



**KERALA AGRICULTURAL UNIVERSITY**  
**Regional Agricultural Research Station (Southern Zone)**  
**College of Agriculture, Vellayani, Trivandrum 695 522.**

No.RARS /SZ (3)/2590 /2022

Date:19.08.2022

**e Tender Notice**

e-Tenders (online bids only) are invited in **Two Bid System** through Kerala Government Official e-Procurement portal <http://etenders.kerala.gov.in> for the supply, installation, commissioning, demonstration and training of **GC-MS/MS system and accessories** as per terms and conditions in Annexure III and the technical specifications in Annexure IV as attached. General information about the tenderer is to be furnished as in Annexure I. Preliminary agreement to be executed in the format given in Annexure II, Performance Criteria as Annexure V, Comprehensive Warranty as Annexure VII and users list as given in Annexure VIII.

<b>Tender Details</b>		
1	Name of the equipment	<b>GC-MS/MS system (1 No.) with listed accessories</b>
2	Tender inviting Authority	Associate Director of Research, RARS(SZ), Vellayani
3	<b>Location of supply and installation:</b>	<b>AICRP on Honey Bees and Pollinators, RARS(SZ), College of Agriculture, Vellayani Thiruvananthapuram, Kerala 695522</b>
4	Date of Publication of Tender	19.08.2022
5	Last Date of Receipt of Tenders	20.09.2022
6	Date and Time of Opening of Technical Bid	22.09.2022
7	Earnest money deposit (EMD)	Rs. 1,00,000.00
8	Tender submission fee	Rs. 15,000.00
9	Mode of submission of Bid	Online
10	Period of firmness of the tender offer	180 days
11	Submission of performance security	21 days from issue of purchase order
12	Period of supply and installation	Within 60 days from date of purchase order

**Documents to be submitted along with bid through online and speed post**

<b><u>Through Online</u></b>		
1	Duly signed Tender form	Original
2	Undertaking that <b>not debarred</b> by the Vendor as per tender form	Original
3	Under Taking of Support for next 15years	Original
4	Scanned copy of valid dealership certificate	Signed copy
5	Scanned copy of duly filled e-payment form	Signed copy
6	Scanned copy of EMD Exemption Certificate & other certificates (Enlistment with DGSD, upto date GST registration certificate, PAN) required, if any, for tender acceptance	Signed Copies
7	<b>Duly filled and signed copy of general information about the tenderer as in annexure 1</b>	Original
8	Scanned Copy of duly filled <b>preliminary Agreement in stamp paper</b> of Rs.200/- as in annexure ii,	Original
9	Signed Eligibility Compliance Sheet, Terms and Conditions of Contract technical compliance matrix & as in annexure iii & iv	Original
10	Scanned copy of PERFORMANCE CRITERIA: as in annexure V done in the application <b>Laboratory of the vendor including the lab reports and MS Chromatograms</b>	Original
11	List of Customers of <b>quoted GC-MS/MS system model / similar in India for the last five years</b> in the prescribed format as in annexure VII	Signed copy
12	At least one <b>latest</b> Purchase Order copy for Supply & Installation of the proposed model of GC-MS/MS system in India	Signed copy
13	Technical Brochure of the Quoted Models of equipment signed by the Principals	Signed copy
14	CAMC for Five years during 6th, 7th, 8th 9th, 10th year of installation	Original (sealed) should be supplied
15	BOQ	Hard copy not required

