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No. F -8 (1) RMSC/EPM/M-5/15-16/NIB-128/ 30

Dated: 5/11/16

**CLARIFICATION/CORRIGENDUM/ADDENDUM**

**Subject :- Amended technical Specifications, date extension of Bid document for the Laboratory for Heavy Metals and Pesticide in Fruits and Vegetables under NIB No. F-8 (1) RMSC/EPM/M-5/15-16/NIB-128/1816 Dated 29.10.2015.**

In Reference to above cited subject and NIB-128, The technical specification are examined by the competent authorities. The following Clarification/Corrigendum/Addendum is issued for inclusion in bid document & Technical Specification of items as below:-

**1. Revised Specifications of Liquid Chromatograph Mass Spectrometer (LCMS/MS)**

LCMS/MS Should be bench top **triple quadrupole mass spectrometry** coupled with liquid chromatography for high sensitivity trace level quantitative analysis with following specifications:

<b>A. Mass Spectro meter</b>	<ol style="list-style-type: none"> <li>The API interface should be simple without complex aperture and able to handle large batch of samples.</li> <li>Should have rugged ion source.</li> <li>It should not have any fused silica/quartz/glass/dielectric capillary tubes to transport ions in to the mass analyser</li> <li>Source should be cleaned while maintaining the vacuum.</li> <li>The system should be quoted with dedicated separate ESI and APCI probe. <b>The ESI probe should capable to handle flow rate up to 2ml/min.and the APCI should handle flow rate up to 2ml/min. APPI source should be supplied with ESI/APCI .</b></li> <li>The ESI/APCI must have <b>desolvation temperature up to 500°C</b> or better</li> <li>The mass spectrometer must operate in mass range from <b>10-2000m/z or better</b></li> <li>MS/MS sensitivity (MRM) have performance specification should be installation specification as per below:  <b>ESI+ Sensitivity:</b> 2ul injection of a 500fg/ul (total injection of 1pg/ul) reserpine solution at a flow rate of 300ul/min methanol/water should produce a minimum S/N ratio of 50000:1 for the transition of the protonated molecular ion at m/z 609.3 to the fragment ion at m/z 195.1 when operated in selected reaction monitoring mode (SRM) with Q1 and Q3 resolution set to 0.4 and 0.7Da FWHM, respectively  <b>ESI - Sensitivity:</b> 2ul loop injection of a 2500fg/ul (total injection of 5pg/ul) of chloramphenicol solution on column at a flow rate of 300ul/min methanol/water should produce a minimum S/N ratio of <b>1000:1</b> for the transition of the protonated molecular ion at m/z 321 to the fragment ion at m/z 152 when operated in selected reaction monitoring mode (SRM) with Q1 and Q3 resolution set to 0.4 and 0.7Da FWHM, respectively</li> </ol>
<b>2. Collision Cell:</b>	The collision cell should able to reduce the chemical back ground noise and increase effective S/N ratio should able to perform 500 SRM/sec with zero cross talk and no loss in sensitivity
<b>3. Dwell Time:</b>	The system should have minimum dwell time of 1mS.
<b>4. Resolution</b>	<b>Should be than unit mass i.e. 0.75Da FWHM for quantitative scan also should have facility for higher resolution up to 0.5Da FWHM</b>
<b>5. Scan Speed</b>	15000 amu/sec or more
<b>6. MRM Transition</b>	<b>500 SRM/Sec (1ms dwell/1ms inter channel delay) without loss of sensitivity and the instrument must have ion polarity switching in less than 30 ms</b>
<b>7. Dynamic Range</b>	System should have 5 order of magnitude or better dynamic range
<b>8. Divert Valve</b>	The divert valve must be under fully automated data system control. The divert valve must enable user to switch the solvent front, gradient end point and any other portion of the HPLC run to waste. Allow user to define the default state of the valve and change state in time segments
<b>9. Syringe Pump</b>	The mass spectrometer must have total syringe pump control to allow for automated infusion under data system control. The data system must be capable of switching on and off the syringe pump in time segment.
<b>10. Data System</b>	Must include instrument control and processing software, quantitation package, qual browser, dedicated toxicology ID software with library.

