



CSIR-Indian Institute of Integrative Medicine (Formerly known as Regional Research Laboratory)

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EXPRESSION OF INTEREST

TITLE - Expression of Interest for procurement of 400MHz NMR based platform for detection of adulteration in Honey.

An Expression of Interest, on behalf of Director, CSIR-IIIM Jammu is invited through technical presentation for procurement of 400MHz NMR based platform for detection of adulteration in Honey.

Technical presentation shall take place through virtual mode (MS Team) on **02.03.2022 at 11:30 AM**

Link for the meeting is:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZGUwMTE2NTQtZjg1Mi00NmM4LWE5NzgtMjY5YzUyMGRjZGYw%40thread.v2/0?context=%7b%22Tid%22%3a%22b867f20e-8a9c-4603-b5ab-39c3840dfb64%22%2c%22Oid%22%3a%228ae1e23d-f97b-4b18-b44b-1738e4e4002c%22%7d

Broad specifications have been outlined in following pages considering the experimental needs of the Institute.

Interested firms may come up with their presentation on given date and time. The participants must restrict their presentation to 10-15 minutes.

Sd/-
Stores & Purchase Officer

SPECIFICATIONS FOR 400 MHZ NMR-BASED PLATFORM, FOR DETECTION OF ADULTERATION IN HONEY.

State of art, latest model of dedicated 400MHz NMR-based platform, for high performance Honey Screening, country of origin for authenticity purposes combined with dedicated modules for profiling of various Honey samples with following technical specifications:

S. No. Technical Specifications

01. **Magnet System** - Actively shielded superconducting 400MHz magnet system (operating field at 9.4 Tesla). Long helium hold time (> 270 days) and nitrogen hold time (>14 days); helium and nitrogen level meter with alarm function for low helium and nitrogen level, Vibration dampers and minimum disturbance from external movement. Magnetic field stability should be ≤ 5 Hz/hr or better.

Helium transfer line and Nitrogen refill set should be included.

02. **Shim system** (auto) / Lock Channel -High performance magnetic field optimization system. Smart magnet field control system with digital quadrature lock receiver.

03. **Radio Frequency Generation and Data Acquisition** - Two frequency channel configuration, Digital receiver control unit with high dynamic range. 2 channel Linear amplifiers for 1H and X-broadband, 2H transmitter for magnet field optimization.

04. **Temperature Control** - Smart temperature control system with pre-cooling unit with all accessories for precise temperature stability.

05. **Gradient Accessory** -For pulsed field gradient experiments and magnetic field optimization.

06. **NMR Sample Changer** - Sample changer with barcode reader, minimum 60 positions with spinners-

07. **NMR Probe** - 5mm ^1H optimized double resonance broad band probe designed for ^1H observation and ^1H observation with X nuclei decoupling. Automatic Tuning and Matching and Z-gradient coil should be included. Documental evidence should be provided for highest S/N ratio with a noise range of 1ppm.

08. **Software and Workstation** - NMR Host computer with Win10 or latest version compatible with the instrument. Instrument control software and automation software, NMR manuals library for users. Acquisition Software license validity should be for at least 10 years along with time-to-time updation of the software. NMR spectrometer along with all accessories should be IQ, OQ and PQ complaint for NABL accreditation.

09. **Workstation and barcode** – Sample track and barcode printer for 7-inch MR Tubes along with software to manage samples and associated data.
10. **Application module for profiling of Honey** - Module for sample preparation and NMR measurements of honey samples with the method for Profiling of Honey. System should be compatible with dedicated profiling modules and remote analyses of food matrices like juice, wine etc. It should include honey profiling standard operating procedure (SOP). Specialized training on acquisition, statistical models and report interpretation for efficient use of NMR based platform to detect adulteration.
11. **Remote data analysis for profiling of Honey** - Remote data analysis and profiling of NMR spectra of 5000 honey samples in five years. Remote Analysis of the data should be performed according to the latest version of the Honey-Profiling method.
12. During remote analyses, the instrument should be connected to a server having global honey database of at least 25000 samples. The remote analysis report from this server should detect adulteration and verify the geographical origin of the tested honey.
13. pH titration unit for automatic pH adjustment of honey samples for NMR applications - Automatic extremely precise pH adjustment of low volume aqueous/alcoholic samples. Unit contains pumps for acid/base/buffer and cleaning liquid, shaker and specially made electrode with integrated reagent supply for pH adjustment in a one-step process. Additional electrode for the pH unit.
14. Three years warranty and the date of warranty period for NMR instrument including pH unit, will start from the date of installation.
15. 5000 one-time use (5 mm) NMR sample tubes.
16. The OEM should have a good after sales service/technical support should be capable of reaching at a short notice at the required place. Visits and unlimited breakdown calls by service/application support, engineers should attend immediately (within 24 hours on-call) during the warranty period and after CMC period without fail.
17. The supplier should have experience of at least 05 installations and operating NMR in Govt. Organization in India and 5 NMR based Honey Profiler globally.
18. Initial supply of helium during installation.
19. Consumables: Consumables for 1000 honey sample analyses.
20. Consumables for analyses of 1000 honey samples every year for three years after installation.