## **Instructions to the bidders**

1. **Payment of tender fee and EMD must be done online only** as a single transaction at *www.etenders.kerala.gov.in*.
2. Bidder has to pay the GST for Tender fee @ 18% directly to GST department under Reverse Charge Mechanism. (Please refer serial no. 6 under Announcement tab in *www.etenders.kerala.gov.in*)
3. Bids and Tender Documents, signed Physically and / or Digitally with a valid Digital Signature Certificate, are to be submitted **online** in the given formats
4. All items must be quoted and must comply with the respective Specifications
5. All corrigenda shall be published online only and shall not be available elsewhere.
6. Compliance statement should be submitted in the format only. The technical bid is to be submitted in this form, duly signed by the authorized signatory. The tenderers attention is invited to clause 1 (A) of form DGS&D 231 “Instructions to tenderers” whereby they are required to furnish clause by clause compliance of specification bringing out clearly deviation from specification, if any in the compliance statement formats appended. Any incompleteness in filling up this form may result in rejection of the quotation.
7. Specification claimed must be supported by printed company datasheets and brochures.
8. The equipment should have the minimum (Basic) technical specification cited or better
9. All items required for the full-fledged function of GC-MS/MS system and accessories should be from the same supplier, including software
10. The best model fitting the specification must be quoted. Vendors if quoted for lower end model while the same manufacturer is having better model meeting the above tender specifications, the technical committee shall take decision to disqualify.

For further details /clarifications, send email to [amirtha.vs@kau.in](mailto:amirtha.vs@kau.in)

**Eligibility Criteria**

<b>Sl. No</b>	<b>Criteria</b>	<b>Compliance (Yes / No)</b>	<b>Proof /remarks / deviations</b>
1	Authorization certificate must be attached if the bidder is a dealer		
2	The supplier must have sold at least one number of <b>GC-MS/MS system</b> during last one year, preferably same model		
3	If bidding through an authorized agent, bidder should have minimum five years' experience in the installation and commissioning of the equipment; should have application laboratory in India and after-sales service support with readily available spares.		
4	Vendor should have repair, maintenance and upgradation facility in India.		
5	Undertaking that the spares for the entire instrument will be available for a period of at least 15 years after the model of equipment supplied has been phased out and for frequently required spares, there will be adequate inventory with the Indian agency		
6	The Bidder Should not be Debarred/ Blacklisted or Banned from any University/ Government Institute / PSU and must produce an undertaking to this effect		
7	The users list of the same or similar model during last five year period in the given format as per <b>annexure VIII</b>		
8	Purchase Order and performance certificate of the quoted model of Equipment from reputed customers.		
9	Service center in India		
10	Minimum two technically trained engineers based in South India for the vendor preferred		
11	Copy of up-to-date GST registration certificate & PAN must be submitted along with the Technical Bid		
12	Agreement executed in Kerala Stamp Paper worth Rs.200/-		
13	The bids should be sent only for equipment model available in the market and supplied to a number of customers		
14	Tenders with market standing with proven quality and durability only will be entertained		
15	Vendor should complete the performance evaluation given as per annexure V with supporting documents		

**ANNEXURE I**

**GENERAL INFORMATION ABOUT THE TENDERER**

1	Tender reference No.	
2	Date of submission of tender offer	
3	Details of EMD submitted (if any)	
4	Tender submitted by	
	Name of the Tenderer	
	Registered address of the firm with GSTIN	
	Telephone No	
	Email	
5	Name of Principal Supplier (if not self)	
6	Authorization by the Principal supplier (Attach details)	
7	Authorized contact person	
	Designation	
	Telephone No	
	Mobile No.	
8	<b>Communication Address</b>	
	Telephone No	
	Email	
	Registration No. & Date of Registration	
9	<b>Nature of Business</b>	
	OEM, Authorized dealer, Direct importer	
10	<b>Key personnel Details (Chairman, CEO, Directors, Managing Partners etc. )</b>	
	<b>Name</b>	
	<b>Designation</b>	
	<b>Communication address</b>	
	Telephone No	
	Email	
11	<b>Bank Details</b>	
	Bank Account No.	
	Bank Name & Address	
	Branch Name & IFSC Code	
	Telephone No & Email ID	
12	List of supporting documents submitted along with the tender	
	Any other relevant information	