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11. PC	Branded computer with Windows software minimum 1.22GHz processor, 3GB RAM, 350GB HDD, 3GHz speed with 19" monitor with multitasking capabilities.
12. Scan Functions	Must acquire and display full scan mass spectra from Q1 and Q3, selected ion monitoring (SIM) scan data, full scan product ion and precursor ion spectra, full scan neutral loss ion spectra, selected reaction monitoring data (SRM/MRM).
B) HPLC System	<b>Ultra Fast High Pressure Liquid Chromatography System</b>
1. Pump	<b>Quaternary gradient pump</b> preferably with four channel vacuum degasser. Operating flow rate range 0.010 to 2.000ml/min with flow rate accuracy of $\pm 1\%$ . <b>Pump back pressure 15000 psi</b> or better, flow precision of $<0.075\%$ RSD or $<0.01$ min SD whichever is greater.
2. Auto sampler	Should have a minimum sample capacity of (90 or More) x 1.5 to 2 ml vials capacity or more and can accommodate 96/384 well plates. Injection volume range of 0.1 to 100ul with minimum increment volumes and injection volume accuracy of $\pm 1\%$ . 20ul, 250ul and 1000ul loop must be quoted if available. Auto sampler carry-over should be $\leq 0.005\%$ with <b>Proper cooling system to maintain 4 degree centigrade.</b>
3. Column Compartment	Thermo stated Column compartment should hold minimum 2 column with temperature range from $5^{\circ}\text{C}$ above ambient to $90^{\circ}\text{C}$ .
4. PDA/DAD Detector	Wavelength range: 190 – 800 nm Light source: Prealigned Deuterium lamp for UV range Analysis Tungsten (W) lamp for Visible Range Analysis Data acquisition rate: 80 Hz or more Wavelength accuracy: $\pm 1\text{nm}$ No of Photo diodes: 512.
5. Software	The single point software of LC and MS of same vendor.
6. Columns	C-18: 6 No (100mm X 4.6mm, 5micron, 100mm X 2.1mm, 3 micron or Less, 50mm X 4.6mm, 3 micron or Less, C-8: 2 No, and 2no other suitable column for pesticide analysis. Should be supplied with guard columns. C 30 Analytical Columns (150mm X 4.6mm, 3micron) with Guard Column with holder, column for Vitamins.

**LCMS/MS should be supplied with Accessories:**

1. Nitrogen Generator (1 No), - **PEAK Scientific**
2. Ultrasonic Bath (5Ltr) imported, - **Branson or equivalent**
3. Sample and Solvent Filtration Kit- Aqueous and Non Aqueous,
4. Syringes -500microlitre - 2Nos, **Hamilton**
5. Argon Cylinder with regulator(2 Nos), - **BOC gases or equivalent**
6. Gas manifold with Gas purification Panel.- (**Imported**)
7. Deep Freezer: -20degC (2Nos) 300Litres or more capacity (**Imported**)
8. Deep Freezer :-40 degree C(1No) 300Litres or more capacity (**Imported**)
9. Double Door Refrigerator- 2No -(**LG, Samsung, Hitachi or equivalent**)
10. Ultra Pure Water Purification System – From Tap Water to Ultra pure( Millipore, Thermo, Elga or Equivalent),
11. Bench top PH Meter(0 -14, 0.001, 3point calibration )( **Mettler, Sartorius, Metrohm or equivalent** )
12. Double Distil Glass Distillation Assembly (**indigenous**),
13. Dessicator - **Indigenous**,
14. On line UPS for full system ( Minimum 20 KVA ) with **60 Minutes** of Back up (**Uniline, Jackson or equivalent** )
15. **1.5 ton Air conditioner** five star rated with stabilizer should be provided.-2 Nos - (**LG, Samsung, Hitachi or equivalent** )

**Other Terms & Conditions:**

1. Manufacturer of Equipment & Accessories should be ISO 9001 / ISO 13485 certified.
2. Equipment and Accessories should be US FDA / European CE certified by Notified Body.
3. **Guarantee:** Three years on equipment, accessories and all peripherals / sub systems from the date of installation, which includes 4 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
4. Basic training for a period of not less than **two weeks** after installation of the equipment to technical personnel includes Operational & Trouble shooting training as and when required.
5. Manufacturer should provide an Training Instructor for initial 6 month (minimum) to train on duty staff and after 6 month as per demand of user department as and when required.
6. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.
7. **Firm should mention all the pre-installation requirements in technical bid.**
8. Technical Compliance statement should be submitted in Technical Bid Documents, along with every above mentioned point should be submitted with relevant literature, specification sheets and brochures. Any deviation from specifications should be clearly mentioned in compliance statement.

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9. **Comprehensive Maintenance Service:** The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years. CMC should be quoted in BOQ inclusive of Excise Duty & exclusive of VAT/CST etc.) plus service tax (as applicable) .
10. Manufacturer should provide SOP, I.Q & O.Q etc. as per System requirements.
11. **QuEChERS** for fruits and vegetable, pulses and food grains, milk and butter etc. should be provided **10 Boxes (Contains Minimum 50 No's)** along with Instruments.
12. Manufacturer should provide **HPLC Chemicals** along with Instruments as per below mentioned :

**List of HPLC Chemicals**

Sr.No.	chemicals Name	HPLC grade	Quantity
1	N-Hexane	Do	500ml X 6
2	Hexane	Do	500ml X 6
3	ACN	Do	500ml X 6
4	Acetone	Do	500ml X 6
5	Methanol	Do	500ml X 6
6	Dichloromethane	Do	500ml X 6
7	Isooctane	Do	500ml X 6
8	Chloroform	Do	500ml X 6
9	Isopropanol	Do	500ml X 6
10	Acetic acid	Do	500ml X 6
11	MSG	AR grade	smallest pack
12	Aspartame	Do	smallest pack
13	Acesulfame potassium	Do	smallest pack
14	caffeine	Do	smallest pack
15	Piperine	Do	smallest pack
16	Neotame	Do	smallest pack
17	Sucralose	Do	smallest pack
18	Saccharine sodium	Do	smallest pack

