

**KERALA AGRICULTURAL UNIVERSITY**  
**PRRAL, AINP ON PESTICIDE RESIDUES**  
**COLLEGE OF AGRICULTURE, VELLAYANI**

AINP/PR/RKVY/1/2018

Dated: 10/05/2018

**Tender Notice**

On behalf of the Kerala Agricultural University, PRRAL, AINP on Pesticide Residues, College of Agriculture, Vellayani, Govt. of Kerala, Sealed Tenders (in **Two Bid System [1] Technical bid and [2] Financial Bid**) are invited for the supply of equipment conforming to the specifications and requirements given in the Annexure-1.

**Pre-bid meeting of the prospective tenderers is scheduled on 21-05-2018 at 11.00a.m.**

**Last Date of submission of tender : 11.00 a.m. on 13/06/2018**

**Date of Opening Technical bid : 11.45 a.m. on 14/06/2018**

**Place for submission of tender : PRRAL, AINP on Pesticide Residues,  
College of Agriculture, Vellayani,  
Thiruvananthapuram, Kerala-695522**

**LC-Q-ToF/Q-Orbitrap High Resolution Mass Spectrometer  
for  
PRRAL, AINP on Pesticide Residue, College of Agriculture, Vellayani, Trivandrum**

All the rules/ regulations of Departmental purchase of Govt. of Kerala as provided in the Store Purchase Manual Revised Edition 2013, G.O (P) No.3/2013/SPD, dated 21-06-2013, available in the website [www.kerala.gov.in/docs/manuals/RevisedSPmanual.pdf](http://www.kerala.gov.in/docs/manuals/RevisedSPmanual.pdf) will be applicable. More information regarding the tender can be obtained from the Professor and Head, PRRAL, AINP on Pesticide Residues, College of Agriculture, Vellayani-695 522, e-mail:- prral@kau.in (Phone: 0471-2380520/0471-2388138/0471-2388165) during office hours.

**Instructions to the bidder:**

- 1. Preparation of Bids: The tenders should be submitted under the two bid system, viz., technical bid and financial bid.**
- 2. Delivery of the Tender: Tender shall be submitted to the designated address either by hand or by speed post or by courier so as to reach the authorized persons in our office before the due date and time. The details are mentioned as the Terms and Conditions attached.**
- 3. Opening of the Tenders: The offers/bids will be opened by the committee duly constituted for this purpose at the specified place, date and time in the presence of such tenderers or their representatives as may choose to attend. The technical bids will be opened first and they will be examined by technical committee, which will decide the suitability as per the specification and requirement. The financial offer bid will be opened only for those offers/bids, which**

technically meet all the requirements and specifications. The participating bidders should produce an Authorization letter from their companies to participate in the tender opening day. Only one representative per tenderer will be allowed to participate [during the opening of tender and in Pre-Bid meeting].

4. **Rejection of Tenders:** Kerala Agricultural University reserves the right to reject any or all of the tenders received without assigning any reason.
5. **Terms of Delivery:** The quoted instruments and all accessories and supporting instruments should be supplied and the installation/commissioning of the same should be completed as specified in the Terms and Conditions mentioned. Signed copy of the Terms and Conditions should be submitted along with the tender.
6. The Bidder should be a manufacturer, who must have designed, manufactured, tested and supplied five numbers of such equipment in India or similar to the type specified, in the past five years, which shall be in successful operation for at least two years as on the date of bid opening. If bidding through an authorized agent, bidder should have minimum five years' experience in the installation and commissioning of LC-QTOF/Q-Orbitrap high resolution mass spectrometer, should have application laboratory in India and after sales service support with readily available spares.
7. **Pre-bid meeting** of the prospective tenderers is scheduled on 21-05-2018 at 11.00a.m.
8. The cost of the item, insurance and freight (CIF) and charges for delivery of item at PRRAL, AINP on Pesticide Residues, College of Agriculture, and Vellayani should be separately stated. We are exempted (regd. with DSIR) from payment of customs and excise duty for our procurements and hence prices quoted should be exclusive of these. Offers shall be made CIF Trivandrum by airfreight for imported instruments and F.O.R destination for indigenous accessories. For imported items, clearing charges, customs and excise duty (whether applicable ) and charges for insuring up to PRRAL, AINP on Pesticide Residues, College of Agriculture, Vellayani as against all risks including total loss for CIF value plus 10% should be included in the insurance charge. As per the notification no. 45/2017-Central Tax (Rate) Govt. of India, dated 14th November, 2017, procurement of Indigenous items such as scientific and technical instruments, apparatus, equipment (including computers), accessories, parts and consumables by research institutes/ Universities, GST applicable should be 5%. DSIR and Essentiality certificate will be produced by KAU, for the needed items.

**Bidders are requested to carefully read the terms and conditions before going to quote.**

#### **TERMS AND CONDITIONS OF THE TENDER**

Tender should be submitted in the prescribed tender document downloaded from the website [www.kau.edu/tenders](http://www.kau.edu/tenders) . The tender submitted should strictly follow the instructions specified below, failing any of which the tenders would be deemed incomplete and liable for rejection.

1. The last date and time for the submission of the tender will be at **11.00 a.m. on 13/06/2018** at the following address:  
The Professor and Head  
PRRAL  
AINP on Pesticide Residues,

College of Agriculture,  
Vellayani, Trivandrum  
Kerala, India  
Pin Code: 695 522  
Email: prral@kau.in

Sealed Tenders may be sent by post/ courier/ may be handed over to the following officers authorized for the receipt of tenders.