Office seal

*Signature of the tenderer / Authorised signatory*

Date

**ANNEXURE II**

***(Send duly filled & signed hard copy of the agreement in Kerala Stamp Paper worth Rs. 200/- purchased in the name of the Contractor to the tender inviting authority, &upload scanned copy)***

**A G R E E M E N T**

Articles of agreement executed on this the \_\_\_\_ day of \_\_\_\_\_, two thousand and \_\_ \_\_ between \_\_\_\_\_ (here enter the name and address of the purchasing officer) for and on behalf of the Vice-Chancellor, Kerala Agricultural University, (hereinafter referred to as "The University") of the one part and Sri. \_\_\_\_\_(H.E. name and address of the tenderer) (hereinafter referred to as "the Bounden") of the other part.

WHEREAS in response to the notification no. \_\_\_\_\_ dated \_\_\_\_\_, the Bounden has submitted to the University a tender for the supply of \_\_\_\_\_ specified therein subject to the terms and conditions contained in the said tender.

WHEREAS the Bounden has also deposited with the University a sum of Rs. \_\_\_\_\_ only as earnest money for the execution of an agreement undertaking the due fulfilment of the contract, in case his tender is accepted by the University.

NOW THESE PRESENTS WITNESS and it is hereby mutually agreed as follows:

1. In case the tender submitted by the Bounden is accepted by the University and the contract for the supply of any item of \_\_\_\_\_ as per the above notification is awarded to the Bounden, the Bounden shall within fifteen days of acceptance of his tender, execute an agreement with the University incorporating all the terms and conditions under which the University accepts his tender.

2. In case the Bounden fails to execute the agreement as aforesaid incorporating the terms and conditions governing the contract, the University shall have power and authority to recover from the Bounden any loss or damage caused to the University by such breach as may be determined by the University, by appropriating the earnest money deposited by the Bounden and if the earnest

money is found to be inadequate, the deficit amount may be recovered from the Bounden and his properties movable and immovable in the manner hereinafter contained.

3. All sums found due to the University under or by virtue of this agreement shall be recoverable from the Bounden and his properties movable and immovable under the provisions of the Revenue Recovery Act for the time being in force as though such sums are arrears of land revenue and in such other manner as the University may deem fit.

In witness whereof the \_\_\_\_\_ (here enter the name and address of the purchasing officer), for and on behalf of the Vice-Chancellor of Kerala Agricultural University and Shri. \_\_\_\_\_, the Bounden, have here unto set their hands the day and year shown against their respective signatures.

Signed by Shri. \_\_\_\_\_ (date) \_\_\_\_\_

In the presence of witnesses:

1.

2.

Signed by Shri. \_\_\_\_\_ (date) \_\_\_\_\_

In the presence of witness:

1.

2.

## *ANNEXURE III*

### TERMS AND CONDITIONS OF THE TENDER

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

1. Pre-bid meeting of the prospective tenderers is scheduled on **31.08.2022 at 11 a.m**

Tender should be submitted in the prescribed tender document downloaded from the website Kerala Government Official e-Procurement portal <http://etenders.kerala.gov.in> . 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 scope of the work is divided into following components:

- a) Providing, Installing and commissioning Testing of the equipment Gas Chromatograph Tandem Mass Spectrometer (GC-MS/MS) along with all accessories

- b) Operation and maintenance of equipment during the contract period.

2. All items should be quoted, including accessories and consumables for the instruments should be delivered and installed at the following site: AICRP on Honey Bees & Pollinators, **Quality Control Lab for Honey, RARS(SZ), College of Agriculture, Vellayani, Trivandrum, Kerala, India Pin: 695 522**

3. A comprehensive warranty for five years for the complete equipment. This warranty covers all the consumable /spares for fiveyears from the date of installation. The warranty should include instrument calibration and mass calibration performed yearly with valid NIST traceable OFN solution provided by the vendor. In case of breakdown, service should be available onsite within 48 hours. After the warranty period of five years, AMC for three years also should be Quoted in the financial bid.It shall also be mandatory to perform calibration after every major repair/breakdown. The vendor should have available for ten years guaranteed parts.The instrument software license and support should be available for a period of ten years. Any software upgrades happening during this period should be made available free of charge. All parts of the equipment should be covered during warranty and AMC period.