**2. Revised Specifications of ICP-MS Spectrometer (Inductively Coupled Plasma Mass Spectrometer)**

A Computer Controlled bench top ICPMS Spectrometer is required for **Heavy Metal / Toxicological** analysis having following minimum specifications

1. Sample Introduction system	Sample Introduction Kit including <b>Spray Chamber Peltier Cooled</b> (Temp Range -5 to 20 Deg C), <b>Low Flow Concentric PFA Nebulizer</b> --(2No's) or Equivalent Kit System as per quoted system requirement.
2. Ion Source and RF plasma:	<ol style="list-style-type: none"> <li>1. Computer controlled 40/27 MHz RF generator operating from 500 to 1600 watts for automatic control of torch ignition, shutdown, and system warm up.</li> <li>2. The RF Generator and load coil should have suitable cooling facilities as per system requirement.</li> <li>3. Plasma ignition shall be accomplished without having to move the torch from the analytical position</li> <li>4. The system should have facilities to prevent the secondary Discharge from the cone Interface with suitable technology.</li> <li>5. All the elements like Na, K, Fe, Ca, Mg shall be run in hot plasma conditions and it shall be analyzed in single run with hot plasma conditions for all the elements of periodic table.</li> <li>6. The system shall be with auto dilution facility or electronic dilution so that higher conc. elements upto 10000 PPM and trace level elements are analysed in single run.</li> </ol>
3. Ion Extraction Interface:	Standard large orifice Ni sampling and skimming cones with suitable diameters. Pt Sample and Skimmer cones should also be quoted
4. Ion Focusing System:	<ol style="list-style-type: none"> <li>1. The system shall use suitable device to remove unwanted particle like photons neutrals without causing deposition inside the spectrometer.</li> <li>2. The Cone Geometry &amp; the Ion deflector shall be removing all neutrals &amp; Photons from the Ion path keeping the Cell (collision &amp; reaction) as also entire Analyzer inside the vacuum chamber.</li> </ol>
5. Cell Technology	ICP MS shall incorporate a Cell offering three modes of operation: Standard Mode, Collision Cell Mode with KED and Reaction Cell to utilize a wide variety of gases (including 100% pure reactive gases such as H <sub>2</sub> , oxygen, CH <sub>4</sub> , in the single run.) The switching of reaction and collision gases will be through software and automated.
6. Quadrupole Assembly	The quadrupole mass filter shall preferably of material with excellent coefficient of thermal expansion properties, The Mass range should be from 4-250 amu or more Scan speed/ Data acquisition : <b>3000</b> amu/sec or better

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7. Ion Detector Assembly	<ol style="list-style-type: none"> <li>The ion detector should be a simultaneous dual-stage discrete dynode electron multiplier, and allows element concentration calibration over a full 9 order or more magnitude of dynamic range in a single scan using both analog and pulse ion counting mode, and is protected against overload in both pulse counting and analog counting mode.</li> <li>The dual-stage detector assembly must come standard with the system.</li> <li>The data acquisition/scan speed rate should be <b>3000</b> amu/sec. or more.</li> </ol>
8. Vacuum System:	<b>Three stage or better</b> differential vacuum system & in the event of power failure, either high vacuum is maintained or the entire vacuum system is to be automatically back-filled by inert gas to preserve the cleanliness of the system.
9. Sensitivity	<p>Guaranteed sensitivity specifications will be considered:                      Typical sensitivity values will not be considered Sensitivity(MCPS/PPM):                      50 or better for Li,                      200 or better for In                      250 or better for U                      Oxide ratio (%) CeO/Ce &lt;<b>2.5 or better</b>                      Ba<sup>++</sup> or Ce<sup>++</sup>/ Ba or Ce &lt;3 or better                      Background on-mass (cps) No gas &lt;1                      Short Term Stability &lt;3% RSD or better                      Long Term Stability &lt;4% RSD or better</p>
10. System Controller and Operating System:	Suitable Data Station with all Software controls & future upgrade controls with Instrument software. Software should provide comprehensive functionality and ease feature with simplified auto tuning, Preset of methods.
11. Accessories and Standards:	<p>Re Circulating Chiller along with 5 ltr of Coolant if applicable                      Sample and Skimmer Ni Cones additional - 2 sets                      Fume hood with accessories.                      On line UPS for full system ( Minimum 20 KVA ) with 60 Minutes of Back up                      Argon Gas Cylinder – 2 no's , Helium Gas Cylinder – 2no.                      Reaction Gas Cylinder like Amonia , H<sub>2</sub> , Oxygen and methane – 2 no. each                      SS Material Gas Regulator for all the gases mentioned above – 1 no. each                      Vendors to provide training at their application laboratory in India for two scientists (If required by User)</p>
12. Computer Configuration	<p>Branded HP/Dell Personal Computer having following configuration:                      • 500 GB HDD, Latest Processor, 4 GB RAM, TFT-LED 21" Monitor, DVD writer, Optical Mouse, 10 usb port, Keyboard, Serial Port-2, Suitable Licensed Windows 7 O/S loaded, Latest Laser Jet duplex color printer.</p>
Upgradeability	System should be capable to be attached with LC, GC & IC in future
Auto sampler	Auto sampler of more than 300 samples capacity