1. Dr. Thomas George, Professor and Head, PRRAL, AINP (PR), Vellayani.
2. Dr. Ambily Paul, Assistant Professor, PRRAL, AINP (PR), Vellayani.

2. Tenders received after the due date and time for whatever reasons will not be considered. The offer/bids should be submitted in a manner of two bid system, i.e. [1] Technical bid and [2] Financial Bid. Tenders received with both the bids in the same cover shall be summarily rejected.
  - a. The technical bid should consist of all technical details along with the commercial terms and conditions. The bid should be submitted in the format given in Annexure-1 (technical specifications) and should provide specific Yes or No answer to each point in the specification. Additional details, if any, should be given in the remarks column of the format. All claims of instrument performance as required in the specifications should be substantiated by adequate instrument readouts and data. The technical bid should be in a **sealed cover** superscribed, **“Technical bid –LC-QTOF/Q-Orbitrap high resolution mass spectrometer, PRRAL, AINP on Pesticide Residues, Vellayani ”**and addressed to the **“The Professor and Head”**.
  - b. Financial bid should indicate item wise price for the items mentioned in technical bid. Detailed pricing including all charges for accessories, supporting instruments, items, quoted in Indian rupees, extended warranty, shipping, insurance, taxes, installation charges etc. should be clearly indicated. Unit rate along with the split up Para of the item quoted should be given. The rates should be indicated clearly both in figures and words. If there is any variation between the rates in words and figures, the rates given in words will be considered for evaluation. The rates quoted should be valid for a minimum of 90 days from the date of opening of financial bid. The tenderer should put full signature in case of any scoring of/corrections/or overwriting. The rates quoted should not be subject to any price variation clause. A signed covering sheet should be attached to the financial bid in the format given in Annexure -2 (Summary of financial bid). The financial bid should also be in a **sealed cover** superscribed, **“Financial bid - LC-QTOF/Q-Orbitrap high resolution mass spectrometer, PRRAL, AINP on Pesticide Residues, Vellayani ”**and addressed to the **“The Professor and Head”**.
  - c. Both the sealed covers viz., technical and financial bids should be put into a big cover, along with item specified in (d) to (f) below and sealed. The cover should be superscribed, **“Technical and Financial bids for LC-QTOF/Q-Orbitrap high resolution mass spectrometer, PRRAL, AINP on Pesticide Residues, Vellayani”** and addressed to the **“The Professor and Head”**.
  - d. DD for cost of tender: **0.2%** of the quoted amount rounded to the nearest multiple of 100 + 12% GST as applicable by way of demand draft favoring “Professor and Head” and payable at SBI, Vellayani branch, Thiruvananthapuram.
  - e. DD for Earnest Money Deposit: The tenderer should submit a separate Crossed DD/Treasury Saving Bank deposit or Genuine and encashable Bank guarantee from any nationalized or

scheduled commercial bank in the model format (Annexure 15A of Store purchase manual, 2013) or National savings Certificate for EMD equal to **1%** of the total rupee equivalent cost of the quoted items, rounded to the nearest rupees (subject to minimum of Rs.1500/-). The demand draft should be drawn favoring “Professor and Head” and payable at SBI, Vellayani Branch, Thiruvananthapuram, from any nationalized bank or scheduled commercial banks valid for minimum 3 months. The technical bid (without EMD would be considered as UNRESPONSIVE and will be rejected unless any category of tenderer is specifically exempted by the Govt. from payment of EMD for which reasons and proof have to be enclosed. The EMD will be returned without any interest to the unsuccessful bidders after the award of the contract. Firms that are exempted from payment of EMD should furnish copy of the currently valid certificate from the Store Purchase Department, Govt. of Kerala.

- f. The tender should be accompanied by an agreement executed in Kerala Stamp Paper worth Rs.200/- (Rupees two hundred only) and format can be downloaded from [www.kau.edu/tenders](http://www.kau.edu/tenders)
- g. The tenders will be opened at the PRRAL, AINP on Pesticide Residue, College of Agriculture, Vellayani on **14-06-2018**. Only the technical bids will be opened on this date. The bidders who qualify in the technical bid will be informed of the date of opening of the financial bids.
- h. Late and incomplete tenders and tenders without EMD, cost of tender or agreement will not be accepted.

**Forfeiture of EMD:** EMD will be forfeited if the tenderer

- I. Withdraws his tender or backs out after acceptance.
  - II. Fails to remit the performance security.
  - III. Violates any of the conditions prescribed in the tender notice.
  - IV. Revises any of the terms quoted, during the validity period.
3. Performance Security : On receipt of purchase order from this office, the tenderer should execute another agreement in Kerala Stamp Paper worth Rs.200/- (Rupees two hundred only) and furnish a security deposit of **5%** of the cost of the equipment quoted in the form of term deposit/bank guarantee/demand draft drawn in favour of “**The Professor and Head, PRRAL, AINP on Pesticide Residues, College of Agriculture, Vellayani**”, payable at the State Bank of India, Vellayani branch and should be valid for 60 days beyond the date of completion of all contractual obligations including warranty obligation and it will be released 60 days after the expiry of warranty period. The format of the agreement can be downloaded from the above website given in item 1.
  4. If an Indian agent is involved, the following document must be enclosed.
    - a) Foreign Principal’s proforma invoice indicating the commission payable to the Indian agent and nature of after sales service to be rendered by the Indian agent.
    - b) Copy of the agency agreement with the foreign Principal and the precise relationship between them and their mutual interest in the business.
    - c) The enlistment of the Indian agent with the Director General of Supplies and Disposals under the compulsory registration scheme of Ministry of Finance.

