

ICAR-National Research Centre on Meat, Hyderabad

List of Equipments which may be spared on cost basis

Sl No	Name of Equipment	Make and Model	Application	Working Principle	Charges for Use
1	Droplet digital (dd-PCR) PCR machine including droplet generator, plate sealer, thermocycler and droplet reader	Bio-Rad, QX 200	Amplification of DNA in rare events detection or mutation studies and when the copy number of DNA is suboptimal for analogue PCR.	In dd-PCR, sample is separated into a large number of partitions and the reaction is carried out in each partition individually. This separation allows a more reliable collection and sensitive measurement of nucleic acid amounts, compared to analogue PCR.	Rs. 5,000/- per 96 well plate reaction (without consumables)
2	Automated electrophoresis unit	QIAGEN, QIAxcel Advanced	DNA/RNA quality control study, detection of base pair size and concentration. It can also be used to detect the RIN (RNA integrity number) score for large and small RNA studies for any downstream applications.	Automated electrophoresis unit work on the principle of capillary electrophoresis and size, quality and concentrations of nucleic acids were measure in comparison with some markers.	Cost for equipment sparing with sparing of cartridge (either DNA or RNA) and necessary chemicals/reagents, including markers: Minimum 12 samples required for analysis and Rs. 300/- per sample to be analysed.
3	Low cost and density (LCD) meat macro array system with chip scanner and Chipron software	Chipron	Species detection of 32 different species of food animals in a single DNA macro array	Chipron technology works on the principle of universal amplification of suspect DNA and further hybridization of the specific PCR product using highly species specific probes coated on	8 samples/one chip: Rs. 1000/- per Chip (without consumables)

			chip.	a DNA macro array chip.	
4	Real time PCR machine	Bio-Rad, CFX 96	Real time PCR for quantification of DNA or RNA in samples.	Real time PCR monitors the amplification of a targeted DNA molecule during the PCR, i.e. in real-time, and not at its end, as in conventional PCR. Real-time PCR can be used quantitatively to detect the concentration of nucleic acid based on Ct values.	Rs. 2000/- per 96 well plate reaction/assay (without consumables)
5	End point PCR	Bio-Rad C1000 touch and PeqLab version PEQSTAR 2X Gradient	Amplification of DNA, standardization of PCR conditions, cDNA synthesis.	A thermocycler is used to amplify a segment of DNA, called target DNA, using a set of complimentary primers and a polymerising enzyme.	Rs. 1000/-per 96 well plate reaction/assay (without consumables)
6	High-speed refrigerated centrifuge	Thermo scientific, RC 6+	Centrifugation under refrigerated temperature	Centrifugation under refrigerated temperature	Rs. 1000/- per hour (without consumables)
7	Ultrasonicator	Branson	Bacterial/other cells disintegration	Sonication is the act of applying sound energy to agitate particles in a sample, for various purposes. Ultrasonic frequencies (>20 kHz) are usually used, since it is called as ultra-sonication	Rs. 500/- per hour.
8	Electrophoresis assembly with gel documentation facility	Bio-Rad and Alpha Innotech	Visualization of DNA/RNA in gels.	The agarose gel act as a molecular sieve and DNA molecule has a net negative charge and hence it migrates towards positive electrode in buffer solution. The DNA molecule gets resolved in the gel depending upon its molecular weight (size/length in base pairs).	Rs. 500/-per assay (without consumables)
9	Nano drop spectrophotometer	Shimadzu	Measurement of quality, purity and concentration of	The NanoDrop functions by combining fiber optic technology and natural surface tension properties to capture and retain	Rs. 200/- per hour

			extracted RNA/DNA and proteins.	minute amounts of sample compared to cuvettes or capillaries. Furthermore, the system employs shorter path lengths, which result in a broad range of nucleic acid concentration measurements.	
10	OFFGEL Fractionator	3100 OFFGEL Fractionator, Agilent Technologies	Used for separation of purified proteins based on their iso-electric point	Separates purified proteins into 24 fractions in liquid form on a 24 cm immobilised pH Gradient (IPG) strip based on their iso-electric point (pH range 4-7 or 3-10)	Rs. 8,000/- per sample
11	Two-Dimensional Electrophoresis Unit with Gel Scanner & Analyzer	SE-600 Ruby; GE Healthcare	Used for separation of purified proteins based on their iso-electric point and molecular mass.	Protein separation using two dimensions. In the Ist dimension the proteins will be separated on a IPG strip based on their iso-electric point and in the IInd dimension protein will be separated based on their molecular weight using SDS-PAGE. Here proteins are separated on a gel.	Rs. 10,000/- per sample
12	Gel Filtration Chromatography Unit	BioLogic LP, BIORAD	Used for Fractionation of proteins	Globular proteins are separated based on their size (size exclusion). Here selected resins act as stationary phase and buffers act as mobile phase.	Rs. 5,000/- per sample
13	High performance liquid chromatogram (HPLC) and Gas chromatogram (GC)	Shimadzu	Analysis of pesticide residues in meat samples	High performance liquid chromatography (HPLC) is basically a highly improved form of column liquid chromatography. Instead of a solvent being allowed to drip through a column under gravity, it is forced	Rs. 1500/- per sample without consumables

				through under high pressures of up to 400 atmospheres. That makes it much faster. All chromatographic separations, including HPLC operate under the same basic principle; separation of a sample into its constituent parts because of the difference in the relative affinities of different molecules for the mobile phase and the stationary phase used in the separation.	
14	Texurometer	Tinius-Olsen	Texture profile of food products		Rs. 1000/ sample
15	Calorimeter	LC-GC	Colour properties of food products		Rs. 500/ sample
16	Atomic Absorption Spectrometer	PerkinElmer Pinnacle 900F	Trace minerals		Rs 5000/- per sample excluding consumables