**Accessories:**

- Oven - 300deg C or more (**Indigenous- Digital**),
- Muffle Furnace: 1500 deg C or more (**Indigenous- Digital**),
- Shaking Machine, Stirrer(**Indigenous**),..
- Suitable Flexible Fume Hood (Imported),
- Argon Cylinders (4No) with SS regulators (2no), (**BOC gases or equivalent**)
- Gas manifolds with Gas purification Panel. (**BOC gases or equivalent** )
- Suprapure or equivalent grade HNO<sub>3</sub>, HCl, HF etc.
- Element free water- 5 x 1Ltr .**
- Multi element standard—as per scope/elements to be analysed.
- 1000 ppm Gold, Sr, Y single element .
- 1.5 ton Air conditioner** five star rated with stabilizer should be provided.-2 Nos - (**LG, Samsung, Hitachi or equivalent** )

**Other Terms & Conditions:**

- Manufacturer of Equipment & Accessories should be ISO 9001 / ISO 13485 certified.
- Equipment and Accessories should be US FDA / European CE certified by Notified Body.
- Guarantee:** Three years on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 4 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
- Basic training for a period of not less than **two weeks** after installation of the equipment to technical personnel includes Operational & Trouble shooting training as and when required.
- Manufacturer should provide an Training Instructor for initial 6 month (minimum) to train on duty staff and after 6 month as per demand of user department as an when required.

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6. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.
7. Firm should mention all the pre-installation requirements in technical bid.
8. Technical Compliance statement should be submitted in Technical Bid Documents, along with every above mentioned point should be submitted with relevant literature, specification sheets and brochures. Any deviation from specifications should be clearly mentioned in compliance statement.
9. **Comprehensive Maintenance Service: The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years. CMC should be quoted in BOQ inclusive of Excise Duty & exclusive of VAT/CST etc.) plus service tax (as applicable) .**
10. Manufacturer should provide SOP , I.Q & O.Q etc. as per System requirements.
11. **CRMS (Reference Metal standards) should be provided as per Below mentioned for Analysis :**

Sr. No	Name of Standards
1	Silver (as Ag) 100 ppm
2	Magnesium (as Mg) 100 ppm
3	Calcium (as Ca) 100 ppm
4	Sodium (as Na) 100 ppm
5	Arsenic (as As) 100 ppm
6	Chromium (as Cr) 100 ppm
7	Cadmium (as Cd) 100 ppm
8	Mercury (as Hg) 100 ppm
9	Lead (as Pb) 100 ppm
10	Selenium (as Se) 100 ppm
11	Nickel (as Ni) 100 ppm
12	Antimony (as Sb) 100 ppm
13	Barium (as Ba) 100 ppm
14	Zinc (as Zn) 100 ppm
15	Copper (as Cu) 100 ppm
16	Manganese (as Mn) 100 ppm
17	Borate (as B) 100 ppm
18	Tin ( as Sn) 100 ppm
19	Methyl Mercury (as Hg) 100 ppm
20	Iron (as Fe) 100 ppm
21	Potassium (as K) 100 ppm

12. **Manufacturer should provide Chemicals required for Testing of Heavy Metals along with Instruments as per below mentioned :**

Sr. No	Name of Chemicals	Qty
1	Nitric Acid ICP grade	500 ml*10
2	Hydro chloric Acid ICP grade	500 ml*10
3	HClO4 ICP grade	500 ml*2
4	HF ICP grade	500 ml*2
5	Sulphuric Acid ICP grade	500 ml*5
6	Acetone ICP grade	500 ml*5
7	Element Free Water ICP grade	1 ltr * 5

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13. Manufacturer should provide Chemicals required for Testing of Pesticides along with Instruments as per below mentioned :

