



ಭಾ. ಕೃ. ಅನು. ಪ - ಭಾರತೀಯ ತೋಟಗಾರಿಕಾ ಸಂಶೋಧನಾ ಸಂಸ್ಥೆ  
ಹೆಸರಗಟ್ಟ ಕೆರೆ ಅಂಚೆ, ಬೆಂಗಳೂರು-560 089

ಭಾ.ಕೃ.ಅನು.ಪ.- ಭಾರತೀಯ ಬಾಗವಾನಿ ಅನುಸಂಧಾನ ಸಂಸ್ಥಾನ  
ಹೆಸರಗಟ್ಟ ಲೇಕ್ ಪೋಸ್ಟ್, ಬೆಂಗಳೂರು - 560 089

**ICAR-Indian Institute of Horticultural Research**  
Hesaraghatta Lake Post, Bengaluru - 560 089

EPABX: 080-23086100 Extn: 218 & 217

FAX: 080-28466291 – Email: purchase.iihr@icar.gov.in



F.No.5-92/2021-22/IIHR/SP/

Dated: 21.12.2021

**NOTICE FOR INVITING TENDER THROUGH E-PROCUREMENT- 2<sup>nd</sup> Call**

Online Bids are invited from interested firms under **Two bid system (Technical bid/financial bid)** for **Supply installation testing and commissioning of EA-LC-IRMS - 01 No. to ICAR-IIHR**, Manual bids shall not be entertained.

Tender documents may be downloaded from e-procurement website of CPPP  
<https://eprocure.gov.in/eprocure/app> as per the schedule given in CRITICAL DATE SHEET as under:

**CRITICAL DATE SHEET**

Tender No.	F.No.5-92/2021-22/IIHR/SP/
Name of Organization	ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH, Hesaraghatta Lake Post, Bangalore
Date and Time for Issue/Publishing	21.12.2021 at 03:00 PM
Document Download/Sale Start Date and Time	21.12.2021 at 03:00 PM
Bid Submission start Date and Time	21.12.2021 at 03:00 PM
Pre Bid meeting Date and Time	03.01.2022 at 10:00 PM
Bid Submission End Date and Time	13.01.2022 at 03:00 PM
Date and Time for Opening of Technical Bids	15.01.2022 at 11:00 AM
Address for Communication	Asstt. Admn. Officer (Store Purchase), IIHR, Hesaraghatta Lake Post, Bangalore

**Sd/-**  
**SENIOR ADMINISTRATIVE OFFICER**

**INSTRUCTIONS FOR ONLINE BID SUBMISSION**

1. The Tender form/bidder documents may be downloaded from the <https://eprocure.gov.in/eprocure/app>. **Online submission of Bids through Central Public Procurement Portal (<https://eprocure.gov.in/eprocure/app>)** is mandatory. Manual/Offline bids shall not be accepted under any circumstances.
2. Tenderers/bidders are requested to visit the website <https://eprocure.gov.in/eprocure/app> regularly. Any changes/modifications in tender enquiry will be intimated by corrigendum through this website only.
3. In case, any holiday is declared by the Government on the day of opening, the tenders will be opened on the next working day at the same time. The Council reserves the right to accept or reject any or all the tenders.
4. The interested Firms are required to deposit (in original) **EMD of Rs.9,25,000/-** in the shape of Demand Draft in favour of **THE DIRECTOR, ICAR, UNIT-IIHR payable at Bangalore** may be address to **Asstt. Admn. Officer (Purchase), IIHR, Hessaraghatta Lake Post, Bangalore-560089** on or before **bid opening date and time as mentioned in the Critical Date Sheet.**
5. **Please note that only online Bids will be accepted. However hard copy of documents and technical brochures uploaded by the firm deposited to Asstt. Admn. Officer (Purchase), IIHR, Hessaraghatta Lake Post, Bangalore-560089 on or before bid opening date and time as mentioned in the Critical Date Sheet.**
6. Bidders need not to come at the time of Technical as well as Financial bid opening at IIHR. They can view live bid opening after login on CPPP e-procurement portal at their remote end. If any dispute arises, Within Bengaluru Jurisdiction only.
7. A pre-bid conference will be held on **03.01.2022 10:00 AM** at IIHR, Hesaraghatta, Bengaluru. A maximum of two representatives of each bidder shall be allowed to participate on production of a letter from the bidder. Bidders requiring any clarification on the tender may send their queries to email [purchase.ihr@icar.gov.in](mailto:purchase.ihr@icar.gov.in). All queries should reach IIHR by email with an attachment in ms word format at least two days prior to the pre bid conference date as per details provided below. IIHR shall endeavour to respond to the queries within specified period specified therein but not less than five days prior to the bid due date. IIHR reserve the right not to respond to any questions or provide any clarifications.
8. The firms are also required to upload copies of the following documents compulsory for technical evaluation.
  - **Technical Bid**
    - a) Scanned copy of MSME or Udyog Aadhar or NSIC is a must for EMD Exemption if eligible, otherwise firms have to furnish EMD.
    - b) Scanned copy of Firm's registration with shop & Establishment, PAN Card, GST No.
    - c) Scanned copy of Income Tax Returns Statement, for the financial year 2017-18, 2018-19 & 2019-20.