5. The offer or bids should be sent only for equipment that is available in the market and supplied to a number of customers. A list of customers in India with details should be furnished in the tenders in SI No. IV. Tenders for a prototype machine will not be accepted.
6. Original printed catalogue (not any photocopy) of the quoted model duly signed and sealed by the principals must accompany the tender.
7. In case the Technical Specification for the instrument calls for Performance Data for the quoted model, the same has to be submitted completely in all respects in a booklet form for ready reference. This data has to be generated using the quoted model, by the **bidder's own application laboratory in India**, as a proof of capability to provide application support. In case more than one model is quoted the performance data for each model should be submitted separately. Generalized application notes or research papers will not be accepted as proof of performance, as this may not comply with specific requirements of the instrument. Kerala Agricultural University reserves the right to witness either the reproduction of data generated by the bidder's in their application laboratory in the quoted model only. KAU reserves the right to analyze the required samples/solutions spiked with target analyte at the bidder's laboratory, in case any need for specific performance evaluation arises. In such case, the purchase committee will decide upon the test and the terms and conditions for performance evaluation.
8. Delivery schedule: The bidder should indicate clearly the time required for delivery of the instrument. In case if there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.

#### 9. **Delivery and Documents**

Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements.

##### **Documents to be submitted by the Supplier are specified below**

For Goods supplied from abroad:

1. Upon delivery of the goods to the consignee the supplier shall notify the purchaser and mail the following documents to the purchaser and Bank (in case of LC payment):
2. One original and two copies of Supplier's invoice showing contract number, goods description, quantity, unit price and total amount; Copy of Airway Bill marked freight prepaid;
3. Three Copies of packing list identifying contents of each package, Insurance certificate
4. Manufacturer's/Supplier's warranty certificate
5. Inspection certificate issued by the nominated inspection agency
5. Supplier's factory inspection report; and
6. Certificate of origin.
7. Delivery note and acknowledgement of receipt of goods from the consignee

#### 10. **For Goods from within India:**

Upon delivery of the goods to the consignee, the supplier shall notify the purchaser and mail the following documents to the Purchaser:

- (i) One original and 02 copies of the Supplier invoice showing contact number, goods description, quantity, unit price, total amount;
  - (ii) Lorry Receipt/Railway Receipt
  - (ii) Delivery note and acknowledgement of receipt of goods from the Consignee
  - (iii) 3 copies of packing list identifying contents of each package;
  - (iv) Insurance Certificate;
  - (v) Manufacturer's/Supplier's warranty certificate;
  - (vi) Inspection Certificate issued by the nominated inspection agency, and
  - (vii) Certificate of Origin.
11. Risk Purchase Clause: In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the University reserves the right to purchase the item/equipment from other sources on total risk of the supplier under risk purchase clause.
  12. Payment: No advance payment will be made for indigenous purchase. Payment shall be made only after satisfactory installation is agreed to wherever the installation is involved.
  13. **Warranty/Guaranty: The offer should clearly specify five years warranty including preventive maintenance Kit (PM Kit), all the spares/accessories and consumables required for the smooth and continuous functioning of the equipment in the format given in section 3.**
  14. Users list: The offer should include a list of detailed users in the format given in section 4.
  15. Late Offer: The offers received after the due date and time will not be considered.
  16. Acceptance and rejection: Kerala Agricultural University reserves the right to accept whole or any part of any tender or portion of the quantity offered or reject it in full without assigning any reason.
  17. Disputes and Jurisdiction: Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the state of Kerala.
  18. The tenderer must sign and affix seal on every page of the tender document and furnish a certificate acknowledgement as shown below.
  19. Bid Currencies
 

**Prices shall be quoted in the following currencies:-**

    1. **For goods and services that the Bidder will supply from within the Purchaser's country, the prices should be quoted in the Indian Rupees.**
    2. **For goods and services that the Bidder will supply from outside the Purchaser's Country, the prices should be quoted Dollar or in any one of the easily convertible foreign Currency.**
  20. **The cost of the item, insurance and freight (CIF) and charges for delivery of item at PRRAL, AINP on Pesticide Residues, College of Agriculture, and Vellayani should be separately stated. We are exempted (regd. with DSIR) from payment of customs and excise duty for our procurements and hence prices quoted should be exclusive of these. Offers shall be made CIF Trivandrum by airfreight for imported instruments and F.O.R destination for indigenous accessories. For imported items, clearing charges, customs and excise duty (whether applicable ) and charges for insuring up to PRRAL, AINP on Pesticide Residues, College of Agriculture, Vellayani as against all risks including total loss for CIF value plus 10% should be included in the insurance charge. As per the**

**Notification No. 45/2017-Central Tax (Rate) Govt. of India, dated 14th November, 2017, procurement of Indigenous items such as Scientific and technical instruments, apparatus, equipment (including computers), accessories, parts and consumables by research institutes/ Universities, GST applicable should be 5%. DSIR and Essentiality certificate will be produced by KAU, for the needed items.**

**21. Payment**

Payment shall be made in the currency specified in the Contract in the following manner.