4. The quoted model should have a minimum of three successfulinstallations in India. The users list for the GC-MS/MS during the five-year period with customers Purchase order with date, contact addresses, emails and phone numbers should be provided (**annexure VIII** below) and certificate of performance from the above reputed customers.

5. Backup software and any further version of the software and updates must be provided free of cost for 10 years

**6. 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.

7. Performance Security : On receipt of purchase order from this office, the tenderer should execute another agreement in Kerala Stamp Paper worth Rs.200/- (Rupees one 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 Associate Director of Research, RARS(SZ), 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.

8. 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.

9. 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.

10. Original printed catalogue (not any photocopy) of the quoted model duly signed and sealed by the principals must accompany the tender.

11. Performance criteria (Section 3.2) 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 analytes 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.

12. 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.

### **13. 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 etc.
4. Manufacturer's/Supplier's warranty certificate;
5. Inspection certificate issued by the nominated inspection agency
6. Supplier's factory inspection report.
7. Certificate of origin.
8. Delivery note and acknowledgement of receipt of goods from the consignee

#### **14. 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.

15. 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.

16. 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.

**17. Warranty/Guaranty: The offer should clearly specify Five years' warranty including all the spares/accessories and consumables required for the smooth and continuous functioning of the equipment.**

18. Users list: The offer should include a list of detailed users in the format given in section 6.

19. Late Offer: The offers received after the due date and time will not be considered.

20. 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.

21. 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.

22. The tenderer must sign and affix seal on every page of the tender document and furnish a certificate acknowledgement as shown below.

23. Bid Currencies

**Prices shall be quoted in Indian Rupees.:-**

**1. For goods and services that the Bidder will supply the prices should be quoted in the Indian Rupees.**

**24. The cost of the item, insurance and freight (CIF) and charges for delivery of item at AICRP on Honey bee and Pollinators, QC Lab for Honey, College of Agriculture, Vellayani should be separately stated. For imported items, clearing charges, customs and excise duty (whether applicable) and charges for insuring up to AICRP on Honey bee and Pollinators, QC Lab for Honey, College of Agriculture, Vellayani against all risks including total loss for CIF value plus 10% should be included in the insurance charge. Prices inclusive of GST and other taxes and Installation charges may be indicated separately wherever applicable.**

**25. Payment**

Payment shall be made in the **Indian Rupees.**

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

1. On delivery at site: Eighty (80) % 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.

2. On Final Acceptance: After installation, commissioning and demonstration of performance claimed. 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.

26. Country of origin, Country of import and port of shipment should be specifically written in the Tender document.

27. 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.

28. 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 accompanying tenders are subject to rejection.

**29. After Sale Service-**

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. **During the warranty and AMC period, three preventive maintenances per year and unlimited break down visits, calibration of the instrument at regular intervals and application training on request should be provided by the firm.**

**30. Operation and maintenance & Training Component**

The supplier will have to carry out successful installation at our laboratory premises (where ever the system has to be installed) and provide on-site comprehensive training for scientific personnel operating the system and support services till customer satisfaction.