- d) Scanned copy of duly signed Annexure-I, II, IV & Tender acceptance letter (Annexure-V) duly signed.
- e) Scanned copy of latest GST returns filed.
- f) Scanned copy of Chartered Accountant certified profit and Loss account, Balance sheet which are used for filing IT returns only are to be enclosed in support of firm's/Company turnover of Rs.10 Crores per year during the period 2017-18, 2018-19 & 2019-20.
- g) Scanned copy of User List/Purchase Orders and its satisfactory installation certificate.
- h) Scanned Copy of Make and model of all systems, sub systems and additional items should be mentioned in the technical bid and complete technical details should be provided in the form of Brochures and write-ups.
- **Financial Bid:-**
    - a) Price Bid as BOQ XXX.xls

**Sd/-**  
**SENIOR ADMINISTRATIVE OFFICER**

Terms & Conditions

1. The Tenderer shall quote basic value of equipment/machinery rates, GST, Freight charges if any, should be indicated separately.
2. The rates should be quoted as per the BOQ uploaded on the CPP Portal (reference may be obtained from Annexure-III). GST, if any, should be indicated separately. It must be noted that the contract shall be awarded to the firm which fulfils all the required terms and conditions and remains L-I for all the items put together.
3. The firm must also possess valid PAN No. & GST registration number and a copy of the same must also be enclosed with the tender document.
4. Copy of Financial year 2017-18, 2018-19 & 2019-20, Income Tax Statement may be furnished.
5. The firm should be in existence for over 05 (Five) years in the trade with the business turnover of not less than Rs.10 Crores per annum for 2017-18, 2018-19 & 2019-20. Chartered Accountant certified profit and Loss account, Balance sheet to this effect may be enclosed.
6. Modification in the tender documents after the closing date is not permissible.
7. The successful firm shall have to **Supply installation testing and commissioning of EA-LC-IRMS - 01 No. & accessories as in annexure - VIII** within 40 days from the date of confirmed supply order and if the materials are not supplied in time then EMD shall be forfeited. The rates quoted shall be valid for one year from the date of opening of tender.
8. The contractor/bidder or his representative may contact the undersigned at **Tel. No. 080-23086100 Extn: 218 & 217** for any further clarification. No variation in terms of quality of the items shall be entertained or else EMD/Security deposit shall be forfeited.
9. The Director, ICAR-IIHR, shall have the right to reject all or any of the offers, accept more than one offer, and assign part of the job without assigning any reason.
10. Merely quoting of lowest rates does not mean that order shall be given to that firm. The competent authority will finally decide on the basis of quality & performance of past installations.
11. The interested Firms are required to deposit an **Earnest Money Deposit of Rs.9,25,000/-** in original in the form of Demand Draft obtained from any of the Commercial Bank in favour of **THE DIRECTOR, ICAR, UNIT-IIHR payable at Bangalore** may be address to **Asstt. Admn. Officer (Purchase), IIHR, Hessaraghatta Lake Post, Bangalore-560089 on or before bid opening date and time as mentioned in the Critical Date Sheet**. No quotation shall be considered without the earnest money deposit. Demand draft drawn in favour of any officer other than 'THE DIRECTOR, ICAR UNIT-IIHR payable at Bangalore' will not be accepted and the tender will be rejected. The earnest money will be refunded only after the finalization of the procurement and no interest will be paid on earnest money. The request letter for refund of EMD & performance security is to be submitted by the firm.
12. Rates once finalized will not be enhanced/reduced during the currency of the contract.
13. In case, the successful bidder shows inability at any stage, after the contract is finalized and awarded, for whatsoever reason(s), to honour the contract, the earnest money /performance security deposited would be forfeited.
14. The Director, ICAR-IIHR reserves the right to cancel the contract at any time during the currency period of the contract without giving any reason.
15. The firm, to whom the tender will be awarded, will have to deposit the performance security equal to 10% of the total amount at the time of installation of equipment. If the services are not found to be satisfactory, the performance security is liable to be forfeited. No interest will be paid on performance security.
16. If any dispute(s) arises between IIHR and the firm with reference to the contract, IIHR will decide it and its decision will be binding on the firms.
17. The Successful tenderer is required to submit Gem seller id mandatorily at the time of award of contract/placement of order.
18. The Tenderer shall only quote for the model of the equipment which is suitable for the specification as in annexure-VIII and also the model shall be available in the website of OEM. The model offered by the tenderer if found out dated or manufacturing of the same is discontinued, then the tender will not be considered.