Payment for Goods and Services supplied from abroad (excluding Annual Maintenance Charges):

1. On Delivery: Eighty (80) % of the Contract Price of the Goods shipped shall be paid through irrevocable Letter of Credit opened in favour of the Supplier in a bank in his country and upon submission of documents including: (i) Packing list and (ii) Supplier's Certificate that the amounts shown in the invoice are correct in terms of the contract and that all terms and conditions of the contract have been complied with; and
  2. On Final Acceptance: Twenty (20) % of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of Goods upon submission of claim supported by the Acceptance Certificate issued by the Purchaser's representative (Consignee) through Electronic Clearing System of Bank.
22. **Bank charges** (State Bank of India) incurred in connection with payment against documents through bank will be to the account of the tenderer.
23. No advance payment will be made for indigenous purchase. Payment shall be made only after satisfactory installation is agreed to wherever the installation is involved
24. Country of origin, Country of import and port of shipment should be specifically written in the Tender document.
25. **Any attempt to manipulate the specification sheet/ instrument performance evaluation performed in the application laboratory / quote substandard / refurbished equipment /accessory /internal parts will be viewed seriously as per guidelines issued by CVC in their regulations.**
26. **Only specification sheets available in the website of the principal company is taken as approved specification of that quoted model. The electronic version of the same may be reproduced on demand. Unauthorized /doubtful specification sheets containing tenders are subject to rejection.**
27. **After Sale Service-**
1. If the Supplier, having been notified, fails to remedy the defect(s) within one week the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract. If the equipment is not rectified within one week, then warranty will be extended to the extent of instrument

lying idle without repair, and **impose a penalty over it @ Rs.4000/day for LC-QTOF/Q-Orbitrap high resolution mass spectrometer. During the warranty and AMC period three preventive maintenance per year and unlimited break down visits and application training on request should be provided by the firm.**

**Acknowledgement by the tenderer:**

It is hereby acknowledged that we have gone through all the conditions mentioned above and we agree to abide by them.

SIGNATURE OF THE TENDERER

SEAL OF THE COMPANY

DATE



Annexure I  
**Technical Specifications**

(To be submitted by the bidder)

**Instrument : LC-QTOF/Q-Orbitrap high resolution mass spectrometer**

Tender reference :

Location of supply and installation: PRRAL, AINP on Pesticide Residues,  
College of Agriculture  
Vellayani, Trivandrum, Kerala, India  
Pin: 695 522

The technical bid is to be submitted in this form, duly signed by the authorized signatory. Any incompleteness in filling up this form or failure to attach the required supporting data or documents, may result in rejection of the quotation.

**Section 1: Details of the Tender**

Tender submitted by	
Tender reference No.	
Date of submission of Quotation	
Details of EMD submitted (if any)	
Full Address	
Name of Principal Supplier (if not self)	
Authorization by the Principal supplier (Attach details)	
Authorized contact person	
Designation	
Contact details	
List of supporting documents submitted along with the tender	

**Section 2: Compliance with Technical Specifications**  
**LC-Q-ToF/Q-Orbitrap high resolution mass spectrometer**

(In case more than one model /combination is quoted, attach separate compliance sheets for each)

**All items required for the full-fledged function of an advanced, high sensitive LC-Q-ToF/Q-Orbitrap high resolution mass spectrometer should be from the same supplier, including all software, accessories and supporting instruments as outlined below are to be quoted.**

**Against each point** in the technical specification, compliance must be marked as **YES/NO** and **attach brochure / evidence against each point.**

**A. UHPLC SYSTEM:** All components of the UHPLC System should be from the same supplier and amenable to control/data acquisition from the MS software.

Quoted model:

	<b>Required Technical Specification</b>	<b>Complying (Yes/No)</b>	<b>Remarks</b>	<b>Documentary evidence enclosed?</b>
1.	High Pressure Binary gradient pumping system capable of providing precise and controlled flow suitable for an MS/MS system			
2	Maximum operating Range $\geq 15000$ psig			
3.	Purging of pumps, manually as well as through software			
4.	Suitable for operation as front-end for High Resolution MS system, compatible with the software controlling the Quadrupole High Resolution MS system			
5.	Flow rate setting: 0.01 ml/min to 5 ml/min or more.			
6.	Flow rate accuracy: +/- 0.1% of set value.			
7.	Flow rate precision: Max 0.3% RSD			

8.	Gradient curve selections			
9.	Safety functions like leak sensor, high pressure and low pressure limits.			
<b>Autosampler</b>				
1.	Automated operation controllable through Q-ToF/Q-Orbitrap high resolution mass spectrometer software			
2.	Automated Auto sampler purging through software			
3.	Total volume sample injection, variable injection volume			
4.	Injection volume setting range 0.1 ul to 100 ul			
5.	Vials capacity at least 1.5 ml			
6.	Number of vials: minimum 90			
7.	Injection volume accuracy: 0.5 % error maximum			
8.	Injection volume precision: 0.3% RSD maximum, for 10 ul injection			
9.	Cross contamination limit: 0.005% maximum			
11.	Operating p <sup>H</sup> range: 1-12			
12.	Rinsing needle: Settable through software, before and after injection			
13.	Operating temperature range: 4 <sup>0</sup> c to +35 <sup>0</sup> c			
<b>Degasser</b>				
1.	Online membrane type degasser			
<b>Column oven</b>				
1.	Temperature control from ambient to 85 <sup>0</sup> c			
2.	Temperature control precision: 0.1 <sup>0</sup> C max			
3.	Controllable through MS/MS software			
4.	Safety functions like leak sensor, high temperature cut-off			

**B. Q-ToF/Q-Orbitrap high resolution mass spectrometer.**

Quoted Model:

	<b>Required Technical Specification</b>	<b>Complying? (Yes/No)</b>	<b>Remarks</b>	<b>Documentary Evidence enclosed?</b>
<b>Ion Sources</b>				
1.	Orthogonal or off-axis spray or any other equally efficient technology capable of avoiding interference from solvents and other extraneous matter.			
2.	ESI and APCI probes to be provided as standard, with facility of interchanging easily by the user, and auto-detection of installed probe by the instrument and software.			
3.	The source should have self-contained heating system for achieving desired operational temperatures			
4.	Sprayer position should be adjustable in vertical and horizontal directions with adjustment scales for easy optimization			
5.	Facility for visual examination of spray should be available			
6.	The source should be easily removable from the system to facilitate user cleaning <u>without venting the vacuum</u> with automatic shutdown of system while the source/probe is being removed			
7.	The source should be able to handle 0.5 ul/min to 2ml/min flow for both ESI and APCI probe.			
8.	The source housing should be fully vented to avoid contaminating laboratory air			
9.	All source parameters to be adjustable through software			
10	Source should be free from ion re-entrainment			
<b>Vacuum system</b>				
1.	A differentially pumped vacuum system, including air-cooled turbo molecular pump, capable of supplying required vacuum to the instrument. The system should have vacuum			

	safety features to prevent damage to the instrument in case of failure.			
2.	All accessories required for the proper functioning of the vacuum system should be supplied			
<b>Mass analyzer</b>				
High Resolution Mass Analyzer with Quadrupole Mass Filter (Q-TOF or Q Orbitrap )				
1.	<b>Mass range Quadrupole:</b> at least 1200 amu or more			
2.	<b>Mass accuracy :</b> < 1 ppm			■
3.	<b>Mass resolution :</b> >40000 FWHM or higher			■
4.	System should have dedicated <b>IMS /differential ion mobility</b> for separation of isobaric & co-eluting compounds which resolves sample complexity with an added dimension of separation in addition to HPLC and mass spectrometry, and confidence in compound characterization. Specify the details of the Hardware			■
5.	<b>Scan Modes :</b> Full MS with high-resolution accurate mass detection <ul style="list-style-type: none"> <li>• MRM/ PRM for improved screening and quantitative confidence</li> <li>• Data-Independent Acquisition (DIA) for unbiased identification and quantitative analysis</li> <li>• Selected Ion Monitoring (SIM) with high-resolution accurate-mass detection</li> </ul>			
6.	<b>Dynamic Range:</b> System should demonstrate in spectrum dynamic range of 4 to 5 orders with claimed mass accuracy.			
7.	Spectral acquisition rate MS and MS/MS mode : <b>18 spectra / second</b>			
8.	<b>Sensitivity:</b> The sensitivity in full scan mode should be >500:1 for 1pg of reference standard on column injection.			■
9.	<b>Polarity Switching :</b> + ve or -ve polarity switching between the run with in the chromatographic time scale			
10	Fully automated calibration using instrument control software			

11	The system should also be compatible with Nano LC for future applications			
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### C. COMPUTERS AND SOFTWARE PACKAGE

Name and version:

	Required technical specification	Complying (Yes/No)	Remarks	Documentary evidence enclosed?
1.	<p><b>Computer-1 nos.</b> with the following / equivalent or higher specification. High-performance PC with Intel microprocessor, Raid 1(Mirroring)</p> <ul style="list-style-type: none"> <li>• High-resolution 28 “ LCD colour monitor</li> <li>• Latest Microsoft Windows equivalent operating system</li> <li>• Microsoft Office software package</li> <li>• Laser printer Duplex printing /copy ( print, copy scan Wi-Fi) with Two additional Cartridge</li> </ul>			
2.	<p><b>Operating Software :</b></p> <p>The software should be user friendly, capable of controlling the entire functions of UHPLC and HR MS/MS, with required licenses for systems suitability calculations; all accessories required for its operation should be quoted</p> <p>Full-fledged reporting facility with capability of customized user-designed report format should be available</p> <p>Software for automating differential analysis of pesticides, metabolites, forensic toxicology, proteins, and peptides, new advanced algorithm for small molecule peak detection that facilitates.</p> <p><b>Application Software :</b></p> <p>Application software should come with following functions</p> <p>Software for automating differential analysis of pesticides ,metabolites, forensic toxicology, proteins, and peptides, new advanced algorithm for small molecule peak detection that facilitates</p>			<p><b>Attach Brochure/ Details</b></p>

	<p><b>Empirical formula:</b> from the m/z value from spectra with algorithm for better matching.</p> <p><b>Fragment prediction:</b> For metabolite identification - Ability to store data dependent information as trees – and search (navigation) Component detection &amp; Predict fragmentation with mechanisms Software with HRMS database should be quoted.</p> <p><b>Compound database:</b> should have up to date compound HRMS libraries and fragments with different energies of collision dissociation.</p> <p>ACD or similar Structural prediction software and structural drawing software</p>			
3.	<p><b>Server System( Work station)</b>  <b>Quote branded server with below specification or higher make with three year warranty</b></p> <p>CPU:AMDRYZENTHREADRIPPER1900X  Cooler: AMD THREADRIPPER supported 2/3 fan cooler from Fractal Design, Corsair or Cooler Master  Mother Board: Gigabyte X399 DESIGNARE EX (or Gigabyte X399 Aorus Gaming 7)or latest/better version  RAM: G. Skill Trident Z RGB(For AMD)] F4-3200C14Q-32GTZR  DDR4-3200 (PC4-25600) (8GBx4 = 32GB) or better  OS Storage(boot) NVMe SSD M2: Samsung 960 EVO 500 GB  Storage- HDDsin RAID 1(Mirroring). 2 nos: Western Digital Red 6TB Internal Hard Drive  Graphics card : MSI RX 580 ARMOR 8GB or latest version  SMPS: Antec HCG 850or higher/better  Case: Cooler Master TROOPER SE Black  Display: LG 21.5 inch Full HD LED Backlit Monitor  Logitech Multimedia Keyboard and Mouse combo  OS: Windows 2012 R2/2014 R2, MSSQL Server/ Oracle.  D-Link DES-1024C 24-Port 10/100Mbps Ethernet Switch  Ethernet cables and Jacks for connections</p>			