Sr. No	Name of Chemical	Make	Qty
1	QuEChERS for fruits and vegetable	IMPORTED	1000 nos. & 500 gcb
2	QuEChERS for pulses and food grains	IMPORTED	1000 nos.
3	QuEChERS for milk and butter etc.	IMPORTED	1000 nos.
4	Silica gel 60-100 mesh PR grade	Sigma/aldrich	500 gms *4
5	Acetic acid MS grade	Riedel/Fluka	50 ml *2
6	Ammonim formate MS grade	IMPORTED	100 gms *2
7	Ammonia Solution MS grade	IMPORTED	50 ml *2
8	Formic Acid MS grade	IMPORTED	100 gms *2
9	Florosil PR grade	Fluka	500 gms *2
10	Activated Charcoal PR grade	IMPORTED	500 gms *2
11	Celite 545- PR grade	IMPORTED	500 gms *4
12	Magnesium oxide PR grade	IMPORTED	500 gms *2
13	Glass Wool	Pyrex	
14	PSA Bonded Silica	Supelcu	100 gms *2
15	Sodium Acetate anhydrous PR grade	IMPORTED	500 gms *2
16	Aluminium oxide active natural PR grade for column chromatography	IMPORTED	500 gms *2
17	Magnesium sulphate (anhydrous) PR grade	Sigma/aldrich	500 gms *2
18	Spherical c 18 bonded flash silica 45-75 mm	IMPORTED	100 gms *2
19	N-Hexane- HPLC grade	supelcu	500 gms *6
20	Hexane- AR grade	supelcu	2.5 ltr *10
21	Hexane- HPLC grade	supelcu	500 ml * 6
22	Acetonitrile AR grade	supelcu	2.5 ltr *10
23	Acetonitrile HPLC grade	supelcu	500 ml * 6
24	Acetone AR grade	supelcu	2.5 ltr *10
25	Acetone HPLC grade	supelcu	500 ml * 6
26	Methanol HPLC grade	supelcu	2.5 ltr *20
27	Dichloromethane AR grade	supelcu	2.5 ltr *5
28	Dichloromethane HPLC grade	supelcu	250 ml *5
29	Isooctane HPLC grade	supelcu	500 ml * 10
30	Chloroform AR grade	supelcu	2.5 ltr *2
31	Isopropanol HPLC grade	supelcu	2.5 ltr *6

**3. Revised Specifications of GC-MS/MS System (Triple Quadrupole Gas Chromatograph Mass Spectrometer(GCMS/MS))**

A Computer Controlled bench top GCMS Triple Quadrupole Mass Spectrometer is required for Food and Drug analysis having following minimum specifications

1. Mode of GCMSMS	System should have full scan/SRM/MRM, product ion scan modes
2. Ion Source	It should have a <b>EI and CI source with source lenses, RF lens and dual filaments in all ionization modes, programmable up to 350°C</b>
3. Software Features	It should have automated SRM/MRM development. It should have automated acquisition window adjustment based on retention time and compound based acquisition method setup.

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4. Quadrupole Assembly	The quadrupole should have heated, off-axis ion guide for noise reduction and solid, homogenous, non-coated quadrupole rods or heated gold quartz.
5. Detector	The detection system should be with off-axis dynode, discrete dynode electron multiplier and electrometer, linear range of $>10^{-7}$ (0-68uA)
6. Mass Analyzer	<u>The mass range should be from 10-1000u or better</u> <u>MS should have scan speed up to 6.000 u/sec or better and up to 300 SRM/s transition.</u> <u>System must be offered a single stage dual inlet turbomolecular pump</u> <u>System should have an adjustable electron energy from 10eV to 150eV or more with emission current up to 350uA and improved regulation at low current. Transfer line temperature should be up to 350°C</u>
7. Gas Chromatograph	MSMS system should be supplied with latest fully electronic pneumatic controlled gas chromatograph with below specification
7a. SSL Injector	Split/ Splitless modules should be available with temperature up to 400°C with <b>970 Kpa or better</b> digitally controlled carrier gas with gas saver and septum purge.
7a .PTV Injector	Temperature Range: air forced cooling to ambient +5 °C up to 450 °C Temperature programming of up to <b>3 ramps</b> at up to 870 °C/min. Split Ratio: up to <b>7500:1</b> Pressure Range: 0-1000 kPa (0-145 PSI) Total Flow Setting: – Control of split flow in 1 mL/min from 0 to 1250 mL/min – Purge flow from 0 to 50 mL/min
7b. Auto sampler & Headspace Sampler	Auto sampler should be capable having both liquid and headspace injection facility .Head space sampler should have at least five) vial incubation oven capacity or more
7c. Oven Temperature	The operating temperature range should be 5°C above ambient to 450°C
7d. Oven ramp/ plateau cool down	It should have number of ramps/ plateau: 9 or <b>more</b> and maximum heating rate should be 120°C/min or better
7e. GC Analytical Performance	The GC should have a retention time repeatability off <0.0008 min or better and the peak area repeatability should be <0.5% RSD or better
7f. FID Detector	Flame Ionization Detector module: high performance in terms of sensitivity and dynamic range featuring acquisition rate as high as 300 Hz; MDL < <b>1.5 pg C/s</b> or better; linear dynamic range = $>10^7$ ( $\pm 10\%$ ); capillary column compatible with 1/8" and 1/16" packed column; Flameout detection and automatic reignition; Max T = 450 °C;
8. Data System:	System should be offered with suitable PC and Printer. Data system should have software for controlling and acquiring all the MS and conventional detectors. It should have separate dedicated software for reporting for environmental and food safety domain as per international protocols. The latest version of the 2014 NIST software should be included.
9. Installation Specification	EI SRM: 1ul of 100fg/ul octafluoronaphthalene (OFN) should produce the following minimum S/N ratio for the transition from m/z 272 to m/z 222, <b>8000:1 using helium as carrier gas.</b>
10. Instrument detection limit	<b>0.5fg</b> or less OFN derived at the 99% confidence level from area precision of eight sequential injections of 1 ul, 10fg/ul OFN, acquired.
11. Columns	DB1-2Nos, DB5-5Nos or equivalent - <b>30 mtr X 0.25 <math>\mu</math> id</b> along with other required columns for our application like <b>DB-Wax 30mtr x 0.25 , 0.25 Microns DB-23 30mtr x 0.25 , 0.25 Microns &amp; DB-HP 88 100mtr x 0.25 , 0.2 Microns</b>
12. Spares	<ol style="list-style-type: none"> <li>1. Filament Cartridge – 04 nos</li> <li>2. Injection Port Septa – 200 nos</li> <li>3. 2 ml vials and caps(Screw type) for auto sampler – 200 nos</li> <li>4. Graphite Ferrules for Capillary columns of 0.25 and 0.32 mm id – 25 each</li> <li>5. Glass Liners for Split and Split less injections – 05 each.</li> <li>6. Auto sampler Syringe -5 nos</li> <li>7. 1 Vial of tuning Solution</li> </ol>