18. Bid Validity: 180 days

19. Our Institute is registered with DSIR and we are exempted from Excise Duty & Custom Duty. Hence CDEC/DSIR will be provided to the firm, if demanded. Rate should be quoted accordingly.

20. Payment:-

a. Payment for goods supplied from abroad

- i. On shipment 90% of the contract price (FOB) shall be paid through irrevocable letter of credit upon submission of documents detailed in L/C.
- ii. 10% of the contract price (FOB) (in foreign currency) and other charges like freight etc., from FOB to FOR, IIHR, Bangalore /(in INR) will be released after satisfactory installation/working of equipment/machine etc. As well as on submission/production of Performance Bank Guarantee by the Supplier(s).

**OR**

iii. 100% payment through wire transfer/FDD after satisfactory installation and submission of P.B.G.

b. Payment of goods supplied within India

- i. 100% of the contract price on receipt of goods by the consignee supported by satisfactory installation/working report & submission of PBG.

21. Installation:- Within **20 days from the date of receipt of equipment** in the Institute, failing which Liquidated Damage clause shall apply.

Liquidated Damage clause: It would be realized @ 0.5% (half per cent) of the base price (excluding taxes) of the delayed goods for each week of delay subject to maximum 20%.

22. Prices:

- i. Price to be quoted in Foreign Currency CIP, Bengaluru Airport and to be delivered @ IIHR Hesaraghatta, Bangalore.
- ii. If any bidder wants to quote in INR, price be quoted on FOR, IIHR, Hesaraghatta, Bangalore basis.
- iii. In case the stores pertain to Import:
  - a) Kindly ensure to enclose manufacturer's authorization in favour of Indian subsidiary firm. It may also be noted that further authorization by subsidiary firm in favour of any other firm located in India to promote their sale must have authorization from the Principal firm for further authorization to an Indian firm, failing which the tender is liable to be cancelled.
  - b) Price can also be quoted in INR (FOR Hesaraghatta, Bangalore basis), but in that case either CDEC/DSIR or GST can be demanded. Demand for both GST & CDEC/DSIR cannot be considered.
  - c) Price should be quoted from FOB to FOR destination (IIHR, Hesaraghatta, Bangalore) in case of Indian currency (INR) also.
  - d) IIHR do not have Clearing Agent, Hence Supplier shall clear consignment from Airport/Customs authority and delivered to IIHR, Hesaraghatta, Bangalore.
  - e) Rate of GST and amount of GST charged on the basic value of the equipment should be shown separately, while quoting in the financial bid, otherwise tender liable for rejection.
  - f) ICAR-IIHR is registered with DSIR and eligible for Concession GST @ 5% & customs duty charges accordingly rates are to be quoted.

'Terms & Conditions are acceptable'

Dated

(Authorized signatory of the firm)

### Annexure-III

(Reference for BOQ) (To be quoted in format provided on CPP Portal)

Price bid for “**Supply installation testing and commissioning of EA-LC-IRMS and accessories as in annexure VIII- 01 No. to ICAR-IIHR**” at, **Hesaraghatta lake Post, Bangalore-560089.**

Sl. No.	Name of item	Quantity	Per unit price* (in figures/words) (as per BOQ)
01	<b>Supply installation testing and commissioning of EA-LC-IRMS Mass Spectrometer - 01 No. to ICAR-IIHR *</b>	01 No.	
02	<b>Four years AMC</b>	04	