#### D. SYSTEM PERFORMANCE REQUIREMENTS:

The requirements in this section pertain to the working requirements of the system. Any claims made in the compliance should be substantiated by giving suitable detailed outputs from the quoted model of the instrument generated **at the applications laboratory of the supplier**, in the form of report for easy reference. The reports should necessarily include the instrument output data, graphs and chromatograms. The claims in the compliance statement should be demonstrable, at the time of installation. **The submitted data should be reproduced in the presence of Kerala Agricultural University Officials/ other mass spectrometry specialists from outside the university assigned for the job, if deemed necessary.**

	Required technical specifications	Complying? (Yes/No)	Remarks	Documentary evidence enclosed?
1.	<b>Sensitivity of the instruments:</b> The sensitivity in full scan mode should be S/N >500:1 or 3000 area counts for 1pg of reserpine reference standard on column injection at 40000 FWHM to be shown with chromatogram. Lowest sensitivity of the instrument should be measured by serial injection of reserpine standards where the instrument showing minimum measurable response from Noise. For linearity study, a calibration curve should be plotted from the LOQ value to the highest linear range with R <sup>2</sup> value of 0.999 and also establish the LOD and LOQ attainable in full scan mode.			YES/NO
2.	<b>Sample Analysis</b> The bidder should analyze the cardamom and Chilli sample spiked with pesticides and report results using the quoted model of the instrument. The spiked sample provided at the time of <b>Pre-Bid meeting</b> to find the application capability of the instrument and software for the intended purpose. Provide High resolution Chromatograms and methods used for the estimation of residues.			YES/NO
3.	Pre-configured and optimized methods, using reference standards, for analysis of pesticide residues and mycotoxins, veterinary drugs, Drugs of abuse, antibiotics, metabolites (Provide details)			YES/NO



	<p>Full Scan data and HR MS/MS spectra for a wide range of compounds including pesticide residues, mycotoxins, veterinary drugs, antibiotics, metabolites and allergens for screening and quantitation. Give a separate list of pesticides residues, mycotoxins, veterinary drugs, drugs of abuse, toxicological substances, antibiotics, metabolites and allergens. LOD, LOQ and the matrices in which they are validated in your application laboratory in India / abroad or in any user's laboratory in India where the same model of LC-Q-ToF/Q-Orbitrap High resolution mass spectrometer is used. (Provide details)</p>			<p>YES/NO</p>
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### TRAINING

The Supplier, at his own cost shall impart the following four phase training to Scientists and Analysts of PRRAL, AINP on Pesticide Residues, Vellayani.

1. On site operation & maintenance training at the time of installation for two Scientist and two Analysts for a period of one week.
2. One week advanced training for two Scientists and two Analysts on operation, method development, maintenance, software, data interpretation (qualitative and quantitative, unknown identification), etc. at the manufacturer's international application laboratory
3. Two weeks training at the manufacturer's application laboratories to two Scientist and two Analysts on sample preparation, calibration standards preparation, operation, method development, maintenance, software, data interpretation (qualitative and quantitative), etc.
4. Over and above onsite training should be provided by the supplier on demand during the warranty period.

**E. ACCESSORIES:**

All accessories required for the trouble free installation, demonstration and operation of the system during the **warranty period** should be quoted.

	<b>Required Technical Specification</b>	<b>Complying (Yes/No)</b>	<b>Remarks</b>	<b>Documentary Evidence enclosed?</b>
<b>Gas Generator</b>				
1.	Gas generators capable of supplying <u>all necessary gases</u> with the required purity, pressure, and flow rate as required for Q-ToF/Q-Orbitrap high resolution mass spectrometer at a time should be provided. It should be complete, with all necessary accessories			
2.	If gas generators for a required gas is not available, two cylinders each of all required gases with regulators for operation of the system should be provided, to be quoted from local sources for supply at the installation site			
3.	In case external compressors are required for the gas generators, the same should be portable, noise less and highly durable			
<b>Spares and Accessories</b>				
1.	<b>UHPLC Columns</b>  1. Suitable UHPLC Branded columns used for polar and nonpolar Pesticide residue analysis in food matrix- 10 nos  2. Suitable UHPLC Branded columns used for mycotoxins analysis in food			