**Accessories :**

1. He, Ar, H2, N2, Zero Air Gas Cylinders with SS regulators with Gas purification Panel. ( 2Nos each) - **BOC gases or equivalent,**
2. Gas Manifolds, Mixer- **BOC gases or equivalent**
3. Grinder, Vortex Mixer - (**Indigenous**),
4. Tissue Homogeniser –Low volume and High Volume, (**Indigenous**),

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5. Vacuum Concentrator - Low volume and High Volume , (Indigenous),
6. Centrifuge Refrigerate cooling with 10000RPM along with 2, 15 and 50 ml rotor head - Imported
7. Centrifuge tubes (1000 each- PTFE material). - (Indigenous),
8. Top pan Balance (1500gm, 0.01gm Mettler, Sartorius , Precisa Make or Equivalent ) ,
9. Analytical Balance ( 35/120g or better , 0.01mg/0.1mg), - 2 NO's ( Imported)
10. Micropipettes with 1000 tips each (1ml, 5ml , 100microlitre, 200 microlitre)- 2 each,- Imported
11. **1.5 ton Air conditioner** five star rated with stabilizer should be provided.-2 Nos - (LG, Samsung, Hitachi or equivalent )
12. On line UPS for full system ( Minimum 20 KVA ) with 60 Minutes of Back up (Uniline, Jackson or equivalent )

**Other Terms & Conditions:**

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10. Manufacturer should provide SOP , I.Q & O.Q etc. as per System requirements.
11. **QuEChERS** for fruits and vegetable , pulses and food grains , milk and butter etc. should be provided 10 Boxes ( Contains Minimum 50 No's) along with Instruments .
12. **Imported Quality (NIST Certified) Standard Mixtures** of below mentioned **Pesticides** should be provided (1000 PPM Concentration) for Method Developments.

Sr.No.	Pesticide (Smallest Pack / Kit)
1	Aldrin
2	Dieldrin
3	Chloradane(cis & trans)
4	Chorothalonil
5	DDT
6	OPDDD
7	PPDDD
8	OPDDE
9	PPDDE
10	OPDDT
11	PPDDT
12	Dicofol
13	Endosulphan
14	Endosulphan alfa
15	Endosulphan bita
16	Endosulphan sulphate
17	Endrin
18	HCH (A&B)
19	Heptachlor
20	Lindane
21	4-bromo-2chlorophenol
22	Acephate
23	Chlorfenvinphos
24	Chlorpyriphos
25	Chlorpyriphos Methyl
26	Diazinon
27	Dichlorvos

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28	Dimethoate (including Omethoate)
29	Ethoin
30	Etrimphos
31	Fenitrothion
32	Iprobenphos
33	malathion
34	methamindaphos
35	monocrotophos
36	omethoate(refer to Dimethoate)
37	Oxydemeton-methyl
38	Parathion ethyl
39	Parathion-methyl
40	Phorate
41	phosalone
42	Phosphamidon
43	Profenophos
44	Quinalphos
45	Triazophas
46	Cyfluthrin
47	Cypermethrin
48	Deltamethrin
49	Ethofenprox
50	Fenvalerate & Esfenvalerate (sum of RR & SS isomers)
51	Fenvalerate & Esfenvalerate (sum of RS & SR isomers)
52	Lambda-cyhalothrin
53	Permethrin
54	Atrazine
55	Simazine
56	Metalaxyl
57	Carbaryl
58	Carbofuran
59	Carbosulfan
60	Endoxacarb
61	Methomyl
62	Thiodicarb(see methomyl)
63	Fenarimol
64	Bitertanol
65	Fulsilazole
66	Hexaconazole
67	Myclobutanil
68	Penconazole
69	Proplconazole
70	Tebuconazole
71	Triadimefon
72	Triadimenol
73	Difenconazole
74	Captafol
75	Captan
76	Iprodione
77	Carbendazim(including bebomyl)
78	Thiophenate-methyl
79	Acetamipride
80	Clothianidin
81	Imidacloprid
82	Thiacloprid
83	Thiamethoxam
84	Dimethomorph
85	Buprofezin
86	Spinosad (sum of sponosyn A+D)

*Dr. R. S.*

#### 4. Revised Specifications for UV – VIS Spectrophotometer

PC controlled True double beam UV-Visible Spectrophotometer with below mentioned specifications:-

