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OFFICE ORDER

The Central Instrumentation Facility has been established at ICAR-Indian Institute of Soil Science, Bhopal to undertake testing/analysis/detection of soil parameters in agricultural soils. A detailed list of instrument facilities available in the Central Laboratory is provided in Annexure - I and the list of parameters analysed in the laboratory is attached in Annexure-II. The laboratory offers soil testing, analysis, and detection services to farmers and other stakeholders.

(M. Mohanty)
Director

Encl: Annexure - I
Annexure -II

Annexure-I

List of equipments in central laboratory (>10 Lakh)

1. **Atomic Absorption Spectrophotometer:** Micronutrient and Heavy metal analysis
2. **ICP-OES:** Micronutrient and Heavy metal Analysis
3. **Microwave Digestion System:** Digestion of samples for analysis of micronutrient and heavy metals in soil, Plant and compost samples
4. **CHNS/O analyzer:** Determination of total C and Nitrogen in soil, Plant and compost samples
5. **FTIR:** Characterization of organic molecules
6. **Gas Chromatograph:** Green House Gas (GHG) measurement
7. **Flow Injection Analysis (FIA):**Flow Injection Analysis (FIA) for ammoniacal and nitrate nitrogen automates colorimetric detection.
8. **Infrared Gas Analyzer (IRGA):**For measurement of photosynthesis rate
9. **Chlorophyll Fluorometer:** for measurement of photosynthetic efficiency, and environmental stress on plants
10. **TOC Analyser:** For carbon estimation
11. **Kjeldahl apparatus:** For nitrogen estimation
12. **MIR Spectrometer :** For spectra signature generation of soil samples
13. **Spectro-radiometer :** For spectra signature generation of soil samples
14. **Pressure plate apparatus:** For soil moisture measurement
15. **Ball Mill:** For nano-particles analysis
16. **RT-PCR :** For genes quantification
17. **CO₂ Analyser :** In-situ CO₂ evolution measurement

List of parameters analysed in laboratory

Soil Physico-Chemical Properties	• pH & Electrical Conductivity (EC) • Organic carbon • Available N • Available P • Available K • Available S • Available Micronutrients (Zn, Cu, Fe, Mn)
Soil Physical Properties	• Soil texture • Bulk density • Moisture/ Water content/ WHC • Soil aggregate (macro-micro-and water stable) • Mean weight diameter • Plasticity index
Soil Microbial Properties	• Heterotroph • N fixer • P solubilizer • Fungi • Actinomycetes • DHA • FDA activity