder must submit a Local bank account under the Company name with the tender.

Sign and Stamp