**Acknowledgement by the tenderer:**

It is hereby acknowledging 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)

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Instrument: GC- MS/MS system

**All items required for the full-fledged function of an advanced, high sensitive bench top GC-MS/MS system for the analysis of volatiles, Pesticide Residues, Dioxins, PCBs, PAH and other natural and Synthetic organic compounds satisfying all international (EU, USFDA, USEPA, etc.) and national guidelines for the analysis of the aforesaid compounds. The software should have full-fledged capability of calculating system suitability, quality control parameters, both for MS and GC system and software configuration must be 21 CFR Part 11compliant, including accessories and supporting instruments as outlined below are to be quoted.**

Quotation reference:

**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 would result in rejection of the Tender.**

**Section 1: Details of the Tender**

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

## Section 2: Compliance with Technical Specifications

### GC- MS/MS System

(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 GC MS/MS System, 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**

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

Quoted model:

	Required Technical Specification	Complying (Yes/No)	Remarks	Documentary evidence enclosed?
1.	<b>Gas Chromatograph</b>			
2.	<b>Interface</b>			
3.	The GC must feature an external screen to provide easy accessibility to the GC and immediate interactions with it.			
4.	The screen of the GC must provide all needed data, including all temperature and pressure/flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters			
5.	GC should have routine automatic column evaluation procedure and storing the column pneumatic resistance. It should also allow an automated correction of the nominal column parameters.			
6.	The system should be capable of calculating the carrier gas linear			

	velocity and the column void time.			
7.	<b>Oven</b>			
8.	The column oven should have an operating range from -20°C to 450°C using the optional sub ambient oven accessory.			
9.	Fast heat-up time-100 °C/min or more			
10.	Fast cool-down time 450 °C to 50 °C within 4 minutes or better			
11.	The oven temperature stability is within 0.01 °C/ every °C of actual temperature			
12.	The Operating temperature Range should be 4 °C above ambient to $\geq 450$ °C			
14.	Oven Ramps/Plateaus Cool down It should have number of ramps/plateaus: 20/21			
<b>Injector</b>				
1.	One Split/Split less as Standard			
2.	One PTV/Multimode injector with backflush as Standard			
3.	The injectors should be able to operate with narrow bore capillary, normal capillary and wide bore columns.			
5.	The injector should permit <i>large volume split less</i> injection (up to 50 microliters) without requiring pressure pulse to quantitatively recover the whole sample			

6.	The injector should allow timed closure/opening of the purge line.			
7.	Maximum Temperature should be $\geq 400$ °C			
8.	Split Ratio: $\geq 7500:1$			
9.	Pressure in the range of Range: 0-1000 kPa			
10	Column connection to Mass Spectrometer (a) The column oven should accommodate both capillary column simultaneously. (b) Facility should be available for connecting either column to the MS transfer line easily and quickly by the user, and without breaking the MS vacuum.			
11	Column backflush System • The system should have column backflush capabilities using advanced flow technology to eliminate long bake-out times for highly retained or high-boiling contaminants. • This should have flexibility to configure Pre-Column, Post Column or Mid column backflush configuration (or similar technology) according to application requirement			
12	GC Analytical Performance			
	GC Analytical Performance: The GC should have a Retention Time Repeatability of 0.0008min or better. The Peak Area repeatability should be less 1% RSD			Data to be uploaded as PDF

13.	<b>Detector-Triple quadrupole</b>  <b>The triple quadrupole GC-MS/MS should have following specifications:</b>			
14.	<b>Mode (MS)</b>  It should have Full scan, SIM, timed-SIM, combined full scan/SIM, combined full scan/timed/segmented -SIM modes			
15	<b>Modes (MS/MS)</b>  It should have MRM(SRM), timed/segmented MRM (SRM), combined MRM(SRM), /full scan, combined timed/segmented / MRM(SRM), /full scan, product ion scan			
16.	<b>Software Features</b>  It should have Automated MRM/(SRM) Development  It should have Automated acquisition window adjustment based on retention time  It should have Compound based acquisition method setup			
1	<b>Ion Source (EI)</b>			
	It should have EI source, with dual filaments, heated up to 350 °C			
2	The system should have facility to reduce neutral background without requiring signal thresholding, background subtraction or smoothing			
3.	<b>Detector</b> -A high sensitivity, high throughput detector with zero dead time, low noise and high accuracy at low level detections.			