1. For routine to research analysis, instrument should offer real innovations that provide enhanced usability and performance - without added complexity.
2. Double-beam geometry with variable spectral bandwidth for precision measurements.
3. **Source should be D2-Tungston/Xenon for instant measurements.**
4. **Detector:** Dual Silicon Photodiodes / PMT for Sample and Reference
5. **Monochromator:** Blazed holographic grating with 1200lines/mm, Czerny-Turner with 0.2 m focal length.
6. **Spectral Bandwidth(s): 0.5, 1, 2, 5, 20 nm**
7. **Scan Ordinate Modes:** =Absorbance, % Transmittance, % Reflectance
8. **Range : 190 to 1100 nm**
9. **Wavelength Accuracy :** +/- 0.1 nm at D2 peak @ 656.1 nm, +/- 0.3 nm for full range
10. **Wavelength Reproducibility :** +/- 0.1 nm
11. **Photometric Range : -4 to +4**
12. **Photometric Accuracy :** +/- 0.002A (0.5 Abs) and +/- 0.004A (.5 Abs)
13. **Photometric Reproducibility :** +/- 0.001 Abs @ 0.5 Abs
14. **Stray light :** < 1.0% ( 198 nm KCL ) , <0.02% (220 nm NaI) and <0.02% (340 nm NaNO<sub>2</sub> )
15. **Baseline Stability :** < 0.0003 Abs/h ( 700nm, after One hour warm up )
16. **Baseline Flatness :** +/- 0.0005 Abs ( After one hour warmup )
17. **Photometric Noise :** < 0.00005 Abs (at 700 nm, RMS )
18. **Maximum Scan Rate :** 3000 nm/min or better
19. **Maximum Slew Rate :** 8000 nm/min
20. Instrument should be control by computer software.
21. Branded PC with 4GB, 500 GB HDD, Flat Screen Monitor, Optical Mouse, pre-loaded Windows and LaserJet Printer should be quoted along with system.
22. Quartz Cell – 10mm & 50 mm with assembly– 6 Match Pairs each.
23. 3 KVA UPS with 60 minutes battery back up
24. Other accessories  
**50 mm Transmission/ Reflectance Sphere:** 50 mm Transmission/ Reflectance Sphere should be quoted for measuring the diffuse reflectance, total transmittance, diffuse transmittance, and performing color analysis.
25. Software : System compatible original Licensed Software should be provided with following capabilities :-
  - A. Software should measure Absorbance, Transmittance and Reflectance at the full or selected Wavelength with real-time spectral displays and live instrument and accessory status bar.
  - B. Software should have facility to export data to Clip board, CSV file, Excel file, BMP file, ASCII file, JCAMP file Zoom In / Out, Add / Edit Labels.
  - C. Software should have facility for fully integrated Scan, Kinetic, and Wavelength program data collection mode.

#### Other Terms & Conditions:

1. Manufacturer of Equipment & Accessories should be ISO 9001 / ISO 13485 certified.
2. Equipment and Accessories should be US FDA / European CE certified by Notified Body.
3. **Guarantee:** Three years on equipment, accessories and all peripherals / sub systems from the date of installation, which Includes 4 visits and unlimited breakdown calls by service/application support engineer during the Guarantee period.
4. Basic training for a period of not less than **two weeks** after installation of the equipment to technical personnel includes Operational & Trouble shooting training as and when required.
5. Manufacturer should provide an Training Instructor for initial 6 month (minimum) to train on duty staff and after 6 month as per demand of user department as an when required.
6. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.
7. **Firm should mention all the pre-installation requirements in technical bid.**
8. Technical Compliance statement should be submitted in Technical Bid Documents, along with every above mentioned point should be submitted with relevant literature, specification sheets and brochures. Any deviation from specifications should be clearly mentioned in compliance statement.
9. **Comprehensive Maintenance Service: The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years. CMC should be quoted in BOQ inclusive of Excise Duty & exclusive of VAT/CST etc.) plus service tax (as applicable) .**
10. Manufacturer should provide SOP , I.Q & O.Q etc. as per System requirements.
11. **1.5 ton Air conditioner** five star rated with stabilizer should be provided.-2 Nos - (LG, Samsung, Hitachi or equivalent )

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**5. Revised Specifications For Accelerated Solvent Extraction System (ASE)**