\*Annexure-VIII

- Items should be of reputed make and suitable for high end elite users
- GST and freight charges if any should be indicated separately in the column provided.
- **The instrument is to be installed at ICAR-IIHR, Hesaraghatta lake post, Bangalore-560089**

**Note:** The above mentioned Financial Proposal/Commercial bid format is provided as BoQ\_XXXX/xls along with this tender document at <https://eprocure.gov.in/eprocure/app>. Bidders are advised to download this BoQ\_XXXX.xls as it is and quote their offer/rates in the permitted column and upload the same in the Financial bid. **Bidder shall not tamper/modify downloaded price bid template in any manner.** In case if the same is found to be tempered/modified in any manner, tender will be completely rejected and EMD would be forfeited and tenderer is liable to be banned from doing business with IIHR.

**Annexure-IV**

EPABX: 080-23086100 Extn: 218 & 217  
FAX: 080-28466291 – Email: [purchase.iihr@icar.gov.in](mailto:purchase.iihr@icar.gov.in)



**ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH**  
**HESSARAGHATTA LAKE POST, BANGALORE-560 089**

Name of the Firm \_\_\_\_\_  
Registered/Postal Address \_\_\_\_\_  
Email id: \_\_\_\_\_  
Contact person name: \_\_\_\_\_  
Contact mobile number: \_\_\_\_\_

1	Permanent Account Number (PAN)	
2	GST Registration No.	
3	Bank Details	
a	Bank Name	
b	Branch Address	
c	Account Number	
d	Type of account (current/saving) MICR No.	
e	IFSC Code	

Date:

Name of the Authorized Signatory

Place:

Stamp & Signature

**TENDER ACCEPTANCE LETTER**  
(To be given on Company Letter Head)

**Date:**

To,  
The Director,  
ICAR-IIHR,  
Hesaraghatta Lake Post,  
Bangalore-560089.

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No. \_\_\_\_\_

Name of Tender/Work:

---

Dear Sir,

1. I/ We have downloaded/obtained the tender document(s) for the above mentioned 'Tender/work' from the web site(s) namely:

\_\_\_\_\_  
\_\_\_\_\_

As per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents from Page No. \_\_\_\_\_ to \_\_\_\_\_ (including all documents like annexure(s), schedule(s), etc...) which form part of the contract agreement and I/We shall abide hereby the terms/conditions/clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/organization too have also been taken into consideration, while submitting this acceptance letter.
4. I/we hereby unconditionally accept the tender conditions of above mentioned tender documents/corrigendum(s) in its totality/entirely.
5. I/we do hereby declare that our Firm has not been black-listed/debarred by any Govt. Department/Public sector undertaking.
6. I/we certify that all information furnished by our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/organization shall without giving any notice or reason therefore or summarily reject that bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours Faithfully,

(Signature of the Bidder, with Official Seal)

**Annexure-VI**

**INSTRUCTIONS FOR ONLINE BID SUBMISSION**

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at <https://eprocure.gov.in/eprocure/app>.

#### REGISTRATION

- Bidders are required to enrol on the e-Procurement module of the Central Public Procurement Portal (URL <https://eprocure.gov.in/eprocure/app>.) by clicking on the link '**Online bidder Enrollment**' on the CPP Portal which is free of charge.
- As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (class II or Class III certificates with signing key usage) issued by any certifying authority recognized by CCA India (e.g. Sify/nCode/eMudhra etc.) with their profile.
- Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- Bidder then logs in to the site through the secured log-in by entering their users ID/password and the password of the DSC/e-Token.

#### SEARCHING FOR TENDER DOCUMENTS

- There are various search options built in the CPP Portal. To facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. To search for a tender published on the CPP Portal.
- Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS/e-mail in case there is any corrigendum issued to the tender document.
- The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

#### PREPARATION OF BIDS

- Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in

which the bid documents have to be submitted, the number of documents- including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

- Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in PDF/XLS/RAR/DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- To avoid the time and effort required I uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use 'My Space' or 'Other important Documents' area available to them to upload such documents. These documents may be directly submitted from the 'My Space' area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

## SUBMISSION OF BIDS

- Bidder should log into the site wll in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other technical issues.
- The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- Bidder has to select the payment option as 'offline' to pay the tender fee/EMD as applicable and enter details of the instrument.
- Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- Bidders are requested to note that they should necessarily submit their financial bids in the Format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cell with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
- The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric, encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

- The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- Upon the successful and timely submission of bids (i.e. after clicking 'Freeze Bid Submission' in the portal), the portal will give a successful bid submission message and a bid summary will be displayed with the bid no. and the date and time of submission of the bid with all other relevant details.
- The bid summary has to printed and kept as an acknowledgement of the submission of the bid.