4.	The detection system should have linear range $>10^6$			
	<b>Mass Range</b>			
5.	Mass Range: 10 to 1050 amu or better			
6	Mass resolution – up to 0.4 amu			
7	Dwell time: 0.5 msec.			
8	Mass analyzer: Heated Quadruple or pre rod design with Quadruple			
9	Mass axis stability: $\pm 0.1$ amu over 24 hours			
10	Detector: Sealed long-life electron multiplier tube (or equivalent technology)			
11.	<b>Scan Speed</b>  The MS should have scan speed $> 20000$ a.m.u/second or better			
12	MRM/SRM speed: 800 transition / second.			
13	<b>Pumping Systems</b>  It should have a high capacity ( $>300$ L/s He) turbo molecular pump (TMP)			
14.	<b>Electron Energy</b>  Electron energy range: 10-150 eV			
15.	<b>Emission Current, dual filaments</b>  It should have emission current up to $200 \mu\text{A}$ , with improved regulation at low current			

17.	<p><b>Transfer Line Temperature</b></p> <p>The Maximum Temperature should be <math>\geq 350</math> °C</p>			
18.	<p><b>Performance Specifications using octafluoronaphthalene (OFN)</b></p>			
19.	<p>Sensitivity of the instruments: In EI MRM (SRM), transition 272-222/241 at unit resolution (0.7+/-0.1 a.m.u), demonstrate that Instrument detection limit for OFN is 0.5 fg or better.</p>			Data to be uploaded as PDF) S/N 0.5 fg OFN
20	<p><b>Fully automated Auto sampler with Liquid, Head space, Reference Standard mixing and SPME capabilities</b></p>			
21	<p>The GCMS/MS should be supplied with at least 240 vial auto samplers capable of injecting both the ports in S/SI injector and PTV which is capable of injecting in all installed injectors of GC-MS/MS with different methods.</p> <p>X,Y,Z Robotic system, Complete, with any injection systems: S/SL in split/splitless modes, , PTV, PTVLVI, easy installation of accessories.</p> <p>Auto sampler-Vial capacities- 1,2,10,20 ml, Multiple solvent rinsing capability, Syringe volumes ranging from low volumes to large volumes capability.</p> <p>Head space</p> <p>Syringe sizes-1, 2.5, 5 ml, Syringe Temperature range- 30°C to 200°C, 1.0°C increment, Incubation oven capacity- 6</p>			

	<p>vials,Incubation oven Temperature range- Ambient to 200°C, 1.0°C resolution</p> <p>SPME</p> <p>Sample Capacity- Up to: 96 x 10 or 20ml vials, Fiber Cleaning -Fiber Conditioning Station, 40°C-350°C, inert gas purged (2 ports), Incubator Oven-6 heated vial positions, On-fiber Derivatization – Desirable</p> <p>Sampler should have Standard mixing and Automatic Tool changing Capabilities</p> <p>Crumbing and Describing tool</p>			
22.	<b>Data System Software and Options</b>			
	<p><b>Computer-2 Nos.</b></p> <p>One computer used for data acquiring and the other for Data processing</p> <p>Latest model computer with High data processing capability andOriginal Windows software 64 bitand licensed PDF writer and converter, MS office latesest version, 24-inch LED Monitor with inbuilt speakers. Compatible with GC-MS/MS software.</p> <p>Quoted computer specification should clearly have mentioned in the tender document withfive-year warranty</p>			

	Multifunction Laser printer with three additional cartridges			
23.	It should have a software for controlling and acquiring all the GC-MS /MS, auto sampler, Head space and SPME			
24.	It should have customized Templates for reporting environmental and food safety market as per international protocols (EU, USFDA, etc.)			
25.	The latest version of the NIST, and any other library suitable for R &D work in natural products should be included.			
26	Built in database for the analysis of more than 1000 pesticides including MRM transitions, MS/MS parameters, full method for the easy running and for attaining maximum productivity.			
	The software should have full-fledged capability of calculating system suitability parameters, both for MS and GC			
27.	Full-fledged reporting facility with capability of customized user-designed report format should be available			
28	The software should necessarily have the following features:			
28	Retention-time based programming/monitoring of MRM scans, so that only desired MRMs are monitored in desired retention time ranges			