	<p>matrix- 2 nos</p> <p>3. Suitable UHPLC Branded columns used for metabolites and toxicology residue analysis - 3 nos</p> <p>4. Suitable UHPLC Branded columns used for antibiotic residue analysis - 3 nos.</p>			
2.	All required standards for daily mass calibration and turning, and any other material required to make the instrument functional should be provided			
2.	Certified LC- MS vials 1.5 ml of 10000 numbers complete with septa and cap, should be included			
3.	An ultrasonic bath suitable for cleaning parts of UPLC and MS should be included			
4.	<p>Solvent filtration system (Millipore make) full set-1 nos.</p> <p>Luer lock syringe with needle (10 nos.)</p> <p>PVDF Disc filters 13mm, 0.22µ disposable - (3000nos)</p>			
5	High quality CE marked Electronic micro pipette single channel- Variable volume 100µl-1000 µl-2 nos, Variable volume 10µl-100 µl-2 nos, Variable volume 1000µl-5000 µl-2 nos, Variable volume 1ml-10 ml-2 nos. 1000nos filter tips with each variable volume micro pipette.			
6	<p>Dispenser 10-60 ml- 5 nos</p> <p>Dispenser 5-30 ml- 5 nos</p>			

7	Standard mass spectrometer bench with sturdy frame and drawers in first quality teak wood, black granite on bench top with sufficient bench-top area to accommodate UHPLC-Q-ToF/Q-Orbitrap high resolution mass spectrometer and Data Station and Chair.			
8	Solvent reservoirs- 8 nos (full set with cap and seal) (1 liters).  Solvent reservoirs- 8 nos (full set with cap and seal) (500 ml).			
9	UPLC seals, Peek tubing's, auto-sampler needle assembly, Mixer, Pump Oil ,tubes, connectors, filters, ion transfer tubes and other consumables required for the smooth functioning of the Q-ToF/Q-Orbitrap high resolution mass spectrometric system during the warranty period.			

	<p><b>UPS</b></p> <p>A UPS system(Compliance with IEC specification input and output)of <b>30 KVA</b> Riello make with parallel redundancy feature to networking with the similar UPS</p> <p>Specification</p> <p>Three phase input/ Three Phase output with built in oscilloscope to monitoring the output sine wave, True On line double conversion, DSP/Microprocessor/Microcontroller based, standard EN 50091 / TEC 62040, CE marking, EN 5009 1-2 / IEC 62040-2 Class A, Input voltage Range-330V to 450V Phase to Phase, Input frequency- 50 + 10% (45-55Hz), Power factor- <math>\geq 0.9</math>, Nominal UPS output voltage- 3x415V + N (Site Programmable), Output Power factor- 0.9 or better, <b>Output isolation transformer.</b> Overall efficiency at 100% load - <math>\geq 90\%</math> at 100% load, Output Voltage THD - According to EN 500891, Output Frequency -50Hz <math>\pm 0.05\%</math>, Connectivity Options- Required connectivity forRS232, SNMP Card, Parallel redundancy kit With <b>Quanta</b>, 150 AH SMF batteries (Minimum 57000VA) and with comprehensive warranty of minimum 5 years for UPS and two years battery should be quoted. Free service for the UPS and batteries for a period of 3 years after warranty expiry should be provided.</p>			
2	<p>Air conditioner-Two 1.5 ton O-General air conditioners with inverter technology and energy star rating with stabilizer should be provided.</p>			

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**OPTIONAL ITEM TO BE QUOTED SEPARATELY (Financial part separately Quoted)**

1.	<p>Latest model Gas Chromatograph with ECD and PFPD Detector with One PTV with back flush and One SSL with back flush injector, Advanced pressure/flow controller, Fast Oven heating /cooling, 150 vial capacity auto-sampler for both injection port, computer, software , printer and other essential accessories with Five Year warranty – 1 Nos</p>			<p><b>Attach Brochure/Details</b></p>
2.	<p><b>Laboratory Information Management System(LIMS)</b></p> <p>The LIMS system proposed should have the following minimum specifications.</p> <p>Client – Server Laboratory Information Management System, specifically defined as LIMS is required to be quoted. The entire software with all modules must be from the single OEM and not from multiple 3<sup>rd</sup> party vendors.</p> <p>Minimum 2 users must be able to work simultaneously on the system. LIMS must have minimum 3 levels of (user, reviewer and authorizer) sign off with electronic signature.</p> <p>It should provide facility to log in samples with sample lifecycle “un Received’ and change the status changing as the steps progress like Received, Available. Each stage</p>			<p><b>Attach Brochure/Details</b></p>

<p>change should have an editable time stamp and audit trail</p> <p>It should be possible to create barcode labels for the logged in samples.</p> <p>System should allow a set of tests be assigned, or allow individual tests be selected and assigned to sample. It should be possible to verify the tests allotted and edit tests (add/ remove) for each sample as required.</p> <p>It should be possible to attach SOPs to samples and prepare samples using electronic version of SOPs as steps to execute.</p> <p>It should have interface instruments to automatically record the results from instrument files. It should allow for manual entry of results.</p> <p>It should have configuration for Instrument calibration, maintenance schedule for allowing/ not allowing an instrument be used for analysis.</p> <p>It should have configuration for user qualification with user training records be recorded for allowing/ not allowing a user to carry out an analysis.</p> <p>It should have Certificate of Analysis report be generated from the system</p> <p>The OEM of LIMS should have ISO 9001 certification for development, implementation and after sales support for the LIMS software quoted and the certificate be currently valid.</p>			
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3.	<p>Blender- model Knife Mill GRINDOMIX GM 300- 1 nos</p> <p>Retsch” Knife Mill Grindomix Model GM 300- 1 No Complete with grinding container 5 litre of autoclavable plastic, standard lid, knife and scraper 220-230 V, 50/60Hz Specifications : Applications : size reduction, homogenization and mixing Fields of application : agriculture, biology, food, medicine / pharmaceuticals Feed material : soft, medium-hard, elastic, fibrous, containing water / fat / oil dry Material feed size* : &lt; 130 mm Final fineness* : &lt; 300 µm Batch size / feed quantity* with standard lid : 4,500 ml with gravity lid : 4,000 ml Speed setting : digital, 500 – 4,000 min -1 Knife diameter : 180 mm Knife peripheral speed : approx. 4.8 – 38 m/s Number of blades : 4 Grinding time setting : digital, 5 s – 3 min Interval mode : yes Reverse mode : yes SOPs : 10, programmable Technical data Drive power : 1,100 W (short-term peak 3,000 W) Noise values (noise measurement according to DIN 45635-31-01- KL3) Emission value with regard to workplace* LpAeq 76.7 dB(A) <b>Additional Accessories</b> 1. - Grinding container stainless steel, incl. knife holder- 02.045.0055- 1 No.</p>			<b>Attach Brochure</b>
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	<p>2. Grinding container, autoclavable plastic(transparent and scratch-resistant) incl. knife holder- 02.045.0056 - 1 No.</p> <p>3. Set of gaskets for lids, 10 pieces- 22.111.0002 -</p>			
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### F. TERMS AND CONDITIONS