1. The extractor shall use a combination of solvent(s) under set temperature and pressure conditions to perform rapid and efficient extractions.
2. Extractor shall automatically sense extraction cell volumes and automatically adjust method control parameters, including temperature and solvent volume, to ensure constant results regardless of extraction cell volume.
3. Extractor shall be capable of oven temperature control of up to 200°C and cell pressure control at 1500 psi. Extractor must have controls to prevent operation at excessive temperatures and pressures.
4. The extractor must be able to be run unattended and be able to automatically shut down once the extraction sequence is completed.
5. Extractor must have minimum of 19-position sample carousel with minimum of two rinse positions for unattended operation.
6. Extractor shall have the ability to use 1mL, 5mL 10mL, 22mL, 34mL, 66mL and 100mL extraction cells interspersed on the sample carousel.
7. Extractor shall have built in fluid sensors that detect fluid levels during the extract collection.
8. Extractor shall have automatic shut-off in the event of pressure or temperature sensor failure.
9. Extractor shall have the ability to perform multiple sequential extractions per individual cells. Extracts can then be collected into the same or different collection vials or bottles.
10. Extractor shall have an integrated solvent controller permitting the use of up to three solvents. These solvents can be mixed and introduced to the extraction cell in selectable volume ratios.
11. Extractor shall allow extracts to be automatically filtered prior to collection in the vial or bottle.
14. Extractor shall be able to operate without fume-hood and solvent vapor is not expelled into the atmosphere. Extractor shall have a built in vapor sensor and the extractor will shut down if vapor levels are detected.
15. Extractor shall be able to monitor each sample for pressure and temperature. Every sample is monitored to ensure samples are extracted according to the users' method parameters.
16. The extractor shall be able to accommodate either 60mL or 250mL collection vials or bottles.
17. The extractor shall be capable of extracting acidified or basic samples with the use of a pH hardened pathway and pH resistant extraction cells.
18. Extractor shall have acid or basic resistant tubing in the solvent flow path. Optional corrosion resistant extraction cells and extraction cell components must be available.
19. The solvent pump should pump at least 70mL/minute.
20. Extractor shall be able to operate in a Solvent Saver™ mode, either flow or pressure control.
21. Extractor should have optional facility of PC control through the software. 5 KVA Online UPS, Nitrogen Cylinder with regulator, Gas purification Panel.

**Other Terms & Conditions:**

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2. Equipment and Accessories should be US FDA / European CE certified by Notified Body.
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4. Basic training for a period of not less than two weeks after installation of the equipment to technical personnel includes Operational & Trouble shooting training as and when required.
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10. Manufacturer should provide SOP , I.Q & O.Q etc. as per System requirements.

**6. Revised Specifications for Rocket Evaporation System**

Mechanical Data	
Maximum speed	1800 rpm
Maximum G-force	700 g
Drive system	Direct drive
Maximum Sample load	6 × 450 mL

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Maximum imbalance	50 g
<b>Vacuum System:</b>	
Pressure display	0–1200 mbar
Pressure control	Automatic, 3 mbar to atmosphere
System ultimate vacuum	3 mbar
<b>Temperature and Control</b>	
Control range	Ambient +5 °C to 60 °C
Control accuracy	±1 °C
Temperature sensing	Thermistor
Display range	0 °C to 60 °C
End of method	Time or automatic
Visualization	Built-in strobe (optional)
<b>Solvent Compatibility</b>	
Boiling point range	40 °C to 160 °C at ambient
Includes	Alcohols, DCM/methylene chloride, DMF, ethyl acetate, water, TFA
HCl	Not compatible
Diethyl ether	Only with Inert Gas Purge option
<b>Cold Trap Cooling Requirement</b>	
Temp. range	–20 °C to +10 °C dependent upon application
Heat removal	700 W at 10 °C (max)
Flow rate	1 to 2 L/min
Pressure	1 (min) to 7 bar (max) static
Connections	8 mm nylon hardwall tube (chiller) ¼ in. (6.5 mm) hose barb for cold water connection (standard)
<b>Recirculating Chiller</b>	
Recirculating chiller should be supplied with the Rocket evaporation system.	
<b>Specification</b>	
Cooling Power	500 W at 10 °C

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6. Installation will be done by supplier free of cost including all parts like wires, tubes, joints & attachments, small fixtures etc.
7. **Firm should mention all the pre-installation requirements in technical bid.**

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8. Technical Compliance statement should be submitted in Technical Bid Documents, along with every above mentioned point should be submitted with relevant literature, specification sheets and brochures. Any deviation from specifications should be clearly mentioned in compliance statement.
9. **Comprehensive Maintenance Service: The CMC may be awarded for five years (on yearly basis) after Guarantee period of three years. CMC should be quoted in BOQ inclusive of Excise Duty & exclusive of VAT/CST etc.) plus service tax (as applicable) .**
10. Manufacturer should provide SOP , I.Q & O.Q etc. as per System requirements.

In Reference to above cited subject and NIB-128, the last date for sale of bid, receipt of bid and date of opening of technical bid is hereby extended as below:-

Existing Date			Extended date		
Last Date for Sale of Bid Form	Last Date of Receipt of Bid Form	Date of Opening of Technical Bid	Last Date for Sale of Bid Form	Last Date of Receipt of Bid Form	Date of Opening of Technical Bid
11-01-2016 11:00 AM	11-01-2016 01:00 PM	11-01-2016 03:00 PM	21-01-2016 11:00 AM	21-01-2016 01:00 PM	21-01-2016 03:00 PM

**Note: Please note that all above amendments/corrigendum in technical specifications/bid conditions is the integral part of the bid document. This corrigendum/ addendum should be signed and annexed with bid document.**

**All other terms and conditions of bid shall remain the same.**

This bears the approval of M.D., RMSCL, Jaipur

**Executive Director (EPM)  
RMSCL, Jaipur**