29	Automated quantitative data processing features			
30	Option for naming MRM transitions			

**B. 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 labs 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	Instrument Detection Limit: Instrument detection limit on OFN should be 0.5 fg or better with the injection of 1 ul of 2 fg/ul or less OFN standard. Vendor need to demonstrate IDL at the time of installation, so reference specification are not acceptable.			Data to be submitted with Bid, should be reproduced during visit to application lab.

	Required Technical Specification	Complying (Yes/No)	Remarks	Documentary Evidence enclosed?
<b>Gas</b>				
1.	Three cylinders each of all required gases (Helium, Argon and Nitrogen) for operation of the system should be provided, to be quoted from local sources for supply at the installation site			
2.	<b>UPS</b>			
	A UPS system (Compliance with IEC specification input and output) of <b>20 KVA</b> Riello /schneider/pillar or Similar make , 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- $\geq 0.9$ , Nominal UPS output voltage- 3x415V + N (Site Programmable), Output Power factor- 0.9 or better, Output isolation transformer. Overall efficiency at 100% load - $\geq 90\%$ at 100% load, Ouptut Voltage THD - According to EN 500891, Output Frequency -50Hz $\pm 0.05\%$ , Connectivity Options- Required connectivity for RS232, SNMP Card. 130 AH SMF batteries (Minimum 49920VA) and with comprehensive warranty of minimum 5 years for UPS and three years for			

	battery should be quoted.			
3.	Air conditioner five stars rated - Two 1.5 ton air conditioners with five star energy rating with stabilizer should be provided.			
4	Certified Reference Material (CRM) 3-O-alpha-D-Glucosyl Isomaltol Quantity 2.5mg Product code- TRC-G596875 CAS Number85559-61-1			

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

	<b>Essential Accessories quoted along with Each instrument</b>			
1	He gas filter - 2nos each (Moisture trap and oxygen trap)			
2	Conditioned Septa for GC High temperature injection (400 nos)			
3	Syringes - Auto sampler (10µL) - 10 nos.			
4	Head space Syringe -1 ml-3 nos			
5	SPME kit -2 nos for estimation of volatiles/residuals inhoney samples			
6	Filament –15 pairs(30nos) supply in three spells of 5 pairs each (firstyear, third year and fifth year)			
7	GC-MS 1.5 ml vials with cap and septa caps for auto sampler			

	- 10000 nos			
8	SPME vial with cap and Septa 10 ml-1000 nos			
9	SPME vial with cap and Septa 20 ml-1000 nos			
10	Graphite Ferrules for Capillary columns of 0.25 and 0.32mm id – 30 each			
11.	Inert Glass Liners with glass wool for Split injections 20 nos			
12	Inert Glass Liners with glass wool for Split less injections 20 nos			
13	PTV liner baffle liner-20 nos			
14	Oil for vacuum pump-8L			
15	Shortix Tubing Cutter 2 nos			
	<b>Capillary Columns</b>			
16	Ultra inert 60 m X 0.25mm i.d. X Film 0.25 µm Phase-1701-1 nos			
17	Ultra inert 30 m X 0.25mm i.d. X Film 0.25 µm Phase-5, -5 nos supply in three spells			
18	Ultra Inert 30 m X 0.25mm i.d. X Film 0.25 µm Phase-1- 1 nos			
19	Gas Cylinder for Argon and helium, Nitrogen filled (3 Nos each), with S.S. double stage regulator (3 Nos), with filter			
20	Standard Table with drawers in hard wood, black Granite on table top and Chair with sufficient bench-top area to accommodate			

	GC-MS/MS and Data Station.			
21	Gas purification station- 1 no. each for Helium, Argon and Nitrogen			
22	Necessary tool kit for routine maintenance of GC-MS/MS – 1 Nos.			