	Required Technical Specification	Complying (Yes/No)	Remarks	Documentary Evidence enclosed?
<b>1</b>	<p>All items should be quoted, including accessories and consumables for the instruments should be delivered and installed at the following site: PRRAL, AINP on Pesticide Residues, College of Agriculture Vellayani, Trivandrum, Kerala, India Pin: 695 522</p>			
<b>2</b>	<p>A comprehensive warranty for 5 years including PM kit for the complete equipment including independent accessories like Gas generator and UPS should be provided except, columns, and vials. The warranty should include providing calibrant, mass calibration performed every day with NIST traceable valid calibrant solution provided by the vendor. In case of breakdown, service should be available onsite within 24 hours (See section 3 below). After the warranty period, three year AMC charges should be included in the financial bid.</p>			
<b>3</b>	<p>The instrument manufacturers or an authorized agent bidder should have minimum Five years' experience in</p>			

	<p>the installation and commissioning of LC-QTOF/Q-Orbitrap high resolution mass spectrometer and should have application laboratory in India and after sales service support with readily available spares. The users list for the LC-QTOF/Q-Orbitrap high resolution mass spectrometer during the five year period with customers purchase order with date, contact addresses, emails and phone numbers should be provided (See section 4 below) and certificate of performance of the quoted model from the above reputed customers.</p>			

**SIGNATURE OF TENDERER**

**SEAL OF THE COMPANY**

**DATE**

### Section III: Comprehensive Warranty

#### LC-Q-ToF/Q-Orbitrap high resolution mass spectrometer

In case more than one model/combination is quoted, attach separate sheets for each.

Comprehensive warranty for instrument model: \_\_\_\_\_

	<b>Required Technical Specification</b>	<b>Complying (Yes/No)</b>	<b>Remarks</b>
	The comprehensive warranty period should be 5 years covered with PM kit for UHPLC, HRMS, and all supporting instruments. All breakdown of the instrument should be addressed within 24 hours by an onsite visit.		
	All parts of the instrument, accessories, consumables and supporting instruments should be covered under the warranty, excluding vials and columns.		
	The equipment should be installed at the proposed site demonstrate the required objective of the test with the claimed limit of detection/quantification with the sample provided.		
	Thorough training should be given to the Two Scientist and four Analyst staff at the application laboratory and on site, for the operation of the instrument on demand.		
	Any other accessories/requirements like UPS, gas cylinders etc. gas generator should be quoted and supplied with the instrument		

**Section IV: Users List of Quoted Model in India by the Bidder**

**LC-Q-ToF/Q-Orbitrap high resolution mass spectrometer**

In case more than one model/combination is quoted, attach separate sheets for each. Additional copies of this page may be used in case of number of users is large.

User list for instrument model: \_\_\_\_\_

\*Please mention the Operational status as one of the following: Installation Only/In Operation. Do not include instruments that are not installed or not operational as of the date of opening of the tender.

User Name & Addresses	Date of installation	Current Operational status of the instrument*	Area of analysis	Name of the contact person	Designation	Contact number	Email ID	Details of application training given to the analysts (details of venue and trainees)

**Annexure II: Summary of Financial Bid  
LC MS/MS System**

This sheet is to be attached as a covering sheet along with the financial bid of the quoted instrument. Incase more than one instrument /model is quoted, separate sheet have to be attached with each quotation.

**Financial summary for the instrument model:** \_\_\_\_\_

Price Description		Price	Remarks (if any)
Quoted currency			
Total instrument Cost, Comprehensive Warranty Charges for 5 years, including essential consumables, spares and imported supporting Instruments in USD	[a]		
Conversion Factor to INR*	[b]		
Price in INR ([a] X [b])	[c]		
Cost of supporting Instruments and accessories quoted in Indian rupee	[d]		
AMC Charges for 3 years (after warranty)	[e]		
Any other charges like Customs Duty, GST etc.	[f]		
[c]+[d] +[e] + [f] =	[g]		
<b>Total cost of the instrument</b>	[g]		

\*Use the conversion factor as on the date of submission of the quotation.

\*\*Give full list of items quoted in Indian Rupees separately.

**The price of the optional items should be separately attached and marked as “Optional Item Price”**

Declaration by the Tenderer

It is hereby declared that the details given above are correct as pertaining to the quoted model. The formal financial bid is enclosed including all relevant details.

SIGNATURE OF TENDERER

SEAL OF THE COMPANY