#### ASSISSTANCE TO BIDDERS

- Any queries relating to the tender documents and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contract person indicated in the tender.
- Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

\*\*\*\*\*

**Details of Equipments & EMD**

Sl. No.	Purchase of item	Qty	Earnest Money in INR	File. No. for reference
01	<b>Supply installation testing and commissioning of EA-LC-IRMS - 01 No. to ICAR-IIHR *</b>	01 No.	Rs.9,25,000/-	<b>F.No.5-92/2021-22/IIHR/SP/</b>

Note: EMD defined on to the Portal is MINIMUM. Bidder has to submit the EMD as per item for which quoting for.

**\*Installation at ICAR-IIHR, Hesaraghatta lake Post, Bangalore.**

**Technical Specification for Supply installation testing and commissioning of EA-LC-IRMS- 01 No.**

## 1. Mass spectrometer

- Accelerating voltage  $\geq 3,000$  volts, must be highly sensitive and highly linear.
- Absolute sensitivity of  $\text{CO}_2$  (molecules/ion) must be equal to or better than 1200 in continuous flow mode. Source linearity must be better than 0.02%/nA for  $\text{CO}_2$ . This must be supported by documentation.
- For hydrogen measurements  $\text{H}_3$ +correction should be  $\leq 8$  ppm/nA.
- Internal precision  $1\sigma$  (‰) for:  
 $\delta^{13}\text{C}$  ( $\text{CO}_2$ ):  $\leq 0.06$ ;  $\delta^{18}\text{O}$  ( $\text{CO}_2$ ):  $\leq 0.08$
- Source must be self-aligning and have a plug-in design and should be easily replaceable by user.
- Highly stable electromagnet for separation of masses.
- Filament inert to oxygen.
- Universal triple collector and collector for dD measurements; collector array should measure isotopic ratios of H, C, N, O and S in gases  $\text{H}_2$ ,  $\text{CO}_2$ ,  $\text{N}_2$ ,  $\text{N}_2\text{O}$ ,  $\text{SO}_2$ ,  $\text{O}_2$  and  $\text{CO}$ .
- Completely automatic inlet switching between inlets, viz. EA and LC.
- Data system for control of mass spectrometer, data acquisition, and data reduction. Instrument control software must have a library of routines which automate the measurement of the quantities that are measured in the final test of an instrument, including absolute and relative sensitivity; linearity, abundance sensitivity; magnet stability and high voltage power supply stability. Software must allow full access to all raw data and processed data, full access to ion correction algorithms and intermediate data, and full access to raw data integrity and sample identity.
- Vacuum pumps (Rotary and Turbomolecular pumps) and gauges should be provided for the vacuum necessary for isotopic measurements. Automatic system protection in case of power failure. Display of vacuum status on front panel of software.

**2. Interfacing**

- The interface of Elemental Analyzer to IRMS must have automated sample dilution, automated addition of reference gases.

### 3. Elemental analyzer

- The system must have two furnaces viz Combustion and Reduction furnace, so that it is possible to carry out isotopic analysis of bulk material for C, N, S by combustion.
- The furnaces should be able to achieve a temperature of 1100°C or higher.
- Autosampler for continuous analysis of > 120 samples, having Zero blank facility to ensure complete removal of atmospheric gases.
- Column temperature programming for separation of isotopes/elements in the same run.
- Precision should be guaranteed for all three isotopes in a single run. The external precision ( $1\sigma$ ) should be

$\delta^{13}\text{C}$  ( $\text{CO}_2$ ) 0.10 ‰, sample size 50  $\mu\text{g}$  C

$\delta^{15}\text{N}$  ( $\text{N}_2$ ) 0.15 ‰, sample size 50  $\mu\text{g}$  N

$\delta^{34}\text{S}$  ( $\text{SO}_2$ ) 0.20 ‰, sample size 50  $\mu\text{g}$  S

This must be supported by documentation.