#### D. TERMS AND CONDITIONS

	Required Technical Specification	Complying (Yes/No)	Remarks	Documentary Evidence enclosed?
1.	All items should be quoted, including accessories and consumables for the instruments should be delivered and installed at the following site:  <b>AICRP on Honey Bees and Pollinators, College of Agriculture, Vellayani, Thiruvananthapuram, Kerala 695522</b>			
2.	A comprehensive warranty for five years for the <u>complete equipment. This warranty cover all the consumable /</u> for five Years from the date of installation. The warranty should include instrument calibration and mass calibration performed yearly with valid NIST traceable OFN 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 of 5 years, Annual Maintenance Charges for 6 <sup>th</sup> , 7 <sup>th</sup> and 8 <sup>th</sup> year, should be included in the financial bid.			
3.	The instrument manufacturers should have minimum Five years experiences			Data to be uploaded as

	<p>in the manufacturing, installation and commissioning of gas chromatograph tandem mass spectrometer. The users list for the GC-MS/MS 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>			PDF
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**Declaration by the bidder:**

**It is hereby declared that the details given above are correct as pertaining to the quoted model, and all data and reports required for substantiation technical claims have been submitted.**

**SIGNATURE OF TENDERER**

**SEAL OF THE COMPANY**

**DATE**

## Section III: Comprehensive Warranty

### GC- MS/MS System

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 warranty period should be 5 years. 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		
	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 scientists and other analyst staffs at the application laboratory and on site, for the operation of the instrument on demand.		
	Any other accessories/requirements like gas cylinders etc. should be quoted and supplied with the instrument		

**ANNEXURE VI**

**Tender Evaluation Criteria for GC-MS/MS**

	Requirements	marks	Marks scored	Documentary evidence enclosed?
1	Technical compliance of GC, Tandem mass spectrometer, UPS and other accessories as specified in tender	100		Original documents
2	Instrument Detection Limit: Instrument detection limit on OFN should be 0.5 fg or better with the injection of 1 ul of 2 fg/ul OFN standard. Vendor need to demonstrate IDL at the time of installation.	25		Own application lab documents generated in the same model of GC-MS-MS quoted. Give Evidence for the equipment used and the company's own application lab in India.
6.	Pre-configured and optimized chromatographic methods for pesticide analysis requirement to be quoted with Pesticide and environment pollutant MRM database consisting MRM list better than 1000 compounds belong to wide range of compound groups on average of 4 MRMs for compounds which provides alternatives to work around matrix interferences, to be provided with chromatographic conditions with retention times to build acquisition methods in quick time or a better technology/instrumental method set up should be provided. (Provide details)	25		Software and application notes
	<b>Total</b>	<b>150</b>		

**Declaration by the bidder:**

**It is hereby declared that the details given above are correct as pertaining to the quoted model, and all data and reports required for substantiation of technical claims have been submitted.**

**SIGNATURE OF TENDERER,**

**DATE**

**SEAL OF THE COMPANY**

**ANNEXURE VIII**

**: Users List of Quoted/ Similar Model in India**

**GC MS/MS System**

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 IX: Summary of Financial Bid**

**GC 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 has to be attached with each quotation.

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

Price Description		Price	Remarks (if any)
Quoted currency		<b>INR</b>	
Total Cost instrument including Warranty for five Years including essential consumables and spares	[a]		
AMC charges for 6 <sup>th</sup> ,7 <sup>th</sup> and 8 <sup>th</sup> year after warranty	[b]		
Any other charges	[c]		
Up to AICRP on Honey Bees and Pollinators, Vellayani [a]+[b]+[c]=	[d]		
Total price in INR	[e]		

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