- All necessary software and hardware should be supplied as a standard part of the EA. EA should be capable of operating as a standalone unit for CNS elemental analysis.
- The provision for dilution of analyte gases should be there so that the measurement of highly abundant to trace elements can be performed. The continuous flow interface should be capable of delivering at least 5 or more reference gases such as  $\text{CO}_2$ ,  $\text{N}_2$ ,  $\text{SO}_2$ ,  $\text{CO}$ ,  $\text{H}_2$  simultaneously.
- Compatible software to use EA in stand-alone mode.

### 4. HPLC or LC-IRMS

- Automated HPLC-IRMS system for isotopic analysis of  $^{13}\text{C}/^{12}\text{C}$  in compounds that are chromatographically resolved in HPLC column.
- Hardware options must include pump/temperature-controlled auto sampler/column oven/columns for IRMS sample analysis. It must have all necessary interfaces for the sample to convert into gaseous form/dilution of samples with minimum maintenance and highly reliable/reproducible oxidation technique to convert sample into  $\text{CO}_2$ .
- Suitable interface to convert the sugars eluted from LC into  $\text{CO}_2$ . The interface should ensure moisture free delivery of  $\text{CO}_2$  to the IRMS.
- The interface should be free from crystallization due to usage of aggressive chemicals such as  $\text{H}_3\text{PO}_4$  and  $\text{Na}_2\text{S}_2\text{O}_8$  etc. (if used).
- User friendly software for the analysis and to control the interface.

- Acquisition of samples on LC-IRMS is preferably through one software only.
- All the calibration standards (for honey adulteration) required to calibrate the IRMS, along with all the peripherals, should be quoted separately
- The external precision should be:  
 $\delta^{13}\text{C} (\text{CO}_2)$  0.30 ‰ or better

### **Others**

- Gas cylinders for CO<sub>2</sub> (Qty 2), Oxygen (Qty 2) and Helium (Qty 2) and associated parts (regulators, purifiers panels, tubings and plumbing etc) should also be provided.
- Analytical microbalance (Mettler Toledo Micro Balance WXTS3DU model or equivalent)
- Computer: Core i5 quad core, 8GB DDR4 RAM, 500GB HDD, Win 10, 24" LED Monitor, with 3 years onsite warranty, with a heavy-duty LaserJet printer.
- 15 KVA UPS is required for uninterrupted power supply for at least two hours back-up for mass spectrometers and associated peripherals.
- Ultrasonic bath with heating and degassing (Vol. 4.00 lit or above; US frequency 37 KHz or above; Branson Model CPXH or equivalent)
- Hot air oven (Temperature up to 250 °C; Vol. 55 litres or more, Venticell or equivalent)
- Water bath (12 litre or more, Grant or equivalent)
- Air conditioners (2 tonne capacity)- 2 Nos.
- Vendor should provide complete user list (including email id and phone numbers) and performance certificate of their IRMS systems.
- Quotations should include consumables for 6000 samples on EA-IRMS and 2000 samples on LC-IRMS. Maintenance kits for five years, solvent bottles (04 no, 1000mL capacity), solvent filters (glass/ss, 20 nos.), 05 extra LC columns for sugar analysis (as per standard honey testing method), 10000 sample vials, 02 solvent filtration kits with 2000 filters ( 47 mm, 0.47 $\mu$  ), 10 sample filtration kits with 5000 filter (25 mm, 0.2  $\mu$ ), automatic pipetter 02 each for 10  $\mu$ L, 100  $\mu$ L, 500  $\mu$ L, 1000  $\mu$ L with 1000 tips for each.
- Complete system should have one year warranty followed by four years of AMC from the date of satisfactory installation. Furnaces and detectors should have ten years warranty from the date of satisfactory installation. The annual maintenance contract plan should have at least two preventive maintenance visits, two break down visits, and technical support. Supplier should provide details of warranty and annual maintenance contract plan.

- Sufficient trainings to the satisfaction of customer should be provided during warranty period.
- All application details in the field of honey/allied items and food testing have to be provided during installation.
- Up gradation of all software installed along with the complete system, should be provided free of cost, as and when it is released, during the warranty and AMC period.
- The supplier shall keep inventory of spares and consumables in India that are normally required for the repair of equipment. Kindly submit the undertaking for the same.
- Vendor should be able to supply all the spares / consumable required for repair for at least 8-10 years after installation. Kindly submit the undertaking for the same.
- The bidder shall not submit the bid of any discontinued model. The quoted model of the equipment should be available in the original equipment manufacturer's website.

**Sd/-**  
**SENIOR ADMINISTRATIVE OFFICER**